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RECORD OF AMENDMENTS

The table below is to record Section IV Notice to Mariners amendments affecting this volume.
Sub paragraph numbers in the margin of the body of the book are to assist the user with corrections to this volume from these amendments.

Weekly Notices to Mariners (Section IV)

2006	2007	2008	2009

IMPORTANT – SEE RELATED ADMIRALTY PUBLICATIONS

This is one of a series of publications produced by the United Kingdom Hydrographic Office which should be consulted by users of Admiralty Charts. The full list of such publications is as follows:

Notices to Mariners (Annual, permanent, temporary and preliminary), Chart 5011 (Symbols and abbreviations), The Mariner's Handbook (especially Chapters 1 and 2 for important information on the use of UKHO products, their accuracy and limitations), Sailing Directions (Pilots), List of Lights and Fog Signals, List of Radio Signals, Tide Tables and their digital equivalents.

All charts and publications should be kept up to date with the latest amendments.

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NP 71

WEST INDIES PILOT VOLUME II

Mona Passage
Puerto Rico and the Virgin Islands
Leeward and Windward Islands from Anguilla to Grenada

FIFTEENTH EDITION
2005

PUBLISHED BY THE UNITED KINGDOM HYDROGRAPHIC OFFICE

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PREFACE

The Fifteenth Edition of *the WestIndies Pilot Volume II* has been compiled by Captain William H. Walker, Master Mariner and Captain J Attwater, Master Mariner. The United Kingdom Hydrographic Office has used all reasonable endeavours to ensure that this Pilot contains all the appropriate information obtained by and assessed by it at the date shown below. Information received or assessed after that date will be included in *Admiralty Notices to Mariners* where appropriate. If in doubt, see *The Mariner's Handbook* for details of what *Admiralty Notices to Mariners* are and how to use them.

This edition supersedes the Fourteenth Edition (2002), which is cancelled.

Information on climate and currents has been based on data supplied by the Met Office, Exeter.

The following sources of information, other than UKHO Publications and Ministry of Defence papers, have been consulted:

French publication

Instructions Nautiques Antilles Orientales, Amerique du Sud (1999).

United States publications

Sailing Directions (Enroute) Caribbean Sea Volume I, Pub 147, Eighth Edition (2004)
United States Coast Pilot 5, Atlantic Coast: Gulf of Mexico, Puerto Rico, and Virgin Islands, Thirty–third Edition (2005).
United States Charts of Puerto Rico and the US Virgin Islands.

Other publications

Fairplay Ports Guide (2005–6).
Lloyds Ports of the World (2005).
Cruising Guide to the Virgin Islands(2002) (Scott).
Cruising Guide to the Leeward Islands (1998–99) (Doyle).
Sailors Guide to the Windward Islands 9th Edition (2004),(Doyle).
Virgin Anchorages (1995).
The Statesman's Year Book (2005).
Whitaker's Almanac (2005)
Physical Geology, Plummer and McGeary 6th Edition, (1993).

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PREFACE
to the Twelfth Edition (1990)

The Twelfth Edition of the *West Indies Pilot Volume II* has been compiled by Commander R. A. Fisher OBE RN, and contains the latest information received in the Hydrographic Office to the date given below.

This edition supersedes the Eleventh Edition (1969) and Supplement No 11 (1989) which are cancelled.

Information on currents has been revised by the Meteorological Office, Bracknell.

The following sources of information, other than Hydrographic Office Publications and Ministry of Defence papers, have been consulted:

Dominican Republic publication
Sailing Directions for Isla de Santo Domingo (1976)

French publication
Instructions Nautiques Antilles, Îles Bermudes, Floride (Côtes sud-est et sud) (1985) with corrections to 10 July 1989.

Netherlands publication
Zeemansgids en Lichten lijst van Suriname en De Ned. Antillen (1968) with corrrections to August 1982.

United States publications
Sailing Directions (Enroute) Caribbean Sea Volume I, Pub 147, Second Edition (1988) with corrections to October 1989.
United States Coast Pilot 5, Atlantic Coast: Gulf of Mexico, Puerto Rico, and Virgin Islands, Twenty-first Edition (1989).
World Port Index, Pub 150, Tenth Edition (1986).

Other publications
Caribbean Ports Handbook (1989–90 Edition) (The Caribbean Shipping Association).
Fairplay World Ports Directory 1988.
Guide to Port Entry (1987–88).
Lloyds Maritime Guide (1986).
Lloyds Ports of the World (1988).
Lloyds Shipping Information Services.
South American Handbook, Sixty Fifth Edition (1989) (Trade and Travel Publications Ltd).
The West Indies and Caribbean Year Book (1976–77) (Caribook Ltd).
The Statesman's Year Book (1988–89).
Whitaker's Almanac (1988).

J.A.L. MYRES
Rear Admiral
Hydrographer of the Navy

Hydrographic Office
Ministry of Defence
Taunton
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England
24th March 1990

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EXPLANATORY NOTES

Admiralty Sailing Directions are intended for use by vessels of 150 gt or more. They amplify charted detail and contain information needed for safe navigation which is not available from Admiralty charts, or other hydrographic publications. They are intended to be read in conjunction with the charts quoted in the text.

This volume of the Sailing Directions will be kept up-to-date by the issue of a new edition at intervals of approximately 3 years, without the use of supplements. In addition important amendments which cannot await the new edition are published in Section IV of the weekly editions of *Admiralty Notices to Mariners*. A list of such amendments and notices in force is published quarterly. Those still in force at the end of the year are reprinted in the *Annual Summary of Admiralty Notices to Mariners*.

This volume should not be used without reference to Section IV of the weekly editions of Admiralty Notices to Mariners.

CD–ROM

Status. A compact disc is provided at the back of this volume. The paper publication of Sailing Directions satisfies the requirements of Chapter V of the International Convention for the Safety of Life at Sea. The CD version does not satisfy these requirements and should only be used in conjunction with the paper publication and any amendments affecting the paper publication. Where any discrepancy exists between data on the CD and in the paper publication of Sailing Directions, the paper publication (inclusive of amendments) is to be relied upon.

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References to hydrographic and other publications

The Mariner's Handbook gives general information affecting navigation and is complementary to this volume.

Ocean Passages for the World and *Routeing Charts* contain ocean routeing information and should be consulted for other than coastal passages.

Admiralty List of Lights should be consulted for details of lights, lanbys and fog signals, as these are not fully described in this volume.

Admiralty List of Radio Signals should be consulted for information relating to coast and port radio stations, radio details of pilotage services, radar beacons and radio direction finding stations, meteorological services, radio aids to navigation, Global Maritime Distress and Safety System (GMDSS) and Differential Global Positioning System (DGPS) stations, as these are only briefly referred to in this volume.

Admiralty Maritime Communications is a comprehensive guide on all aspects of maritime communications for the yachtsman and small craft user. It provides general information on Global Maritime Distress and Safety System (GMDSS), the management of VHF, Maritime Safety Information, NAVTEX, Inmarsat and Radio Facsimile, and detailed information and procedures for marinas and harbours used by small craft.

Annual Summary of Admiralty Notices to Mariners contains in addition to the temporary and preliminary notices, and amendments and notices affecting Sailing Directions, a number of notices giving information of a permanent nature covering radio messages and navigational warnings, distress and rescue at sea and exercise areas.

The International Code of Signals should be consulted for details of distress and life-saving signals, international ice-breaker signals as well as international flag signals.

Remarks on subject matter

Buoys are generally described in detail only when they have special navigational significance, or where the scale of the chart is too small to show all the details clearly.

Chart index diagrams in this volume show only those Admiralty charts of a suitable scale to give good coverage of the area. Mariners should consult NP 131 *Catalogue of Admiralty Charts and Publications* for details of larger scale charts.

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Chart references in the text normally refer to the largest scale Admiralty chart but occasionally a smaller scale chart may be quoted where its use is more appropriate.

Firing, practice and exercise areas. Submarine exercise areas are mentioned in Sailing Directions. Other firing, practice and exercise areas maybe mentioned with limited details. Signals and buoys used in connection with these areas maybe mentioned if significant for navigation. Attention is invited to the Annual Notice to Mariners on this subject.

Names have been taken from the most authoritative source. When an obsolete name still appears on the chart, it is given in brackets following the proper name at the principal description of the feature in the text and where the name is first mentioned.

Tidal information relating the daily vertical movements of the water is not given; for this *Admiralty Tide Tables* should be consulted. Changes in water level of an abnormal nature are mentioned.

Time difference used in the text when applied to the time of High Water found from the *Admiralty Tide Tables*, gives the time of the event being described in the Standard Time kept in the area of that event. Due allowance must be made for any seasonal daylight saving time which may be kept.

Wreck information is included where drying or below-water wrecks are relatively permanent features having significance for navigation or anchoring.

Units and terminology used in this volume

Latitude and Longitude given in brackets are approximate and are taken from the chart quoted.

Bearings and directions are referred to the true compass and when given in degrees are reckoned clockwise from 000° (North) to 359°
Bearings used for positioning are given from the reference object.
Bearings of objects, alignments and light sectors are given as seen from the vessel.
Courses always refer to the course to be made good over the ground.

Winds are described by the direction from which they blow.

Tidal streams and currents are described by the direction towards which they flow.

Distances are expressed in sea miles of 60 to a degree of latitude and sub-divided into cables of one tenth of a sea mile.

Depths are given below chart datum, except where otherwise stated.

Heights of objects refer to the height of the object above the ground and are invariably expressed as "... m in height".

Elevations, as distinct from heights, are given above Mean High Water Springs or Mean Higher High Water whichever is quoted in *Admiralty Tide Tables*, and expressed as, "an elevation of ... m". However the elevation of natural features such as hills may alternatively be expressed as "... m high" since in this case there can be no confusion between elevation and height.

Metric units are used for all measurements of depths, heights and short distances, but where feet/fathoms charts are referred to, these latter units are given in brackets after the metric values for depths and heights shown on the chart.

Time is expressed in the four-figure notation beginning at midnight and is given in local time unless otherwise stated. Details of local time kept will be found in *Admiralty List of Radio Signals Volume 2*.

Bands is the word used to indicate horizontal marking.

Stripes is the word used to indicate markings which are vertical, unless stated to be diagonal.

Conspicuous objects are natural and artificial marks which are outstanding, easily identifiable and clearly visible to the mariner over a large area of sea in varying conditions of light. If the scale is large enough they will normally be shown on the chart in bold capitals and may be marked "conspic".

Prominent objects are those which are easily identifiable, but do not justify being classified as conspicuous.

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ABBREVIATIONS

The following abbreviations are used in the text:

AIS	Automatic Indentification System
ALC	Articulated loading column
ALP	Articulated loading platform
AMVER	Automated Mutual Assistance Vessel Rescue System
°C	degrees Celsius
CALM	Catenary anchor leg mooring
CBM	Conventional buoy mooring
CDC	Certain Dangerous Cargo
CVTS	Co–operative Vessel Traffic System
DF	direction finding
DG	degaussing
DGPS	Differential Global Positioning System
DW	Deep Water
DSC	Digital Selective Calling
dwt	deadweight tonnage
DZ	danger zone
E	east (easterly, eastward, eastern, easternmost)
EEZ	exclusive economic zone
ELSBM	Exposed location single buoy mooring
ENE	east-north-east
EPIRB	Emergency Position Indicating Radio Beacon
ESE	east-south-east
ETA	estimated time of arrival
ETD	estimated time of departure
EU	European Union
feu	forty foot equivalent unit
fm	fathom(s)
FPSO	Floating production storage and offloading vessel
FPU	Floating production unit
FSO	Floating storage and offloading vessel
ft	foot (feet)
g/cm^3	gram per cubic centimetre
GMDSS	Global Maritime Distress and Safety System
GPS	Global Positioning System
GRP	glass reinforced plastic
grt	gross register tonnage
gt	gross tonnage
HAT	Highest Astronomical Tide
HF	high frequency
HMS	Her (His) Majesty's Ship
hp	horse power
hPa	hectopascal
HSC	High Speed Craft
HW	High Water
IALA	International Association of Lighthouse Authorities
IHO	International Hydrographic Organization
IMO	International Maritime Organization
ITCZ	Intertropical Convergence Zone
JRCC	Joint Rescue Co–ordination Centre
kHz	kilohertz
km	kilometre(s)
kn	knot(s)
kW	kilowatt(s)
Lanby	Large automatic navigation buoy
LASH	Lighter Aboard Ship
LAT	Lowest Astronomical Tide
LF	low frequency
LHG	Liquefied Hazardous Gas
LMT	Local Mean Time
LNG	Liquefied Natural Gas
LOA	Length overall
LPG	Liquefied Petroleum Gas
LW	Low Water
m	metre(s)
mb	millibar(s)
MCTS	Marine Communications and Traffic Services Centres
MF	medium frequency
MHz	megahertz
MHHW	Mean Higher High Water
MHLW	Mean Higher Low Water
MHW	Mean High Water
MHWN	Mean High Water Neaps
MHWS	Mean High Water Springs
MLHW	Mean Lower High Water
MLLW	Mean Lower Low Water
MLW	Mean Low Water
MLWN	Mean Low Water Neaps
MLWS	Mean Low Water Springs
mm	millimetre(s)
MMSI	Maritime Mobile Service Identity
MRCC	Maritime Rescue Co-ordination Centre
MRSC	Maritime Rescue Sub-Centre
MSI	Marine Safety Information
MSL	Mean Sea Level
MV	Motor Vessel
MW	megawatt(s)
MY	Motor Yacht
N	north (northerly, northward, northern, northernmost)
NATO	North Atlantic Treaty Organization
Navtex	Navigational Telex System
NE	north-east
NNE	north-north-east
NNW	north-north-west
No	number
nrt	nett register tonnage
NW	north-west
ODAS	Ocean Data Acquisition System
PEL	Port Entry Light
PLEM	Pipe line end manifold
POL	Petrol, Oil & Lubricants
PSSA	Particularly Sensitive Sea Areas
RCC	Rescue Co–ordination Centre
RMS	Royal Mail Ship
RN	Royal Navy
Ro-Ro	Roll–on, Roll-off
RT	radio telephony

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S	south (southerly, southward, southern, southernmost)
SALM	Single anchor leg mooring system
SALS	Single anchored leg storage system
SAR	Search and Rescue
Satnav	Satellite navigation
SBM	Single buoy mooring
SE	south-east
SPM	Single point mooring
sq	square
SS	Steamship
SSE	south-south-east
SSW	south-south-west
SW	south-west
teu	twenty foot equivalent unit
TSS	Traffic Separation Scheme
UHF	ultra high frequency
UKHO	United Kingdom Hydrographic Office
ULCC	Ultra Large Crude Carrier
UN	United Nations
UT	Universal Time
UTC	Co-ordinated Universal Time
VDR	Voyage Data Recorder
VHF	very high frequency
VLCC	Very Large Crude Carrier
VMRS	Vessel Movement Reporting System
VTC	Vessel Traffic Centre
VTMS	Vessel Traffic Management System
VTS	Vessel Traffic Services
W	west (westerly, westward, western, westernmost)
WGS	World Geodetic System
WMO	World Meteorological Organization
WNW	west-north-west
WSW	west-south-west
WT	radio (wireless) telegraphy

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GLOSSARY

D = Dutch F = French S = Spanish

Foriegn word	*Language*	*English meaning*
abra	S	bay, cove, creek, haven, opening
albufera	S	lagoon, pond
altos	S	heights
amarillo, -a	S	yellow
ancladero	S	anchorage
anclaje	S	anchorage, anchoring
ancón	S	open bay, roadstead, cove
anse	F	bay, creek
arena	S	sand
arrecife	S	reef
arroyo	S	small stream (river)
azul	S	blue
baai	D	bay
bahía	S	bay
baie	F	bay
bajo	S	shoal
balise	F	beacon
baliza	S	beacon
banc	F	bank
banc de sable	F	sandbank
banco	S	bank
bank	D	bank, shoal
barra	S	bar (of a river)
barre	F	bar
basse	F	shoal
berg	D	mountain
blanc, -he	F	white
blanco, -a	S	white
bleu, -e	F	blue
boca	S	mouth, entrance
bocht	D	bay, bight
boquerón	S	wide mouth, wide opening
bouche	F	mouth of a river or bay
cabeza	S	shoal head
cabezo	S	summit of a hill, hillock, reef
cabo	S	cape
caillo	F	stones, pebbles
cala	S	bight, cove
cale	F	ramp, slip
caleta	S	cove
canal	F, S	channel
caño	S	creek, channel, tidal river
canto	S	bluff, cliff
cap	F	cape, headland
castillo	S	castle
cayo	S	cay
cerro	S	hill
chenal	F	channel
cienaga	S	marsh
ciudad	S	city
colorado, -a	S	reddish
colina	S	hill
colline	F	hill
cordillera	S	mountain chain, range
costa	S	coast
côte	F	coast, side
crique	F	creek, cove
cueva	S	cave
cumbre	S	summit
darse	F	basin
darsena	S	basin
desembarcadero	S	landing
dique	F, S	mole, dock, jetty, embankment
duc d'albe	F	dolphin
dukdalf	D	dolphin
duque de alba	S	dolphin
eiland	D	island, islet
embarcadero	S	landing
embocadura	S	river mouth
ensenada	S	bay
escollera	S	breakwater
escollo	S	shelf, reef, rock
est	F	east
este	S	east
estero	S	creek, inlet, estuary
estrecho	S	straits, narrows
estuario	S	estuary
exterior	S	outer
falaise	F	cliff
farallón	S	rocky islet
faro	S	lighthouse
fleuve	F	river
gat	D	channel
geul	D	channel
golfbreker	D	breakwater, mole
golfe	F	gulf
golfo	S	gulf
gran, grande	S	great
grand, -e	F	great
gris	S	grey
groen	D	green
groot	D	great
grupo	S	group (of islands)
guijarros	S	stones, pebbles
haut-fond	F	shoal
haven	D	harbour, port
havre	F	harbour
helling	D	slip, ramp, hard
heuvel	D	hill
hoofd	D	head, headland
iglesia	S	church
interior	S	inner
île	F	island
îlot	F	islet
isla	S	island
isleta	S	islet
istmo	S	isthmus
jaune	F	yellow
kaap	D	cape
kade	D	quay, wharf
kreek	D	creek
lac	F	lake
lago	S	lake
laguna	S	lagoon
laja	S	flat rock
largo, -a	S	long
mar	S	sea
medio	S	middle
meerpaal	D	dolphin, mooring post
mont	F	mountain
monte	S	mountain
moreno, -a	S	brown
morne	F	hill

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Foriegn word	*Language*	*English meaning*
morro	S	headland, bluff, head of breakwater
mouillage	F	anchorage
muelle	S	pier, quay, wharf, mole
nauw	D	narrows, straits
negro, -a	S	black
nieuw	D	new
noire	F	black
noord	D	north
nord	F	north
norte	S	north
nuevo, -a	S	new
oeste	S	west
ondiep; ondiepte	D	shoal
oost	D	east
ouest	F	west
pantano	S	marsh
pardo, -a	S	brown, dark grey
pasaje	S	passage
paso	S	pass
passe	F	channel, pass
peña	S	rock
phare	F	lighthouse
pico	S	peak
piedra	S	stone, rock
playa	S	beach
presqu'île	F	peninsula
pueblo	S	town
puerto	S	port, harbour
punt	D	point
punta	S	point, headland
rada	S	roadstead
rade	F	roadstead
rak	D	channel, straits
reede	D	roadstead
récif	F	reef
rif	D	reef
rincón	S	inside corner (of bay)
río	S	river
rivier	D	river
rivière	F	river
roca	S	rock
roche	F	rock
rocher	F	rock (generally above water)
rojo, -a	S	red
rood	D	red
rots	D	rock
rouge	F	red
sable	F	sand
seno	S	gulf, sound
sierra	S	mountain range
sonda	S	sound
stad	D	town
steiger	D	pier
sud	F	south
sud, sur	S	south
surgidero	S	anchorage
tête	F	head
tierra	S	land
varadero	S	slip
verde	S	green
vert, -e	F	green
villa	S	town
ville	F	town
witte	D	white
zuid	D	south
zwart	D	black

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NOTES

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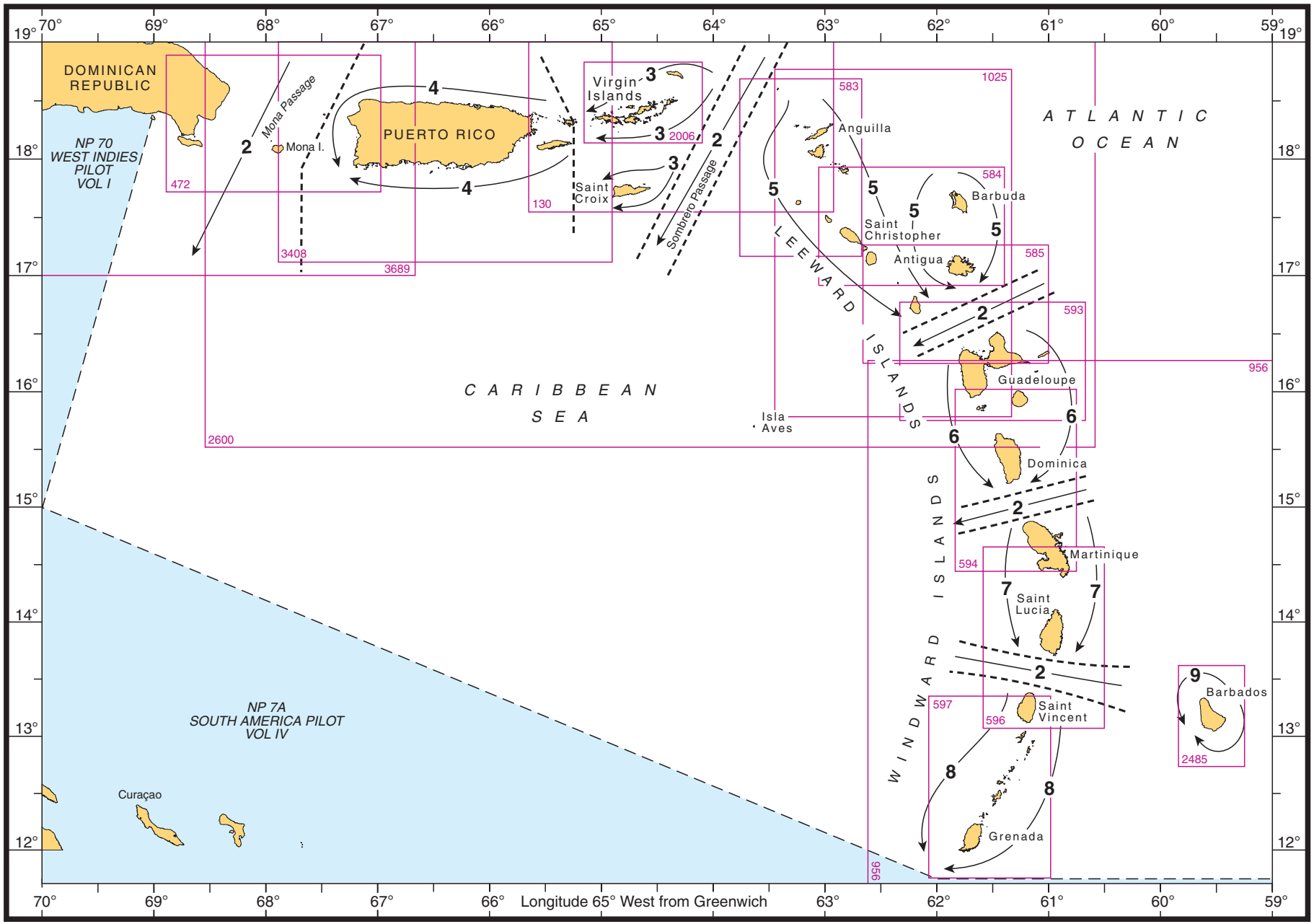
Chapter Index Diagram



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LAWS AND REGULATIONS APPERTAINING TO NAVIGATION

While, in the interests of the safety of shipping, the United Kingdom Hydrographic Office makes every endeavour to include in its hydrographic publications details of the laws and regulations of all countries appertaining to navigation, it must be clearly understood:–

(a) that no liability whatsoever can be accepted for failure to publish details of any particular law or regulation, and

(b) that publication of details of a law or regulation is solely for the safety and convenience of shipping and implies no recognition of the international validity of the law or regulation.

WEST INDIES PILOT VOLUME II

CHAPTER 1

NAVIGATION AND REGULATIONS
COUNTRIES AND PORTS
NATURAL CONDITIONS

NAVIGATION AND REGULATIONS

LIMITS OF THE BOOK

Chart 4012

1.1

1 **Area covered.** This volume contains Sailing Directions for the Caribbean Sea and its approaches from the Atlantic Ocean, within the limits defined below:

	Lat N	*Long W*
From Rıó Maimón entrance (Dominican Republic)	18°51′	68°37′
NE to position	36°00′	50°00′
Thence E to position	36°00′	40°00′
Thence S to position	11°45′	40°00′
Thence W to a position SW of Grenada	11°45′	62°00′
Thence WNW to position	15°00′	70°00′
Thence NNE to Boca de Chavón entrance	18°24′	68°53′
Thence NNE to a mountain peak (2000 ft)	18°44′	68°40′
Thence N to Rıó Maimón entrance	18°51′	68°37′

NAVIGATIONAL DANGERS AND HAZARDS

Strong winds

Chart 4402

1.2

1 Although weather conditions in the Caribbean Sea are generally good, the entire area covered by this volume lies within the path of hurricanes, as given at 1.235. A description of hurricane conditions and recommendations regarding their avoidance is given in *The Mariner's Handbook.*

2 Details of those ports and anchorages containing Hurricane Havens are given under the ports and anchorages concerned and a caution regarding navigation aids is given at 1.28.

Coastal conditions

Uncharted shoals

1.3

1 Many of the charts of the area covered by this volume are based on surveys carried out in the nineteenth century (1.19). Numerous reports and some recent surveys (1974) indicate that shoal patches, of small extent but with considerably less water than charted, may be encountered on the banks. Mariners are advised to exercise caution; deep draught vessels, particularly those with a draught of more than 12 m (40 ft), should keep outside the 200 m (100 fm) depth contour where possible.

Volcanic activity and earthquakes

1.4

1 Because of the subduction of the Atlantic Ocean seabed beneath the Caribbean Plate the island arc of the Windward and Leeward islands has been created by andesitic volcanic eruption and continues to be an area of constant volcanic activity. The Benioff zone, named after the man who formulated the theory, lies beneath the island arc sloping into the lithosphere from the Puerto Rico Trench. The subducted plate is in constant motion and is the cause of much earthquake activity. These earthquakes, with comparatively shallow focus, are probably the result of

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tension, underthrusting and compression of the Atlantic Plate as it descends.

Navigation among coral

1.5

1 Many coral reefs border the waterways, bays, anchorages and harbours within the area covered by this volume and the attention of mariners is drawn to the advice given on navigation in coral in *The Mariner's Handbook.*

Rollers

1.6

1 Rollers, swell waves which constitute a hazard in the shallow waters around the island chain N of Guadeloupe (16°20′N 61°30′W), are described in *The Mariner's Handbook* and mentioned in the text, under each of the place names affected. See also 1.222.

Strong currents

1.7

1 Strong currents can be expected in the entrances and channels leading to the Caribbean Sea. See 1.209 and 2.5.

TRAFFIC AND OPERATIONS

Traffic

Chart 4402

Shipping

1.8

1 Cruise ships visit the major ports and many of the islands throughout the area and some heavy commercial traffic is to be found around Puerto Rico (18°00′N 66°30′W) (4.1) and Saint Croix (17°45′N 64°45′W) (3.22). However, there are no specific areas in which unexpected concentrations of shipping are to be found.

Pleasure craft

1.9

1 The Lesser Antilles (1.69), situated around the E end of the Caribbean Sea, provide a very popular cruising base for pleasure craft which abound throughout the area covered by this volume. The Virgin Islands (18°30′N 64°40′W) (3.5) boasts the largest small craft charter fleet in the world.

Marinas have been established on many of the islands.

Fishing

1.10

1 The coastal waters around most of the islands within the area covered by this volume are heavily fished by local craft (small boats with outboard motors), which are slowly being replaced by larger, faster local boats. There is no large fishing industry in the waters of the United States Virgin Island Territories and Puerto Rico. The industry is heavily regulated regarding both usable gear and seasonal limitations. It is an offence to damage coral beds and possession of any such coral is an offence. The United States Coast Pilot Volume 5 gives details of these regulations.

Deep–sea fishing is an increasingly popular sport in these areas where blue and white marlin, sailfish, wahoo and tarpon provide a challenge to the angler.

Exercise areas

1.11

1 Military exercise and firing areas are established in the waters around Puerto Rico, as given at 4.5 (see also Appendix VI — United States — Danger Zones and Restricted Area Regulations), and to the W of Saint Croix, as given at 3.398.

2 Notices of exercises and firing practices, giving the limits of the area, nature and duration of the exercise, and specified navigation rules, are promulgated by local *Notices to Mariners* and radio navigation warnings as given at 1.42. For signals used by warships, submarines and aircraft, see 1.56.

3 The United States is increasingly using helicopters for minesweeping operations and exercises, including towing sweeping equipment. When so engaged they are, like surface vessels, hampered in their ability to manoeuvre and vessels shall keep clear of them. See *Annual Summary of Admiralty Notices to Mariners and* 1.56.

Marine exploitation

Oilfield

1.12

1 Oil rigs may be encountered on the Saba Bank (17°30′N 63°30′W). See 5.193.

PIRACY AND ARMED ROBBERY

General information

1.13

1 The United Kingdom Maritime and Coastguard Agency (MCA) has brought to the attention of shipowners, masters and crews, the risk of acts of piracy on the high seas or armed robbery against ships at anchor or when underway through a State's coastal territorial waters. It has outlined the steps that should be taken to reduce the risk of such attacks, possible responses to them and the need to report attacks, both successful and unsuccessful, to the authorities of the relevant coastal State and to the ship's own maritime administration.

2 Many attacks involve the use of knives or firearms resulting, in some cases, in death or injury to crew members.

1.14

1 Attacks on vessels by armed thieves can take place in international waters as piracy or, more commonly, as armed robbery in the territorial waters of a coastal state, and there have been a recent (2002) increase of vessels being hijacked for ransom.

2 Ships may be attacked whilst at anchor off port or whilst underway. Ships underway are usually approached from the stern, but also the sides if the ship has a low freeboard. However, vessels with a high freeboard and travelling in excess of 17 kn have been boarded. Attacks usually take place under cover of darkness, most often between 2200 hours and 0600 hours.

3 See *The Mariner's Handbook* and 'Piracy and Armed Robbery – Reports' in *Admiralty List of Radio Signals Volumes 1(1)* and *1(2).*

Incidents

1.15

1 Acts of piracy have occurred off the ports of the Dominican Republic. The attention of mariners is drawn to the possible preventative measures outlined by the ICC International Maritime Bureau. The Piracy Reporting Centre (PRC) in Kuala Lumpur reports on piracy and armed robbery world–wide. See *The Mariner's Handbook.*

Piracy Reporting Centre

1.16

1 The International Maritime Bureau (IMB) of the International Chamber of Commerce operates a Piracy

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Reporting Centre (PRC) at Kuala Lumpur in Malaysia. The PRC broadcasts daily warnings of pirate activity on a world wide basis, see 1.17. The services of the centre are free of charge to all vessels, irrespective of their flag. Masters are requested to report all attacks or attempted attacks to the PRC.

Recommended practices

1.17

1 Recommended practices, including anti–attack plans, reporting, radio procedures and responses are all outlined in detail in *Admiralty List of Radio Signals Volumes 1(1)* and *1(2)* together with the telephone, telex and fax numbers and e–mail address of the Piracy Reporting Centre at Kuala Lumpur which is fully operational 24 hours a day.

2 The International Maritime Organization (IMO) recommends that reports concerning attacks, or suspicious movements which may lead to an attack, should be made to the Rescue Co–ordination Centre (RCC) for the area concerned. The SafetyNET (Enhanced Group Calling International SafetyNET) System may be used to issue, or receive daily warnings. See *Admiralty List of Radio Signals Volume 5*.

Stowaways

1.18

1 Mariners, particularly those in vessels departing Caribbean island ports for destinations in the United States of America, should be vigilant in preventing stowaways from boarding. They do so generally close to departure and under the cover of darkness often being very imaginative in their methods. Because the vessel will be held responsible for repatriation it is suggested that masters institute a very thorough search of the vessel prior to departure.

CHARTS

Admiralty charts

1.19

1 British Admiralty charts give full coverage of the Caribbean Sea including the coastal waters around all the islands included in this volume, with plans of the most important harbours and anchorages. It should be noted that these charts have been compiled over the last 150 years or so from British, Netherlands, French, Venezuelan and United States documents of varying age and accuracy. When assessing the degree of reliability of a chart, mariners should examine the source data diagram and take account of the dates of the surveys on which it is based and its date of publication.

2 The production of metric charts, incorporating the latest information available from all sources and eliminating the inconsistencies between the older charts, has been in hand since 1971 and an International metric chart covering the entire Caribbean Sea was published in 1982. By 2002 metrication had been completed except for some inter–island charts, and some charts of Puerto Rico and the Virgin Islands.

3 ARCS (Admiralty Raster Chart Service) versions are available for all except a few charts, see NP131, *Catalogue of Admiralty Charts and Publications*

Foreign charts

1.20

1 In certain areas, where the British Admiralty charts show insufficient detail for navigation close inshore, these Sailing Directions have been written using foreign charts. Some of these are quoted as reference charts in the text, which has been written on the assumption that mariners wishing to navigate in these areas will have provided themselves with suitable charts on which to do so.

Foreign charts

1.21

1 Charts of those islands and waters in which the French (1.126 and 1.134), Netherlands (1.150) and United States (1.159 and 1.192) authorities have prime interest are published by the respective national authority. In some cases these charts are of a larger scale and more recent date than the equivalent British Admiralty charts, though they are not necessarily compiled from more recent information. These charts may be obtained from the publishing authorities given below and in NP131, *Catalogue of Admiralty Charts*; they are not issued by the United Kingdom Hydrographic Office nor are they corrected by *Admiralty Notices to Mariners*.

2 **Publishing authorities:**

French charts:

Etablissement Principal de Service
Hydrographique et Océanographique de la Marine
13 rue du Chatellier, BP 426
29275 BREST CEDEX.

3 *Netherlands charts:*

Dienst der hydrografie
Koninklijke Marine
167, Badhuisweg
2597 JN–'s–GRAVENHAGE.

4 *United States:*

Federal Aviation Administration
National Aeronautical Charting Office
Distribution Division (AVN–530)
6303 Ivy Lane, Suite 400
Greenbelt
MD 20770–6325
USA

Reference charts

1.22

1 For the following areas, not covered by Admiralty charts of adequate scale, mariners are advised to obtain the appropriate charts, as follows:

Chart No	Area
US 25650	Virgin Passage (3.103)
US 25653	Isla de Culebra (4.227)
US 25663	E. Puerto Rico (4.302)
US 25664	Bahía de Mulas (4.304)
US 25665	Puerto Humacao (4.318)
US 25666	Ensenada Honda (4.326)
US 25667	Bahía de Fajardo (4.289)
US 25677	Laguna de las Mareas (4.398)
US 25679	Bahía de Guánica (4.518)
US 25681	Bahía de Guayanilla (4.476)
US 25687	Bahía de Jobos and Bahía de Rincon (4.407)

2 These charts may be obtained from the United States publishing authority, given above, and is subject to the same limitations as given for all foreign charts.

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Datums

Vertical

1.23

1 **Depths** on British Admiralty charts are reduced to LAT, MLWS or MLLW, as shown on the chart. For general information on sea level and tides see 1.216.

Depths on foreign charts are reduced as follows:

United States charts to MLLW, MLW or MSL, as shown on the chart.

French charts to LLW.

The small tidal range in the Caribbean reduces the effect of these discrepancies.

2 **Drying heights** on most of the British Admiralty charts are shown as being above chart datum, measured from the same base as that used for depths (above).

3 **Elevations** on British Admiralty charts are given above MHHW or MHWS as shown on the chart. On foreign charts elevations are based on the following (as shown on the chart):

United States charts above MHW or MSL.

French charts above a mean mark.

Owing to the small tidal range in the Caribbean the discrepancies are negligible.

Horizontal

1.24

1 Differences in geographical positions, in some cases as much as 20 seconds of longitude, exist between British Admiralty charts based on nineteenth century surveys and more modern charts, British and foreign, based on World Geodetic System 1984, (WGS 84) and North American Datum. Satellite derived–positions are normally referred to WGS 84.

2 When transferring positions between charts on different horizontal datums it is advisable to do so by bearing and distance from a common reference object, and not by latitude and longitude.

3 Geographical positions listed in this volume are based on the individual datums of British Admiralty charts as available in 2005, including, where applicable, metric charts using WGS 84. Further modernisation of the British Admiralty chart series may involve a change of datum. Positions quoted to decimal parts of a minute, which usually refer to larger scale plans, may therefore appear slightly displaced relative to their position on the latest published chart.

United States—depths—terms used.

1.25

1 **Project depth** is the design dredging depth of a channel: the project depth may or may not be the goal of maintenance dredging after completion of the channel.

Controlling depth of a channel is the least depth within the limits of the channel; it restricts the safe use of the channel to draughts of less than that depth.

2 **Centreline controlling depth** of a channel applies only to the channel centreline; lesser depths may exist in the remainder of the channel.

Mid channel controlling depth of a channel is the controlling depth of only the middle half of the channel. In this volume only Project depths are given. For the latest controlling depths Admiralty charts and local harbour and pilotage authorities should be consulted.

3 **Depths alongside wharves** are usually those reported by the owner or operator of the wharf. Local authorities should be consulted for the latest controlling depths.

NAVIGATIONAL AIDS

Lights

Chart 4402

Aero lights

1.26

1 Aero lights, as described in *Admiralty List of Lights*, may be exhibited for the use of aircraft from structures near the coasts described in this volume.

These lights, which may be the first lights (or looms) sighted when making a landfall at night, normally have one of the following characteristics:

2 Flashing white (revolving beam type). These lights are usually screened from seaward but their looms may be visible.

Alternating flashing white and green (revolving beam type).

3 Flashing two letter groups in the morse code, in red or green. Although the groups made by these lights may have definite meanings in the *International Code of Signals*, they are not intended for this interpretation. Being generally red or green, with a regular mechanical flash, these lights are quite different to signals from shore signal stations or ships.

4 Aero lights which appear likely to be visible from seaward are shown on charts and described in the *Admiralty List of Lights*. As they are subject to changes of which prompt notification to the mariner may not always be possible, it is necessary to treat these lights with caution.

Buoys and beacons

System

1.27

1 The IALA Maritime System, Region B, is in operation throughout the area described in this volume; for details of the system see *The Mariner's Handbook*. Some local buoys, mainly for use of small craft, may not conform to the IALA system.

Reliability

1.28

1 A number of ship reports indicate that the buoys within the area covered by this volume may be out of position, removed from station without warning or remain unlit for long periods. Mariners are advised therefore to treat all buoys with caution.

2 **Destruction by hurricanes.** The path of a hurricane is frequently marked by considerable destruction of aids to navigation; lighthouses are destroyed and beacons and buoys washed away. These aids are restored as soon as practicable; but, pending their reconstruction or replacement, temporary marks are established which may or may not be similar in character to the original marks.

Radar reflectors

1.29

1 Radar reflectors have been placed on many of the buoys within the area but individual radar reflector symbols have not been charted at each of the buoys concerned.

Privately maintained buoys and beacons

1.30

1 A number of buoys and beacons within the area of this volume are maintained privately by companies and organizations that are not controlled by national authorities, and it is likely that these buoys and beacons have not been

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converted to the IALA system. Where known, the system in use has been described at the appropriate place in the text.

Ocean Data Acquistion System (ODAS)

1.31

1 ODAS light–buoys are moored in the area between 150 and 280 miles E to ENE of Martinique for environmental research purposes. See *The Mariner's Handbook* for details of buoys.

Meteorological Buoys

1.32

1 The United States National Data Buoy Centre, NBDC, deploys meteorological buoys to provide weather data, which have a "watch circle radius" of 1 to 2 miles from the assigned position. In waters greater than 300 m there is a catenary loop 150 m or more below the surface. Mariners should keep clear of the watch circle and in particular avoid damaging the moorings by trawling or tow lines.

Landmarks

Changes in appearance of landmarks

1.33

1 Caution is necessary when evaluating the descriptions given in this volume concerning landmarks, such as trees and the colour and shape of buildings, etc. New buildings may have been erected and old trees or houses destroyed, so that such marks, which may at one time have been conspicuous on account of their isolation, shape or colour, may no longer exist or now be difficult to identify.

PILOTAGE

National pilotage

United States

1.34

1 **General information.** Arrangements for Pilots are generally made in advance by the ships' agents. Pilots serving the larger ports maintain a 24 hour hour radio watch, while those at the smaller ports maintain a radio watch only when vessels are expected. Detailed information on pilotage procedures is given in the text for the ports concerned.

2 Pilot boats are painted black (hull) and white (upperworks) with the letter "P" on each bow.

1.35

1 **Puerto Rico.** Pilotage is compulsory for all foreign vessels and U.S. vessels under register when entering or leaving the harbours of Puerto Rico. Coastwise vessels having onboard an officer licensed as a Pilot for the waters of Puerto Rico and all pleasure yachts are exempt from pilotage unless a pilot is actually engaged.

1.36

1 **United States Virgin Islands.** The Virgin Islands Port Authority is responsible for the conduct of pilotage within the United States Virgin Islands (1.192).

2 Mariners in vessels of and above 100 grt and those vessels carrying explosives and dangerous cargo must engage the services of an Insular Government Pilot in order to enter, leave or shift berth in a port within the United States Virgin Islands. United States and foreign government vessels and pleasure craft are exempt from pilotage unless a Pilot is actually employed.

3 Pilots will take vessels in or out, day or night, unless otherwise noted.

French Antilles, Nederlandse Antillen and independent island states

1.37

1 Pilotage is compulsory for foreign vessels entering the majority of the larger ports in the French Antilles, the Nederlandse Antillen and the independent island states. Details are given under the port concerned.

RADIO FACILITIES

Electronic position fixing systems

Chart 4402

Satellite navigation systems

1.38

1 **Global Positioning System.** The Navstar Global Positioning System (GPS), a military satellite navigation system owned and operated by the United States Department of Defense, provides world wide position fixing.

The system is referenced to the World Geodetic System 1984 (WGS84) datum and therefore positions obtained must be adjusted, if necessary, to the datum of the chart being used.

2 **DGPS.** Differential GPS compares the position of a fixed point, referred to as the reference station, with positions obtained from a GPS receiver at that point. The resulting differences are then broadcast as corrections to suitable receivers to overcome the inherent limitations of GPS.

The only station transmitting DGPS information in the area is at Isabela, Puerto Rico (18°28′N 67°04′W). See *Admiralty List of Radio Signals Volume (2).*

3 **Global Navigation Satellite System.** The Russian Global Navigation Satellite System (GLONASS) is similar to GPS in that it is a space–based navigation system which provides world wide position fixing.

The system is referenced to the Soviet Geocentric Co–ordinate System 1990 (SGS90) and as for GPS positions must be adjusted, if necessary, to the datum of the chart being used.

4 **Caution.** Satellite navigation systems are under the control of the owning nation which can impose selective availability or downgrade the accuracy to levels less than that available from terrestrial radio navigational systems. Therefore satellite based systems should only be utilised at the user's risk.

See *Admiralty List of Radio Signals Volume (2).*

Loran–C

1.39

1 Within the area covered by this volume only Puerto Rico (18°00′N 66°30′W) and the Virgin Islands (18°30′N 64°30′W) lie within Loran–C coverage. These islands are situated on the SE edge of the South–east USA Chain, and skywave fixes only can be obtained in this area.

See *Admiralty List of Radio Signals Volume (2).*

Radio navigational aids

Racons

1.40

1 The only racons transmitting within the area covered by this volume are at Isla Aves (15°40′N 63°36′W) (2.7) and Sombrero Island (18°35′N 63°26′W) (2.16).

See *Admiralty List of Radio Signals Volume (2).*

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Radio stations

Hurricanes

1.41

1 **Amateur radio operators.** Mariners at sea during or after a hurricane should be aware of the important part played by amateur radio operators (Hams), particularly during the immediate aftermath of a hurricane. They usually afford the speediest and most efficient method of inter–island and island/ship communication and have proved invaluable.

Radio navigational warnings

1.42

1 The Caribbean Sea lies within NAVAREA IV.

See *Admiralty List of Radio Signals Volume 2* and *Annual Summary of Admiralty Notices to Mariners.*

NAVTEX is available from San Juan in Puerto Rico (4.34) and Curaçao. See *Admiralty List of Radio Signals Volume 3(2).*

2 Coast radio stations:

Puerto Rico: San Juan (18°28′N 67°11′W).

Windward Islands: Fort–de–France, Martinique (14°34′N 61°05′W).

3 See *Admiralty List of Radio Signals 1(2).*

Radio weather reports

1.43

1 See *Admiralty List of Radio Signals Volume 4.*

REGULATIONS

International regulations

Chart 4402

Submarine pipelines

1.44

1 **Caution.** Mariners are advised not to anchor nor trawl in the vicinity of pipelines. Gas from a damaged oil or gas pipeline could cause an explosion, loss of a vessel's buoyancy or other serious hazard. Pipelines are not always buried and may effectively reduce the charted depth by up to 2 metres. They may also span seabed undulations and cause fishing gear to become irrecoverably snagged, putting a vessel in severe danger. See Annual Notice to Mariners No 24 and *The Mariner's Handbook.*

Submarine cables

1.45

1 See *The Mariner's Handbook* for information on the *International Convention for the Protection of Submarine Cables*.

United States—regulations

1.46

1 Appendices I to VIII, include extracts of the regulations relevent to the U.S areas of Puerto Rico and the Virgin Islands, described in this volume.

Pollution

1.47

1 Within the United States Virgin Islands (1.192) and around the Commonwealth of Puerto Rico (1.159) mariners are required to report all spills of oil and hazardous substances to the National Response Center or to the nearest Coast Guard facility. See *Admiralty List of Radio Signals Volume 1(2)*

Vessel arrival inspections

1.48

1 Vessels subject to US quarantine, customs, immigration, and agricultural quarantine inspections generally make arrangements in advance through ships' agents. Government officials conducting such inspections are stationed at most major ports. Mariners arriving at ports where officials are not stationed should contact the nearest Station providing that service. US Public Health quarantine matters for ports in Puerto Rico and the US Virgin Islands are handled by the US Quarantine Station, San Juan, Puerto Rico.

French Antilles—regulations

Application

1.49

1 The regulations are based on Martinique Prefectoral Law 92498 of 20th March 1992 and apply to the following vessel types in French Antilles territorial waters:

Vessels carrying hydrocarbons, liquefied gas and dangerous cargoes in class A or B of the MARPOL 73 convention.

Vessels carrying toxic substances.

Regulations

1.50

1 The principal requirements are as follows:

The Head of the French Antilles Marine Affairs must be signalled:

1. At least 6 miles before entry into territorial waters (1.127 and 1.135) indicating the intention to enter French Antilles territorial waters and giving the vessel's capability to manoeuvre and navigate.

2 2. In the event of any collision, grounding, navigational incident or other event resulting in damage to the ship or cargo and any other involvement in rescue or towing within 50 miles of the coast. Such a message is for the information of the authorities and is not considered as a request for assistance or rescue.

3 A permanent listening watch must be kept on VHF Channel 16 while in French Antilles territorial waters, except when alongside.

Vessels over 1600 grt must keep more than 10 miles from the coast except when in waiting areas and approach or access channels which they must use. Entry into such channels must be signalled.

4 All measures must be taken which may be prescribed by the Head of Marine Affairs to preserve safety and avoid pollution in the event of problems with manoeuvrability or navigation.

Vessels should contact SURNAV (Systéme Français de Comptes Rendus de Mouvements). See *Admiralty List of Radio Signals, Volume 1(2).*

Dominican Republic—regulations

Anchorages

1.51

1 Anchoring by foreign vessels within the territorial waters of the Dominican Republic (1.116) is only authorised in designated charted anchorage areas. Vessels may request authorisation for anchoring elsewhere from Port Authorities or the Dominican Republic Navy. Foreign vessels anchoring or waiting off without authorisation are liable to substantial fines. Vessels claiming *force majeure* will have that claim verified by a boarding party.

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Other countries—regulations

Customs and immigration

1.52

1 At ports in Barbados, Montserrat and Saint Vincent, customs and immigration officials, or police, board vessels shortly after arrival to effect inward clearance. Until this has been completed no person should leave the vessel.

2 At all other ports within the limits of this volume the Master is required to report to the customs or police office, after berthing, to effect inward clearance.

At some ports outward clearance is mandatory; the need for this can be established during inward clearance.

Protection of Wildlife

1.53

1 **Marine Parks, Nature Reserves and Designated Critical Habitats** have been established in the coastal waters of several of the islands in this volume. In many of these areas anchoring and fishing are prohibited. Details are given below and in the relevant sections of the text, and some of the areas are indicated on the charts; further information should be sought from the relevant local authority.

British Virgin Islands

1.54

1 **Marine Parks** have been established in the vicinity of the RMS *Rhone* wreck site (18°22′N 64°33′W and 18°22′N 64°35′W) (3.153) and in the area of The Baths (18°26′N 64°27′W) (3.137), as shown on the chart.

2 The **British Virgin Islands National Parks Trust** regulations include:

All fishing, including spear fishing, and lobstering and collecting live shells, is prohibited;

Water and jet skiing is prohibited;

No anchoring.

3 The trust has established a system of moorings in sensitive coral reef areas on many of the islands. There are over 180 moorings which are colour coded for type of use. The moorings are for limited use by day only and a permit is mandatory.

4 Further information is available from the National Parks Trust Office, Fishlock Road, Road Town, Tortola or from Customs Offices at ports of entry.

United States Virgin Islands

1.55

1 **National park regulations** apply to a number of bays in the United States Virgin Islands. In Saint John the National Park extends for the whole N coast from N of Cruz Bay (3.259) to W part of Haulover Bay (18°20′N 64°56′W), and part of the S coast; see 3.279. Buck Island Reef (3.348) off Saint Croix is a National Monument.

2 The **U.S. Virgin Islands National Park Trust** regulations include:

Anchoring must not damage underwater features; no anchoring in some bays on the S side of Saint John;

Fishing by hand held rod is permitted in most areas, but spear fishing is prohibited, and there are restricting on taking shell fish;

Sea turtles are an endangered or threatened species;

Water and jet skiing is prohibited;

3 A system of moorings, colour coded for use, has been established.

Further information is available from The Superintendent, Virgin Islands National Park, 6310 Estate Nazareth 10, Charlotte Amalie, Saint Thomas, Virgin Islands 00802.

SIGNALS

National

Chart 4402

Warships, submarines and aircraft

1.56

1 British, United States, French and Netherlands warships, submarines and aircraft use similar signals and instructions to those described in *Annual Summary of Admiralty Notices to Mariners.*

United States helicopters engaged in minesweeping operations (1.11) exhibit a red or amber rotating beacon. The amber mode is used during towing operations.

Visual storm warning signals

Places displaying signals

1.57

1 Storm warning signals are displayed at the following places within the area covered by this volume:

2 **Nederlandse Antillen:**

Sint Maarten:

Groot Baai (18°01′N 63°03′W) (5.91).

Saba:

Fort Baai (17°37′N 63°15′W) (5.202).

Sint Eustatius:

Oranje Baai (17°29′N 62°59′W) (5.214).

3 **Saint Christopher and Nevis:**

Charlestown (17°08′N 62°38′W) (5.266).

Saint Lucia:

Port Castries (14°01′N 61°00′W) (7.188).

Saint Vincent:

Kingstown Bay (13°09′N 61°14′W) (8.68).

4 **Grenada:**

Saint George's Harbour (12°03′N 61°45′W) (8.320).

Barbados (13°10′N 59°35′W):

Various stations are listed at 9.7.

Signals displayed

1.58

1 The signals displayed on the various islands are described in the body of the book, with a cross reference from each of the places at which they are displayed.

DISTRESS, SEARCH AND RESCUE

General information

Chart 4402

1.59

Global Maritime Distress and Safety System

1 Throughout the waters covered in this book the principal means of searching for and assisting persons in distress is via the Global Maritime Distress and Safety System (GMDSS).

2 The basic concept of the GMDSS is that Search and Rescue (SAR) organisations ashore, as well as shipping in the immediate vicinity, will be rapidly alerted to a distress incident so that they can assist in a co–ordinated SAR operation. Within the regions covered, there are National SAR Agencies in most of the countries working in association with either the United States Communication Area Master Station at Portsmouth, or the Maritime Rescue

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Co–ordination Centres (MRCCs), Fort de France in Martinique or Port of Spain in Trinidad as appropriate.

3 For full details of Search and Rescue Regions (SRRs), including diagrams, and a list of Digital Selective Calling (DSC) stations.

4 See *Admiralty List of Radio Signals Volume (5).*

Ship reporting systems

1.60

1 The AMVER (Automated Mutual–assistance VEssel Rescue) system provides world wide cover and is operated by the United States Coast Guard. See *Admiralty List of Radio Signals, Volume 1(2).*

Rescue services

United States waters

1.61

1 The United States Coast Guard Rescue Co–ordination Sub–centre is at San Juan (18°28′N 66°07′W) (4.28).

British Virgin Islands

1.62

1 Virgin Islands Search and Rescue (VISAR) undertakes SAR and is assisted by the United States Coast Guard. See *Admiralty Maritime Communications (Caribbean).*

Nederlandse Antillen

1.63

1 No permanent arrangements exist for rescue services within the Nederlandse Antillen (1.150).

Nevis

1.64

1 At Charlestown (17°08′N 62°38′W) (5.272) there are two boats available for SAR.

Barbados

1.65

1 The harbour tugs at Bridgetown (13°06′N 59°37′W) (9.46) are available for rescue and short ocean towage operations.

French Antilles

1.66

1 The Operations Centre of Maritime Search and Rescue for the French Antilles (CROSSAG) is at Fort Saint Louis, Fort–de–France (14°36′N 61°04′W). It is responsible for the co–ordination of Search and Rescue within its Search and Rescue Region (SRR). Vessels should contact SURNAV (1.50).

Coastguard stations

United States waters

1.67

1 The coastguard stations listed below have search and rescue capabilities and may provide lookout, communications, and/or patrol functions, to assist vessels in distress:

Puerto Rico:

San Juan Base (18°28′N 66°07′W) (4.28).

Borinquen Air Station (18°30′N 67°08′W) (4.103).

Lifeboat stations

1.68

Puerto Rico:

San Juan (18°28′N 66°07′W) (4.28).

Puerto Arecibo (18°29′N 66°42′W) (4.90).

Antigua:

English Harbour (17°00′N 61°46′W) (5.456).

1 **Saint Lucia:**

Port Castries (14°01′N 61°00′W) (7.210).

Saint Vincent:

Kingstown (13°09′N 61°14′W) (8.46).

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COUNTRIES AND PORTS

General information

Chart 4402

Countries included

1.69

1 The islands described in this volume include Puerto Rico and the Lesser Antilles, which together form an arc around the E end of the Caribbean Sea. The Lesser Antilles contain the Virgin Islands plus two other island groups, as follows:

2 Leeward Islands, forming the N group, from Anguilla (18°13′N 63°03′W) to Guadeloupe (150 miles SSE).

Windward Islands, forming the S group, from Dominica (15°25′N 61°20′W) to Grenada (200 miles S).

Flora and fauna

1.70

1 **Manchineel trees** are a botanical menace to be avoided. They are nondescript, medium sized trees which grow along the edge of sandy beaches. The small green fruit, similar in appearance to a crab apple, is extremely poisonous. If bitten and spat out it has the most uncomfortable effects; if swallowed it is usually fatal. The sap causes painful blistering, even if diluted by raindrops dripping off the branches or from a towel hung out to dry on a branch.

1.71

1 **Portuguese men–of–war**, a type of jellyfish, are often brought inshore by breakers along the coast. Contact with a tentacle causes an intensely painful burning sting.

Sea urchins or sea eggs are common around the beaches. On contact with the spines, the tips break off and remain under the skin to produce an intense irritation for several days.

ANGUILLA

Chart 1025

General description

1.72

1 Anguilla (18°13′N 63°03′W) is a small island at the N end of the Leeward Islands, lying about 5 miles N of Saint Martin and 50 miles NNW of Saint Christopher. The territory also includes Sombrero and several offshore islets.

The Valley is the principal settlement and administrative centre.

National limits

1.73

1 Around Anguilla, the United Kingdom claims a limit of 3 miles (measured from normal base lines) for territorial seas and a Fishery Zone (FZ) limit of 200 miles. See *Annual Summary of Admiralty Notices to Mariners.*

History

1.74

1 Significant events in the history of Anguilla are as follows:

1659: Colonized by English settlers from Saint Christopher.

1825: Became more closely associated with Saint Christopher and ultimately incorporated in the colony of Saint Christopher–Nevis–Anguilla.

2 1958: Joined The Federation of the West Indies.

1967: *De facto* separation from the association with Saint Christopher–Nevis.

1980: Became a British Dependent Territory.

1982: New constitution granted.

Government

1.75

1 Anguilla is, at its own request, a British Dependent Territory with a large measure of internal autonomy under the Crown. The constitution provides for the execution of government through a Governor, appointed by the Crown, with the assistance of an Executive Council and an elected House of Assembly.

2 The Governor is directly responsible for external affairs, defence, internal security (including the police and civil service). He also has reserve powers in respect of legislation.

Other executive powers of the Governor are discharged on the advice of the Executive Council.

Legislative functions are vested in the House of Assembly consisting of a Speaker and 11 members.

Population

1.76

1 In 2001 the estimated population was 11 561.

Language

1.77

1 English is the official and commercial language.

Physical features

1.78

1 Anguilla is a flat, rocky island comprised of coral overlaying volcanic debris, fringed by some of the finest white sand beaches in the Caribbean. Further details of the topography are given a 5.17.

Industry and trade

1.79

1 Agriculture is limited by low rainfall but Anguilla raises sheep, goats, pigs, cattle and poultry. Some livestock is exported.

Fishing is a thriving industry, with resultant exports in shellfish.

Salt in exportable quantity is produced in large salt ponds.

2 Industry, which was limited to local boat building for inter–island traffic, is being expanded and diversified.

Tourism, which is expanding with suitable hotels and more under construction, is now the principal source of income.

ANTIGUA AND BARBUDA

Chart 1025

General description

1.80

1 The state of Antigua and Barbuda, consisting of the islands of Antigua (17°05′N 61°50′W), Barbuda (25 miles N), and Redonda (28 miles WSW) which is uninhabited, lies mainly on the NE side of the Leeward Islands.

Saint John's, on Antigua, is the capital and commercial centre of the state.

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National limits

1.81

1 Antigua and Barbuda claim a limit of 12 miles (including all waters within the archipelago) for territorial seas and an Exclusive Economic Zone (EEZ) limit of 200 miles. See *Annual Summary of Admiralty Notices to Mariners.*

History

1.82

1 Significant events in the history of Antigua and Barbuda are as follows:

2 Antigua was first inhabited by the Siboney people whose settlements date back to 2400 BC. The Arawaks, who originated in Venezuela gradually migrated along the chain of the Lesser Antilles, succeeded the Siboney

1493: Antigua visited by Columbus and subsequently occupied by the Spanish.

1632: Antigua colonized by the British and developed as a sugar plantation economy.

1661: Barbuda colonized by the British from Antigua.

1666: Antigua raided by the French.

3 1668: Both islands occupied by the British who subsequently used English Harbour (on the S side of Antigua) as the naval base and dockyard for the British West Indies Fleet throughout the Napoleonic wars.

1834: Slave emancipation.

1871: Antigua and Barbuda became part of the Federation of the British Leeward Islands.

4 1956: Antigua became a Crown Colony.

1958: Antigua and Barbuda became part of the Federation of the West Indies.

1967: Attained full internal self–government.

1981: Antigua and Barbuda became an Independent Sovereign State within the Commonwealth.

Government

1.83

1 Antigua and Barbuda form a sovereign democratic self–governing state within the Commonwealth. It has a Governor–General, appointed by the Crown who functions with a bicameral legislature (Senate and House of Representatives). The Governor–General appoints the Prime Minister from the House of Representatives and, on the latter's advice, other ministers of the Cabinet.

2 The Senate consists of 17 Senators appointed by the Governor–General.

The House of representatives has 17 elected members (16 representing Antigua and 1 representing Barbuda).

Population

1.84

1 In 2002 the estimated population was 67 448, of whom 1 400 live in Barbuda.

Language

1.85

1 English is the official and commercial language.

Physical features

1.86

1 Antigua is low–lying and volcanic in origin. Barbuda is a flat coral island with a large lagoon on one side. Further details of the topography are given as follows:

Antigua at 5.333.

Barbuda at 5.335.

Industry and trade

1.87

1 The economy, which was historically based on agriculture, is still dependent to some extent on Sea Island Cotton, fruits, beef and dairy products for the export market.

Industry, which is being expanded to create a diversified economy, is currently producing electrical goods, clothing and rum (from imported molasses).

2 Tourism, financial and government services represent the key sources of employment and income. Tourism is a major earner of foreign exchange but this was hit by a series of violent hurricanes since 1995, seriously damaging infrastructure. Subsequently a period of sharp decline in visitor numbers ensued. This was aggravated by the September 11 2001 terrorist attacks in the United States caused the industry to hit a low ebb from which it is now making a recovery. In recent years cruise ships have brought 300,000 visitors, amounting to more than half the annual number.

There is a large oil refinery at Saint John's.

Regulations

Narcotics

1.88

1 Antigua and Barbuda's location close to the US Virgin Islands and Puerto Rico makes it an attractive transshipment point for narcotics. To address these problems the United States of America and Antigua and Barbuda have signed a series of countermeasure bills including maritime law enforcement agreements, overflight and order to land provisions, a bilateral extradition treaty and a mutual legal assistance treaty.

BARBADOS

Chart 956

General description

1.89

1 Barbados (13°10′N 59°35′W) is an isolated island lying about 100 miles E of the Windward Islands, making it the E–most island of the West Indies.

Bridgetown is the capital and commercial centre.

National limits

1.90

1 Barbados claims a limit of 12 miles (measured from normal baselines) for territorial seas and an Exclusive Economic Zone (EEZ) limit of 200 miles. See *Annual Summary of Admiralty Notices to Mariners.*

History

1.91

1 Significant events in the history of Barbados are as follows:

1600: Probably the first sighting by Portuguese explorers.

1627: Colonized by the British and developed as a sugar plantation economy. Throughout its colonial history the island remained a British possession.

2 1639: House of Assembly established, making this the third oldest legislative body in the western hemisphere.

1952: Became a Crown Colony.

1958: Joined Federation of the West Indies.

1961: Attained full internal self–government.

1966: Became an Independent Sovereign State within the Commonwealth.

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Government
1.92

1 Barbados is a sovereign democratic, self–governing island within the Commonwealth. It has a Governor–General, appointed by the Crown who functions with a bicameral legislature (Senate and House of Assembly). The Governor–General appoints the Prime Minister from the House of Assembly and, on the latter's advice, other ministers of the Cabinet from among the Senators and Members of the House of Assembly.

2 The Senate consists of 21 senators, appointed by the Governor–General.

The House of Assembly consists of a Speaker and 27 elected members.

Executive power rests with the Cabinet.

Population
1.93

1 In 2000 the estimated population was 269 000. Such a number in this small island makes Barbados one of the most densely populated countries in the world.

Language
1.94

1 English is the official and commercial language.

Physical features
1.95

1 The island, which is generally modest in height, rises in a series of tablelands marked by terraces. Further details of the topography are given at 9.10.

Flora and fauna
1.96

1 Manchineel trees (1.70) grow along the edge of the beaches on the W side of the island.

Industry and trade
1.97

1 The economy is based essentially on tourism, sugar and light manufacturing industry.

Tourism, which is supported by many hotels and good facilities, accounted for 11% of the gross national product in 1999. The island is visited each year by a large number of cruise ships.

2 The principal exports are electrical components, sugar, chemicals, petroleum products, foodstuffs and clothing; the principal imports are foodstuffs, vehicles, chemicals, fuel and lubricants.

3 Oil is produced in Barbados.

BRITISH VIRGIN ISLANDS

Chart 2600

General description
1.98

1 The British Virgin Islands comprise the major islands of Tortola (18°26′N 64°37′W) and Virgin Gorda (8 miles E of Tortola), six minor islands of importance and about thirty–two other islands and cays, of which only sixteen are inhabited.

Road Town, on Tortola, is the capital and business centre of the territory.

National limits
1.99

1 Around the British Virgin Islands, the United Kingdom claims a limit of 3 miles (measured from normal base lines) for territorial seas and a Fishery Zone (FZ) limit of 200 miles. See *Annual Summary of Admiralty Notices to Mariners.*

History
1.100

1 Significant events in the history of the British Virgin Islands are as follows:

1493: Visited by Columbus and henceforth widely used by buccaneers.

1648: First permanent European settlement established by the Dutch.

1672: Territory annexed by Britain, leading to the creation of a plantation economy.

2 1774: Constitutional government granted.

1872: Became part of the Federation of the British Leeward Islands Colony.

1956: Became a British Crown Colony with representative government.

1967: New constitution granted.

Government
1.101

1 The British Virgin Islands are a British Dependent Territory which is, to a large extent, internally self–governing. The constitution provides for the execution of government through a Governor, appointed by the Crown, with the assistance of an Executive Council and an elected Legislative Council.

2 The Governor is responsible for defence and internal security, external affairs and the Civil Service. In other matters he acts in accordance with the advice of the Executive Council, which consists of the Attorney General plus 4 ministers under the chairmanship of the Governor.

The Legislative Council consists of a Speaker and 9 members.

Population
1.102

1 In 2000 the estimated population was 20 254, most of whom were concentrated on less than one third of the land area, making the remainder of the territory generally under–populated.

Language
1.103

1 English is the official and commercial language.

Physical features
1.104

1 All of the islands, except Anegada, are volcanic in origin and, rising straight from the sea to elevations of over 400 m, they form a long chain of lush mountains, each within sight of the other.

Anegada is a very low coral island with no sub–soil and no water resources.

2 Further details of the topography of the Virgin Islands are given at 3.6

Flora and fauna
1.105

1 Manchineel trees (1.70) grow in the vicinity of Manchineel Bay in Cooper Island (18°23′N 64°31′W) (3.176).

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Industry and trade

1.106

1 The British Virgin Islands, which are much less developed than the United States Virgin Islands (1.192), have little industry and only modest agricultural production. However, the unique sailing and fishing grounds throughout the island group, with beaches, reefs and sheltered waters, near perfect for swimming and diving, combine with attractive mountain walks and riding trails to provide excellent natural facilities for a holiday resort. Work is in hand to increase the service industries, hotels and marinas and in 1989 Tortola boasted the largest yacht charter centre in the world. Such is the dependency on tourism that, directly or indirectly, 75% of the gross national product is derived from this one source.

2 Fish is the major export.

THE COMMONWEALTH OF DOMINICA

Chart 956

General description

1.107

1 The Commonwealth of Dominica (15°25′N 61°20′W) is an island at the N end of the Windward Islands, situated between the French islands of Guadeloupe and Martinique.

Roseau is the capital and commercial centre.

National limits

1.108

1 The Commonwealth of Dominica claims a limit of 12 miles (measured from normal baselines) for territorial seas and an Exclusive Economic Zone (EEZ) limit of 200 miles. See *Annual Summary of Admiralty Notices to Mariners.*

History

1.109

1 Significant events in the history of The Commonwealth of Dominica are as follows:

1493: Visited by Columbus but remained a stronghold of the indigenous Caribs.

1700: Generally settled by the French who created the first plantations. Control was later contested by the British on several occasions.

2 1805: Finally settled as a British possession.

1940: Transferred to the Windward Islands as a separate colony.

1871: Became part of the British Leeward Islands Colony.

3 1958: Became a member of the Federation of the West Indies.

1967: Attained full internal self–government.

1978: Became an Independent Republic within the Commonwealth, as The Commonwealth of Dominica.

Government

1.110

1 The Commonwealth of Dominica is an independent democratic republic within the Commonwealth. Executive authority is vested in an elected President who functions with a unicameral legislature.

2 The House of Assembly consists of a Speaker, 21 elected members and 9 Senators, who may be appointed by the President or elected.

The Cabinet is chaired by the Prime Minister and has 6 other ministers.

Population

1.111

1 In 2001 the estimated population was 71 727 about a third of whom live around Roseau.

Descendants of the original Caribs still survive on the island.

Languages

1.112

1 English is the official language and is spoken in some villages. A French patois is also widely used.

Physical features

1.113

1 The island of Dominica, which is the highest in the Lesser Antilles, is of volcanic origin and very mountainous with fertile soil. Further details of the topography are given at 6.175.

Flora

1.114

1 Known as the nature island of the Caribbean, Dominica is a botanists' paradise, containing, in the valleys, wild gardens of orchids and strange plant life.

Industry and trade

1.115

1 The economy is based mainly on agriculture, with bananas as the principal cash crop, followed by citrus fruits, coconuts and cocoa. These crops have, on occasions, been completely destroyed by hurricanes, making this country one of the poorest in the Caribbean. Beef and other livestock are produced in good numbers on small farms within the mountainous terrain.

2 Fishing and forestry are being developed.

Industry consists largely of processing the agricultural products into soap, fruit juices, vegetable oils, rum and copra.

Tourism is expanding and making some contribution to the economy.

DOMINICAN REPUBLIC

Chart 4402

General description

1.116

1 The Dominican Republic (19°00′N 70°00′W) is described in *West Indies Pilot Volume 1*. Part of the E seaboard is described at 2.44.

National limits

1.117

1 The Dominican Republic claims a limit of 6 miles (measured from a straight baseline system) for territorial seas and an Exclusive Economic Zone (EEZ) limit of 200 miles. See *Annual Summary of Admiralty Notices to Mariners.*

GRENADA

Chart 956

General description

1.118

1 The state of Grenada consists of the island of Grenada (12°05′N 61°40′W), the S–most of the Windward Islands, and a number of island dependencies in the S part of the Grenadines, the largest of which are Carriacou (12°30′N

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61°27′W) and Petite Martinique (12°31′N 61°23′W). Those islands of the Grenadines which lie N and NE of Petite Martinique are dependencies of Saint Vincent, as given at 1.183.

2 Saint George's, on Grenada, is the capital and commercial centre of the territory.

National limits

1.119

1 Grenada claims a limit of 12 miles (measured from normal baselines) for territorial seas and an Exclusive Economic Zone (EEZ) limit of 200 miles. See *Annual Summary of Admiralty Notices to Mariners.*

History

1.120

1 Significant events in the history of Grenada are as follows:

1498: Sighted by Columbus.
1650: First colonized by the French.
1763: Finally ceded to Britain by France.
1779–1783: Recaptured by French and restored at Treaty of Versailles (1783).

2 1974: Became an Independent Sovereign State within the Commonwealth.
1979: Constitution suspended following a revolution.
1983: Interim government installed following a bloody *coup d'état* and invasion by a joint United States/Caribbean force.
1984: Independent democratic government restored.

Government

1.121

1 Grenada is a sovereign democratic self–governing state within the Commonwealth. It has a Governor–General, appointed by the Crown who functions with a bicameral legislature (Senate and House of Representatives). The Governor–General appoints the Prime Minister from the House of Representatives.

2 The Senate consists of 13 Senators appointed by the Governor–General.

The House of Representatives has 15 elected members.

Executive power rests with the Cabinet, under the chairmanship of the Prime Minister.

Population

1.122

1 In 2001 the population was estimated to be 100 895.

Languages

1.123

1 English is the official and commercial language. A number of the inhabitants still speak French patois.

Physical features

1.124

1 Grenada is mountainous and its centre is covered with a verdant rain forest. Further details of the topography are given at 8.223.

The dependent islands of the Grenadines form a rocky chain extending some 22 miles NNE from Grenada. Further details of the topography are given for Carriacou at 8.96.

Industry and trade

1.125

1 The economy is based mainly on agriculture with cocoa as the principal cash crop, superseding nutmeg as the main export even though Grenada, which is known as the Island of Spice, produces over 30% of the world's supply of nutmeg. Other agricultural exports include bananas, various other fruits, sugar and coconuts.

Fishing is being developed.

2 Industry is generally confined to the processing of agricultural products.

Tourism is an expanding industry, previously dependent on passengers from cruise ships. The opening of an international airport in 1986 has added to the visitors in cruise ships coming to enjoy the fine white sand beaches and attractive scenery.

GUADELOUPE

Chart 2600

General description

1.126

1 The administrative region of Guadeloupe, forming part of the French Antilles, consists of 9 inhabited islands and many small islets which are spread over more than 100 miles within the Leeward Islands. Of these the major islands are as follows:

2 Guadeloupe (16°20′N 61°30′W), the largest territory, consisting of 2 large islands (Basse–Terre and Grande–Terre), with its dependent islands of Marie–Galante, La Désirade and Les Saintes, all lying close S and E of Guadeloupe.
Saint Barthélémy (110 miles NW of Guadeloupe).
The French part of Saint Martin (5.19) (125 miles NW of Guadeloupe).

3 The administrative centre is the town of Basse–Terre on the island of Basse Terre.

National limits

1.127

1 Around the island groups within the Guadeloupe Region, France claims a limit of 12 miles (measured from a straight baseline system) for territorial seas and an Exclusive Economic Zone (EEZ) limit of 200 miles.

History

1.128

1 Significant events in the history of the Guadeloupe Region are as follows:

1493: Guadeloupe and Saint Martin visited by Columbus.
1523: Possession of Guadeloupe disputed between Britain and Spain.

2 1635: Guadeloupe colonized by the French and, except for short deviations, generally remained under French control.
1638: Saint Martin occupied by the French.

3 1648: Saint Barthélémy first colonized by the French; and Saint Martin finally divided between the French and Dutch, as given at 5.19.
1784: Saint Barthélémy sold to Sweden by France.
1877: Saint Barthélémy returned to France after a plebiscite.

4 1946: The islands were elevated from colonies to become Overseas Departments of France.
1974: Guadeloupe Region was formed as an administrative Region of France.

Government

1.129

1 The Guadeloupe Region forms an administrative Region of France comprising Guadeloupe, with its dependent islands and the more distant islands of Saint Barthélémy and the French part of Saint Martin.

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2 This region is a political Department of France and has the same status as any Department in mainland France. To this end, French citizenship is held by all the inhabitants and the Department is represented in France as follows:
National Assembly by 2 Deputies.
Senate by 1 Senator.
Economic and Social Council by 1 Councillor.
Legislation for metropolitan France is generally in force.
3 Administration is through a Commissioner, appointed by central French Government, assisted by an elected General Council and an elected Regional Council.

Population
1.130

1 In 1999 the population was 422 496.

Languages
1.131

1 French is the official language throughout the Guadeloupe Region. However, the majority of the population use a Creole dialect and in most of the islands English is spoken.

Physical features
1.132

1 In general the islands of the Guadeloupe Region are mountainous and volcanic in origin, some of which are still active. The major exception is Grande–Terre which is low and flat, surrounded by coral reefs.
Further details of the topography are given as follows:
Saint Martin at 5.21.
Saint Barthélémy at 5.24.
Guadeloupe at 6.8.

Industry and trade
1.133

1 Agriculture still forms the mainstay of the economy and accounts for over half the exports; principal products being bananas, sugar and pineapples.
Livestock, forestry and fishing also make valuable contributions to the economy.
Tourism is rapidly growing in importance, encouraged in part by the free–port areas in Saint Martin and Saint Barthélémy.

MARTINIQUE

Chart 956

General description
1.134

1 Martinique (14°40′N 61°00′W), an administrative region of the French Antilles, lies near the N end of the Windward Islands, between Dominica and Saint Lucia.
The administrative centre is Fort–de–France.

National limits
1.135

1 Around Martinique, France claims a limit of 12 miles (measured from a straight baseline system) for territorial seas and an Exclusive Economic Zone (EEZ) limit of 200 miles.

History
1.136

1 Significant events in the history of Martinique are as follows:
1502: Visited by Columbus.
1635: Colonized by the French and, except for short deviations, generally remained under French control.
2 1946: Elevated from a colony to an Overseas Department of France.
1974: Formed into an administrative Region of France.

Government
1.137

1 Martinique forms an administrative Region of France which is a political Department of France, with the same status as any Department in mainland France. To this end, French citizenship is held by all the inhabitants and the Department is represented in France as follows:
National Assembly by 2 Deputies.
Senate by 1 Senator.
Economic and Social Council by 1 Councillor.
2 Legislation for metropolitan France is generally in force.
Administration is through a Commissioner, appointed by central French Government, assisted by an elected General Council.

Population
1.138

1 In 1999 the population was 381 427.

Languages
1.139

1 French is the official language in Martinique. However, the majority of the population use a Creole dialect and English is also spoken.

Physical features
1.140

1 The island is volcanic in origin and very mountainous. Further details of the topography are given at 7.8.

Industry and trade
1.141

1 Agriculture still forms the mainstay of the economy and accounts for over half the exports; principal products being bananas, sugar and pineapples.
Livestock, forestry and fishing also make valuable contributions to the economy.
Tourism is rapidly growing in importance.
Industrial output is also increasing and, in 1985, petroleum products made up 15% of the exports.

MONTSERRAT

Chart 1025

General description
1.142

1 Montserrat, which means saw–toothed mountain, (16°45′N 62°12′W) is a volcanic island situated near the middle of the Leeward Islands, about 20 miles SW of Antigua. The major eruption of 1997 led to the evacuation of the S part of the island and a reduction in the population from 11 000 to 4 000 of which there is a large expatriate community.
Plymouth is the capital and business centre of the island (but see 1.208).

National limits
1.143

1 Around Montserrat, the United Kingdom claims a limit of 3 miles (measured from normal base lines) for territorial seas and a Fishery Zone (FZ) limit of 200 miles. See *Annual Summary of Admiralty Notices to Mariners.*

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History
1.144

1 Significant events in the history of Montserrat are as follows:

1493: Visited by Columbus.
1632: First colonized by Britain.
1783: Finally ceded to Britain, after 3 periods of French domination.

2 1871: Became part of the Federation of the British Leeward Islands Colony.
1960: New constitution granted which introduced Ministerial Government.
1995: Eruption of Soufrière volcano.

Government
1.145

1 Montserrat has elected, for the time being, to remain a British Dependent Territory. The constitution provides for the execution of government through a Governor, appointed by the Crown, with the assistance of an Executive Council and an elected Legislative Council.

2 The Governor is responsible for defence and internal security, external affairs, international financial services and the Civil Service. In other matters he acts in accordance with the advice of the Executive Council, which consists of the Chief Minister, three other ministers, the Attorney General and the Financial Secretary of Montserrat.

The Legislative Council consists of a Speaker and eleven members.

Population
1.146

1 In 2002 the estimated population was 4 500.

Language
1.147

1 English is the official and commercial language.

Physical features
1.148

1 Montserrat is a fertile, green, volcanic island in which hot sulphur springs occur naturally. About two thirds of the island consists of forested mountains and the rest is capable of cultivation. Further details of the topography are given at 5.189.

Industry and trade
1.149

1 Agriculture, which had been in decline for several years, seems set to recover with the advent of the Integrated Sea Island Cotton Project, which, in 1989, produced the chief export. A large number of cattle are raised and self sufficiency is achieved in a number of foodstuffs.

Some light industry, attracted to the island from abroad during 1979–1981, is engaged in the production of electrical parts and leather goods.

2 Residents from abroad and an increase in tourism is also aiding the economy.

Offshore banking also makes a significant contribution to the economy.

NEDERLANDSE ANTILLEN

Chart 4402

General description
1.150

1 Nederlandse Antillen comprises six major islands in two administrative groups:

2 The smaller group consists solely of Aruba (12°30′N 70°00′W) which is described in *South America Pilot Volume IV.*

The larger group consists of a five island federation which is geographically sub–divided into two groups:

3 The major islands of Curaçao (12°15′N 69°00′W) and Bonaire (25 miles E), situated in the Benedenwindse group, are described in *South America Pilot Volume IV.*

The minor islands of Sint Eustatius (17°30′N 63°00′W) and Saba (14 miles WNW of Sint Eustatius), and the S part of Sint Maarten (18°03′N 63°03′W) (5.19), which together comprise the Boven Windse group, situated in what is generally known as the Leeward Islands, are described in this volume.

4 Willemstad, in Curaçao, is the capital of the five island federation in the Nederlandse Antillen.

National limits
1.151

1 Around the island groups within the Nederlandse Antillen, the Kingdom of the Netherlands claims a limit of 12 miles (measured from normal baselines) for territorial seas and a Fishery Zone (FZ) to the median line with other countries. See *Annual Summary of Admiralty Notices to Mariners.*

History
1.152

1 Significant events in the history of the Boven Windse group are as follows:

1493: Visited by Columbus and subsequently occupied by the Spanish.
1625: Sint Eustatius colonized by French and British.
1632: Saba and Sint Eustatius settled by the Dutch. These islands subsequently changed hands many times before being finally settled by the Dutch.

2 1648: Sint Maarten divided between the Dutch and the French by partition treaty after the Spanish had evacuated the island. The importance of Sint Maarten at this time rested in the valuable salt lakes which were therefore shared between the occupying powers.

3 1781: Islands were captured by British during Dutch Wars and evacuated.
1792: Re–settled by the Dutch.
1828: Incorporated into the Dutch West Indies.
1845: Formed part of the Nederlandse Antillen.
1954: Granted internal self–government as part of the Kingdom of the Netherlands.

Government
1.153

1 The Nederlandse Antillen are a parliamentary, federal democracy which forms an integral part of the Kingdom of the Netherlands. External affairs are controlled by the Council of Ministers of the Kingdom (in Holland), on which the Nederlandse Antillen are represented by a Minister Plenipotentiary.

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2 A Governor is appointed by the Crown who, together with the Council of Ministers, exercises executive power. The islands are fully autonomous in internal affairs.

The legislature (*Staten*) consists of twenty–two members representing the islands as follows:

3 Curaçao: 14.
Bonaire: 3.
Sint Maarten: 3.
Sint Eustatius: 1.
Saba: 1.

4 On each island local autonomous power is divided between an elected Island Council (legislature), and the Executive Council under the Lieutenant Governor.

Population

1.154

1 From the 2001 census was as follows:

Saba 1349
Sint Eustatius 2 292
Sint Maarten 30 594

Languages

1.155

1 The official language is Dutch but English is widely spoken, as is French.

Physical features

1.156

1 All three islands are mountainous in nature and volcanic in origin. Further details of the topography are given as follows:

Sint Maarten at 5.21.
Sint Eustatius at 5.183.
Saba at 5.181.

Flora and fauna

1.157

1 **Flora.** The higher summits of Sint Eustatius and Saba have remnants of primaeval forest, including the Kapok tree.

Fauna. In Sint Maarten, mongoose, imported from India to combat rats, have virtually destroyed most other creatures, including those birds which breed on the ground. Black rats now live in trees, with the bats.

Industry and trade

1.158

1 Tourism now forms the mainstay of the economy of the islands, exploiting their natural beauty, beaches and climate, in addition to the duty–free regime of the entire area.

Farming has decreased in importance, to the extent that most dairy and meat products are imported. However, fishing has maintained its position and accounts for significant exports.

A large oil terminal now functions on Sint Eustatius.

THE COMMONWEALTH OF PUERTO RICO

Chart 3408

General description

1.159

1 The Commonwealth of Puerto Rico includes the island of Puerto Rico (18°00′N 66°30′W) with the adjacent islands of Isla de Culebra and Isla de Vieques (sometimes called the Passage Islands) to the E, and Isla de Mona to the W. Puerto Rico, which is the smallest and E of the Greater Antilles, lies between the Dominican Republic and the United States Virgin Islands.

2 San Juan (18°28′N 66°07′W) is the capital of the territory and commercial centre.

National limits

1.160

1 Around the Commonwealth of Puerto Rico, the United States claim a limit of 12 miles (measured from normal base lines) for territorial seas and an Exclusive Economic Zone (EEZ) limit of 200 miles. See *Annual Summary of Admiralty Notices to Mariners.*

History

1.161

1 Significant events in the history of the Commonwealth of Puerto Rico are as follows:

1493: Visited by Columbus.
1508: Colonized by Spain, to whom it remained a dependency for nearly four centuries.
1898: Ceded to the United States by Spain.

2 1917: United States citizenship and limited self government granted to the population.
1952: Proclaimed a Commonwealth in voluntary association with the United States

Government

1.162

1 Puerto Rico has Commonwealth status, with internal self government, subject to the laws enacted by the Congress of the United States.

Executive power rests with an elected Governor.

Legislative functions are vested in an elected Senate and an elected House of Representatives.

2 Representation in the United States is through a Resident Commissioner who is permitted to speak in the United States House of Representatives, but is not entitled to vote.

Population

1.163

1 In 2000 the population was 3 808 610.

Languages

1.164

1 Spanish is the official language of Puerto Rico. However, English is a required subject and is the preferred language for business.

Many of the local people are bilingual.

Topography

1.165

1 Puerto Rico is almost rectangular in shape and slightly smaller than Jamaica. Old volcanic mountains, long inactive, occupy the centre of the island surrounded by a fertile coastal plain. Further details of the topography are given at 4.3.

Industry and trade

1.166

1 Over the past twenty years Puerto Rico has progressed from a predominantly agricultural economy to a manufacturing base, with many foreign subsidiaries, and an economy heavily based on trade with the United States. Principal industries are petro chemicals and allied products, metal products, machinery, pharmaceuticals, electrical equipment and footwear.

2 Locally mined minerals consist of cement and stone.

Principal agricultural products consist of sugar, tobacco, rum, coffee and pineapples.

Tourism is also a major industry of ever increasing importance to the economy.

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FEDERATION OF SAINT CHRISTOPHER AND NEVIS

Chart 1025

General description

1.167

1 The Federation of Saint Christopher and Nevis, also known as Saint Kitts and Nevis, consisting of the islands of Saint Christopher (Saint Kitts) (17°20′N 62°45′W) and Nevis (2 miles SE), is located on the SW side of the Leeward Islands.

Basseterre, on Saint Christopher, is the capital of the federation and commercial centre.

National limits

1.168

1 The Federation of Saint Christopher and Nevis claims a limit of 12 miles (measured from normal baselines) for territorial seas and an Exclusive Economic Zone (EEZ) limit of 200 miles. See *Annual Summary of Admiralty Notices to Mariners.*

History

1.169

1 Significant events in the history of the Federation of Saint Christopher and Nevis are as follows:

1493: Visited by Columbus.

1623: Saint Christopher settled by the British, making this the first British settlement in the West Indies.

1627: Saint Christopher divided between the British and the French, leading to over 150 years of disputed ownership.

2 1628: Nevis settled by the British.

1713: Saint Christopher given to Britain by the Treaty of Utrecht.

1782: French captured Brimstone Hill

1783: Saint Christopher finally restored to Britain by France.

1871: Saint Christopher and Nevis became part of the Federation of the British Leeward Islands.

3 1882: Islands of Saint Christopher, Nevis and Anguilla united as a single colony.

1958: Saint Christopher–Nevis–Anguilla became part of the Federation of the West Indies.

1967: Saint Christopher and Nevis attained full internal self–government.

1983: Saint Christopher and Nevis became an Independent Sovereign State within the Commonwealth.

Government

1.170

1 The Federation of Saint Christopher and Nevis is a sovereign democratic federal state within the Commonwealth. It has a Governor–General, appointed by the Crown who functions with a unicameral legislature and a Prime Minister from the House of Assembly.

2 The House of Assembly has eleven elected members (8 representing Saint Christopher and three representing Nevis) and three appointed Senators.

Nevis has its own Island Assembly and Nevis Island Administration, with the right to secession from Saint Christopher.

Population

1.171

1 In 2001 the estimated population was 46 111 .

Language

1.172

1 English is the official and spoken language.

Physical features

1.173

1 The central part of both islands is forested and mountainous. Further details of the topography are given as follows:

Saint Christopher at 5.185.

Nevis at 5.187.

Industry and trade

1.174

1 The economy continues to depend primarily on sugar, with Sea–Island Cotton and copra also contributing to the export market.

Industry depends mainly on sugar processing. Other light industries specialise in the manufacture of clothing and footwear, and in the assembly of electronic equipment.

2 Tourism, which is being encouraged by the provision of facilities, is of increasing importance.

SAINT LUCIA

Chart 956

General description

1.175

1 Saint Lucia (13°55′N 61°00′W), the second largest of the Windward Islands, is situated between the French island of Martinique and Saint Vincent.

Castries is the capital and main port.

National limits

1.176

1 Saint Lucia claims a limit of 12 miles (measured from normal baselines) for territorial seas and an Exclusive Economic Zone (EEZ) limit of 200 miles. See *Annual Summary of Admiralty Notices to Mariners.*

History

1.177

1 Significant events in the history of Saint Lucia are as follows:

1500: Thought to have been discovered, and possibly named, by Columbus, although there is no record of this.

1605: First attempt at colonization by the British.

2 1642: French settlers arrived on the island which started a hotly contested dispute between Britain and France resulting in the island changing hands regularly.

1814: Finally ceded to Britain by France.

1835–85: Placed under the Governor of Barbados together with other islands of the Windward group.

3 1924: Granted representative government within the Federation of the Windward Islands.

1967: Attained full internal self–government.

1979: Became an Independent Sovereign State within the Commonwealth.

Government

1.178

1 Saint Lucia is a sovereign democratic self–governing island within the Commonwealth. It has a Governor–General, appointed by the Crown who functions with a bicameral legislature (Senate and House of Assembly).

2 The Senate consists of eleven senators appointed by the Governor–General.

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The House of Assembly consists of a Speaker and seventeen elected members.

Executive power rests with the Cabinet, under the chairmanship of the Prime Minister, elected from the House of Assembly.

Population

1.179

1 In 2001 the estimated population was 157 775 .

Languages

1.180

1 English is the official and commercial language. French patois is commonly used throughout the island.

Physical features

1.181

1 The island is mountainous and, for the most part, covered with forest and tropical vegetation. Further details of the topography are given at 7.154.

Industry and trade

1.182

1 The economy is based mainly on agriculture, with bananas as the principal cash crop, followed by coconuts, citrus fruits, cocoa, livestock and cotton.

Industry consists largely of processing the agricultural products into fruit juices, copra and coconut oils, soap and beverages. In addition, the manufacture of clothing and electronic components makes a contribution to the economy. A large manufacturing "Free Zone" has been established to the S part of Vieux Fort (7.215).

2 There is a major oil trans–shipment terminal in Grand Cul de Sac Bay (7.199)

Tourism, based on good facilities, good beaches and varied natural attractions, including boiling springs, is a well developed industry.

SAINT VINCENT AND THE GRENADINES

Chart 956

General description

1.183

1 The state of Saint Vincent and the Grenadines consists of the island of Saint Vincent (13°15′N 61°10′W) and a number of island dependencies in the N part of the Grenadines, some of the larger or more important of which are as follows:

2
Bequia (13°00′N 61°15′W).
Mustique (12°53′N 61°12′W).
Canouan (12°43′N 61°20′W).
Mayreau (12°39′N 61°24′W).
Union Island (12°36′N 61°27′W).
Petit Saint Vincent Island (12°32′N 61°23′W).

3 Those islands of the Grenadines which lie S and SW of Petit Saint Vincent Island are dependencies of Grenada, as given at 1.118.

Kingstown, on Saint Vincent, is the capital and commercial centre of the territory.

National limits

1.184

1 Saint Vincent claims a limit of 12 miles (including all waters within the archipelago) for territorial seas and an Exclusive Economic Zone (EEZ) limit of 200 miles. See *Annual Summary of Admiralty Notices to Mariners.*

History

1.185

1 Significant events in the history of Saint Vincent and the Grenadines are as follows:

1498: Possibly visited and named by Columbus.
1773: Saint Vincent and the Grenadines became a British possession.
1779: Saint Vincent seized by the French.
1783: Saint Vincent restored to Britain.
1871: Became part of the Windward Island Colony.
2 1956: Granted representative government within the Federation of the Windward Islands.
1958: Saint Vincent joined the Federation of the West Indies.
1969: Attained full internal self–government.
1979: Became an Independent Sovereign State within the Commonwealth.

Government

1.186

1 Saint Vincent and the Grenadines is a sovereign democratic self–governing state within the Commonwealth. It has a Governor–General, appointed by the Crown who functions with a unicameral legislature.

2 The House of Assembly consists of a Speaker, thirteen elected members, the Attorney General, (who is also elected), and six Senators appointed by the Governor–General.

Executive power rests with the Cabinet, under the chairmanship of the Prime Minister.

Population

1.187

1 In 2003 estimated the population of Saint Vincent and the Grenadines was 116 812

Languages

1.188

1 English is the official and commercial language.

Topography

1.189

1 Saint Vincent is a high mountainous island, with an active volcano near its N end. Further details of the topography are given at 8.10.

The dependent islands of the Grenadines form a rocky chain stretching some 35 miles SW from Saint Vincent. Reference information to further details of the topography is given at 8.89.

Fauna

1.190

1 Sea urchins are a hazard, especially among the rocks on the less frequented beaches. Some aspects of sea urchins are mentioned at 1.71.

Industry and trade

1.191

1 The economy is based mainly on agriculture, with bananas as the principal cash crop, superseding arrowroot as the main export even though Saint Vincent still produces 90% of the world's supply. Other agricultural exports include coconuts, cocoa, citrus fruits and spices.

Industries, which are being developed, include the assembly of electrical equipment, manufacture of clothing, electrical and general goods, and the processing of agricultural products.

2 Tourism, based on good facilities in Saint Vincent, with splendid sand beaches and many picturesque beauty spots is an expanding industry.

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The dependent Grenadines, which include the Tobago Cays (8.211), have few developed facilities ashore but provide excellent sailing and all types of water sports for yachtsmen.

UNITED STATES VIRGIN ISLANDS

Chart 2600

General description

1.192

1 The United States Virgin Islands lie at the W end of the Lesser Antilles, about 40 miles E of Puerto Rico. This territorial group consists of the islands of Saint Thomas (18°20′N 64°55′W), Saint John (close E of Saint Thomas) and Saint Croix (35 miles S of Saint Thomas); and about 40 small islands or cays, most of which are uninhabited.

2 Charlotte Amalie, on the island of Saint Thomas, is the capital of the territory.

National limits

1.193

1 Around the island groups within the United States Virgin Islands, the United States claim a limit of 12 miles (measured from normal base lines) for territorial seas and an Exclusive Economic Zone of 200 miles. See *Annual Summary of Admiralty Notices to Mariners.*

History

1.194

1 Significant events in the history of the United States Virgin Islands are as follows:

1493: Visited by Columbus and later colonized by Spain.

1643: Saint Croix settled by the Dutch, which then passed successively under the control of Britain, Spain and France.

2 1672: Saint Thomas and Saint John colonized by the Danes.

1733: Saint Croix sold by France to Denmark.

1917: Saint Thomas, Saint John and Saint Croix purchased by the United States from Denmark.

1927: United States citizenship granted to the population of the three islands.

1954: The Revised Organic Act established the present form of government.

Government

1.195

1 The status of the United States Virgin Islands is that of an "unincorporated territory of the United States of America".

Some executive power rests with an elected Governor, who has certain powers of veto.

2 Some legislative functions are vested in the Legislature of the Virgin Islands which consists of an elected Senate.

Representation in the United States is through an elected representative who is permitted to speak in the United States House of Representatives but is not entitled to vote.

Population

1.196

1 In 2000 the population was 108 612 .

Languages

1.197

1 English is the official and commercial language of the United States Virgin Islands.

Some French is spoken on the island of Saint Thomas.

Physical features

1.198

1 Saint Thomas and Saint John are both rugged and mountainous whilst Saint Croix has a low lying plain along its S coast. Further details of the topography are given as follows:

Saint John at 3.20.
Saint Thomas at 3.21.
Saint Croix at 3.339.

Industry and trade

1.199

1 The United States Virgin Islands have been developed as holiday centres for visitors from the United States, with nearly 10 000 acres of National Park including underwater nature trails, making them the most favoured tourist area in the Caribbean.

This is particularly applicable to Saint Thomas and Saint John where tourists form the mainstay of the economy, over half of which come in cruise ships.

2 Industry has played an increasingly important part in the economy of Saint Croix, since the termination of sugar as a commercial crop in the 1950s. The principal industries are centred around a very large oil refinery and an aluminium plant, both on the S coast. In addition, the production of watches, rum, pharmaceuticals and fragrances, form a significant part of the island's exports.

REPUBLIC OF VENEZUELA

Chart 4402

General description

1.200

1 The Republic of Venezuela is described in *South America Pilot Volume IV.*

Isla Aves (15°40′N 63°36′W), a Venezuelan possession, is described in this volume at 2.7.

National limits

1.201

1 The Republic of Venezuela claims a limit of 12 miles (measured from a straight baseline system) for territorial seas and an Exclusive Economic Zone (EEZ) limit of 200 miles. See *Annual Summary of Admiralty Notices to Mariners.*

PRINCIPAL PORTS, HARBOURS AND ANCHORAGES

1.202

British Virgin Islands

Place and position	*Remarks*
Tortola	
Road Harbour (3.187) (18°25′N 64°36′W)	Commercial port Port of entry

United States Virgin Islands

Place and position	*Remarks*
Saint Thomas	
Saint Thomas Harbor (3.281) (18°20′N 64°56′W)	Port Complex

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Charlotte Amalie (3.283)	Commercial port Port of entry
Little Krum Bay (3.330)	Cruise ship terminal
Saint Croix	
Christiansted Harbour (3.356) (17°45′N 64°42′W)	Commercial port Port of entry
Frederiksted (3.404) (17°43′N 64°53′W)	Commercial and naval jetty. Port of entry
Limetree Bay (3.423) (17°42′N 64°45′W)	Major commercial port
HOVIC Terminal (3.444)	Major oil terminal
Port Alucroix (3.453)	Commercial (bulk) port
The Third Port (3.463)	Container port

The Commonwealth of Puerto Rico

Place and position	*Remarks*
North coast	
Bahía de San Juan (4.34) (18°28′N 66°07′W)	Major commercial port and naval base. Port of entry
West coast	
Bahía de Aguadilla (4.109) (18°25′N 67°10′ W)	Open anchorage with berth. Port of entry
Bahía de Mayagüez (4.119) (18°13′N 67°11′W)	Deep water anchorage and commercial port. Port of entry
East coast	
Ensenada Honda (4.326) (18°13′N 65°38′W)	Major naval base
South coast	
Puerto Yabucoa (4.357) (18°03′N 65°50′W)	Oil terminal
Laguna de las Mareas (4.398) (17°56′N 66°10′W)	Oil terminal
Bahía de Ponce (4.445) (17°58′N 66°38′W)	Commercial port. Port of entry
Bahía de Guayanilla (4.485) (18°00′N 66°46′W)	Commercial port and oil terminal
Bahía de Tallaboa (4.499) (17°59′N 66°44′W)	Oil and chemical terminal
Bahía de Guánica (4.518) (17°58′N 66°55′W)	Safe anchorage and commercial port. Port of entry

Anguilla

Place and position	*Remarks*
Road Bay (5.40) (18°12′N 63°06′W)	Open anchorage with berth. Port of entry

French Antilles

Place and position	*Remarks*
Saint Martin	
Baie du Marigot (5.65) (18°04′N 63°06′W)	Anchorage and ferry terminal. Port of entry
Saint Barthélémy	
Port de Gustavia (5.109) (17°54′N 62°51′W)	Anchorage and small commercial port. Port of entry
Guadeloupe	
Basse–Terre (6.49) (16°00′N 61°44′W)	Open anchorage with berth. Port of entry
Les Saintes (6.68) (15°52′N 61°37′W)	Sheltered anchorage
Pointe–à–Pitre (6.140) (16°13′N 61°31′W)	Large commercial port. Port of entry
Martinique	
Baie de Fort–de–France (7.31) (14°34′N 61°05′W)	Large safe anchorage. Port of entry
Port de Fort–de–France (7.61)	Commercial port and naval base
Cul–de–Sac Marin (7.103) (14°27′N 60°54′W)	Sheltered anchorage
Havre de la Trinite (7.120) (14°45′N 60°58′W)	Anchorage
Havre du Robert (7.130) (14°40′N 60°55′W)	Sheltered anchorage

Nederlandse Antillen

Place and position	*Remarks*
Sint Maarten	
Groot Baai (5.78) (18°01′N 63°03′W)	Open anchorage with berth. Port of entry
Saba	
Fort Baai (5.202) (17°37′N 63°15′W)	Small commercial port
Sint Eustatius	
Orange Baai (5.214) (17°29′N 62°59′W)	Ro–Ro Terminal
Statia Oil Terminal (5.205) (17°30′N 63°00′W)	Oil trans–shipment terminal

Federation of Saint Christopher and Nevis

Place and position	*Remarks*
Saint Christopher	
Basseterre (5.231) (17°18′N 62°43′W)	Small commercial port. Port of entry
Nevis	
Charlestown (5.266) (17°08′N 62°38′W)	Open anchorage. Port of entry
Long Point (5.270) (17°06′N 62°37′W)	New commercial port

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Montserrat

Place and position	*Remarks*
Little Bay (5.283) (16°48′N 62°12′W)	New port under development.
Plymouth (5.282) (16°42′N 62°13′W)	Open anchorage. PORT CLOSED

Antigua and Barbuda

Place and position	*Remarks*
Antigua	
Saint John's Harbour (5.354) (17°08′N 61°52′W)	Commercial port and oil terminal. Port of entry

The Commonwealth of Dominica

Place and position	*Remarks*
Roseau (6.185) (15°17′N 61°24′W)	Open anchorage with berth. Port of entry

Saint Lucia

Place and position	*Remarks*
Port Castries (7.168) (14°01′N 61°00′W)	Commercial port and oil terminal. Port of entry
Grand Cu de Sac Bay (7.199) (13°59′N 61°01′W)	Tanker port
Vieux Fort Bay (7.215) (13°43′N 60°58′W)	Sheltered anchorage and commercial port

Saint Vincent and the Grenadines

Place and position	*Remarks*
Saint Vincent	
Kingstown (8.46) (13°09′N 61°14′W)	Port complex
Kingstown Bay (8.53)	Commercial port. Port of entry
Camden Park Bay (8.77)	Bulk grain and container berths
Arnos Vale (8.82)	Tanker berth
Bequia	
Admiralty Bay (8.125) (13°00′N 61°16′W)	Open anchorage. Port of entry
Union Island	
Clifton (8.159) (12°36′N 61°25′W)	Sheltered anchorage
Canouan	
Charlestown Bay (8.203) (12°43′N 61°21′W)	Sheltered anchorage

Grenada

Place and position	*Remarks*
Carriacou	
Hillsborough (8.215) (12°29′N 61°28′W)	Open anchorage. Port of entry
Grenada	
Saint George's Harbour (8.292) (12°03′N 61°45′W)	Commercial port. Port of entry
Queen's Park Terminal (8.317)	Tanker berth
Grand Mal Terminal (8.318)	Tanker berth

Barbados

Place and position	*Remarks*
Oistins Bay (9.23) (13°03′N 59°37′W)	Open anchorage and tanker terminal
Bridgetown (9.41)	Port complex
Carlisle Bay (9.51)	Open anchorage
Spring Garden Tanker Terminal (9.63)	Tanker terminal
Bridgetown Deep Water Harbour (9.66)	Commercial port and cruise ship terminal. Port of entry

PORT SERVICES—SUMMARY

Other facilities

Docking

1.203

1 **British Virgin Islands.**
Sopers Hole. Patent slip; able to haul a vessel of 200 tonnes, length 33 m, draught 4·2 m (3.166).

United States Virgin Islands
San Juan. Dry dock, floating dock and 3 patent slips. Largest is the dry dock with a length overall of 210·6 m, breadth at entrance 27·7 m, depth over the sill 7·3 m, able to take a vessel of dwt 20 321 tonnes (4.69).

Antigua
English Harbour. Slipway for vessels up to 120 tonnes (5.465)

Martinique
Fort–de–France. Dry dock; length overall 180 m, breadth 25·3 m, depth over the sill 8·4 m, maximum draught 7·6 m, able to take a vessel of 20 000 tonnes (7.74).

Salvage services

1.204

1 San Juan (4.70)
Bahía de Guayanilla (4.476)
Saint John's Harbour (5.354)
Bridgetown (9.41)

Deratting

1.205

1 **Deratting and deratting exemption certificates:**
United States Virgin Islands
Saint Thomas Harbor (3.334)
Christiansted (3.391)

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Puerto Rico
San Juan (4.70)
Nederlandse Antillen
Philipsburg, Sint Maarten (5.78)
Oranje Baai, Sint Eustatius (5.219)
Guadeloupe
Pointe–à–Pitre (6.140)

2 **Deratting exemption certificates:**
Saint Christopher and Nevis
Basseterre (5.254)
Charlestown (5.271)

3 **Antigua and Barbuda**
Saint John's, Antigua (5.391)
Jolly Harbour (5.416)
Parham Harbour (5.443)
English/Falmouth Harbours (5.466)
Martinique
Fort–de–France (7.75)

4 **Saint Vincent and Grenadines**
Kingstown (8.53)
Barbados
Bridgetown (9.41)

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NATURAL CONDITIONS

MARITIME TOPOGRAPHY

Chart 4012

General topography

1.206

1 Puerto Rico and the Lesser Antilles make up an island arc which lies towards the E boundary of the Caribbean Sea.

At the E end of the Caribbean Sea there are two basins: the Venezuelan Basin and, farther E, the Grenada Basin. These two basins are separated by a N/S ridge running between the Virgin Islands and the N coast of Venezuela.

2 On the outside of the island arc (above), at the S end, the Tobago Basin separates the Grenadines from Barbados; whilst to the N and W the deepest part of the Atlantic occurs in the Puerto Rico Trench (See Volcanic Activity).

3 Farther E the topography opens out into the abyssal plain of the North Atlantic (with depths from about 4500 to 5500 m) before rising to the spreading sea floor of the Mid–Atlantic Ridge, with its associated complex topography and variable depths (from 500 to 3000 m).

Seabed

1.207

1 Around the islands, shallow water sediments consist of sand, broken shells, coral and mud. Outside the 50 m depth contour the bottom slopes away rapidly to oceanic depths, often exposing, in this highly erosive environment, hard rock faces. On the slope N of Puerto Rico, deep sidescan sonar images have revealed channels in the sedimentary rocks, some with a width of 1 to 3 km, cut by erosion.

Volcanic and seismic activity

1.208

1 The majority of the islands mentioned in this volume are of comparatively recent volcanic formation and are consequently still subject to shocks of earthquake and volcanic eruptions. The islands most recently affected are as follows:

2 Guadeloupe, which is subject to frequent earthquakes.

Martinique, in which scarcely a year passes without an earthquake being felt. This island is also subject to volcanic eruptions and, on 8th and 20th May 1902, the town of Saint–Pierre was destroyed and many vessels were sunk in Rade de Saint–Pierre (14°44′N 61°12′W) (7.22).

3 Saint Vincent was also partly devastated by a volcanic eruption on 7th May 1902; and was subjected to further eruptions in April 1979.

Barbados, which is not normally subject to earthquakes, experienced a not inconsiderable tremor in 1928.

4 Montserrat, where the Soufrière volcano erupted in 1995, burying the capital, Plymouth (5.282), under volcanic ash. The port remains closed (2005), and volcanic activity continues (5.282).

In the Grenadines, N of Grenada, there is submarine volcanic activity to the E and W of Ronde Island off Les Tantes (8.179) and at Kick'em Jenny volcano (8.176).

CURRENTS, TIDAL STREAMS AND FLOW

Chart 4012

General circulation

1.209

1 **Currents**. The general circulation of the currents on the W side of the North Atlantic is shown on diagrams 1.210.1 to 1.210.4. These diagrams illustrate a gyre situated near the centre, together with the following currents:

The Florida Current in the W.

The Gulf Stream and the North Atlantic Current in the N and NW.

The North and South Equatorial Currents in the S.

2 The area covered by this volume is thus mainly influenced by the North (1.211) and South (1.212) Equatorial Currents, which are separated by a common boundary lying between 15°N and 20°N.

3 **Tidal streams.** Observations are not plentiful. From information supplied by local fishermen, it appears that the stream sets SE for 2 hours before HW until 4 hours after HW at Bermuda, and sets NW the remainder of the time; but this rule is greatly modified in different localities by the influence of the wind. General remarks on tidal streams are given at 1.215.

Current diagrams

1.210

1 In the current diagrams (1.210.1 to 1.210.4), arrows indicating the predominant direction, average rate and constancy are shown, which are defined as follows:

Predominant Direction. The mean direction within a continuous 90° sector containing the highest proportion of observations from all sectors.

2 **Average rate** of the highest 50% of all observations in the predominant sector as indicated by the figures in the diagram. It is emphasised that rates above and below those shown may be experienced.

Constancy, as indicated by the thickness of the arrows, is a measure of its persistence; e.g. low constancy implies marked variability in rate and, particularly, direction.

Major currents

1.211

1 **North Equatorial Current.** This current flows predominantly WSW to the E of 55°W, then as it approaches the Leeward Islands (16°N 62°W) it splits into two parts. The S part continues into the Caribbean Sea where it is joined by the South Equatorial Current (1.212) and is better known as the Equatorial Current. The N part turns WNW to pass N of the Virgin Islands (18°30′N 64°30′W) and Puerto Rico (18°00′N 66°30′W), where it is better known as the Antilles Current.

2 The North Equatorial Current lies between the North Atlantic Current to the N and the South Equatorial Current to the S. Its constancy is low to moderate and its average rate is around ½ to ¾ kn but rates approaching 4 kn have been observed. Eddies and counter–currents of up to 4 kn can occur, mainly W of 60°W.

1.212

1 **South Equatorial Current.** This current flows predominantly WNW through the Windward Islands (13°30′N 61°00′W) and the Leeward Islands into the Caribbean Sea, where it joins the S branch of the North Equatorial Current (1.211) and is better known as the Equatorial Current.

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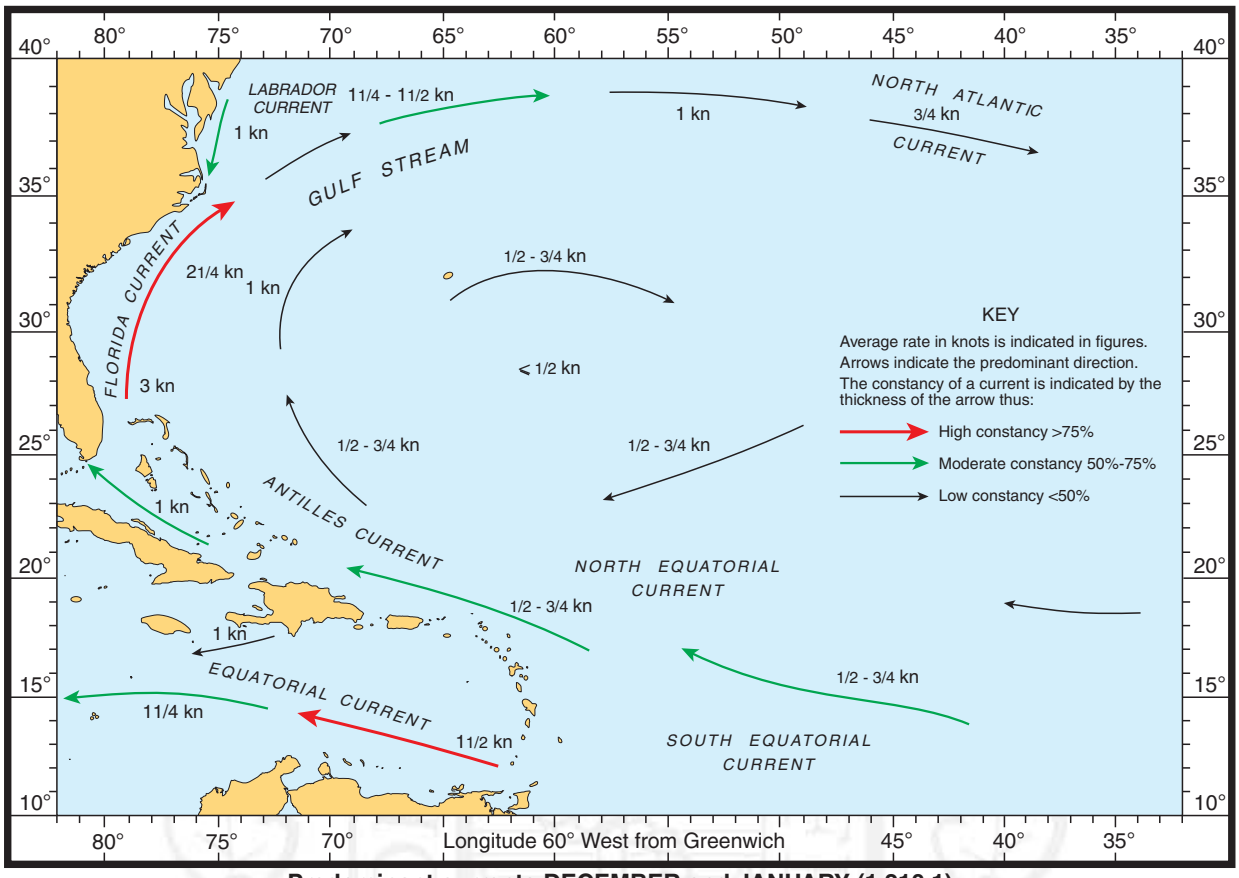
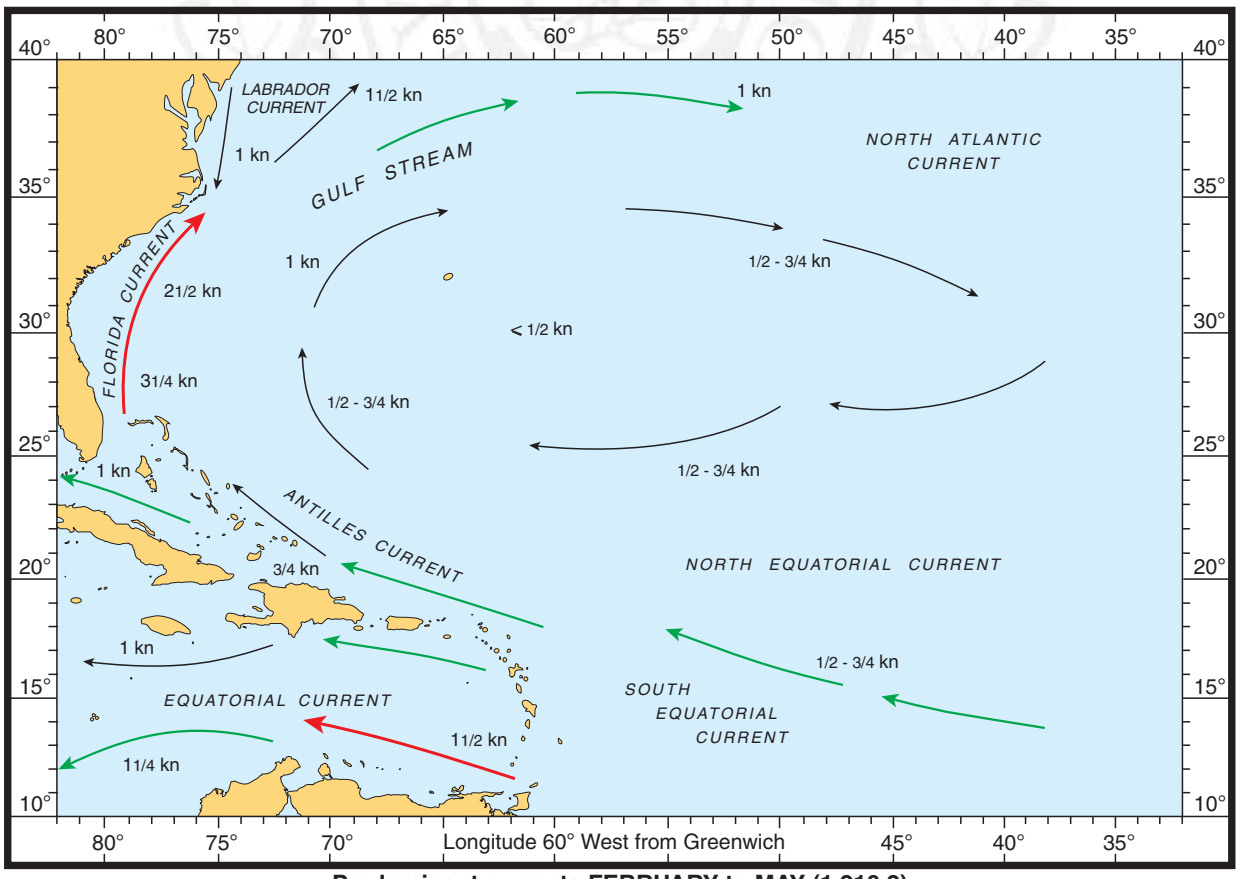


Predominant currents DECEMBER and JANUARY (1.210.1)



Predominant currents FEBRUARY to MAY (1.210.2)

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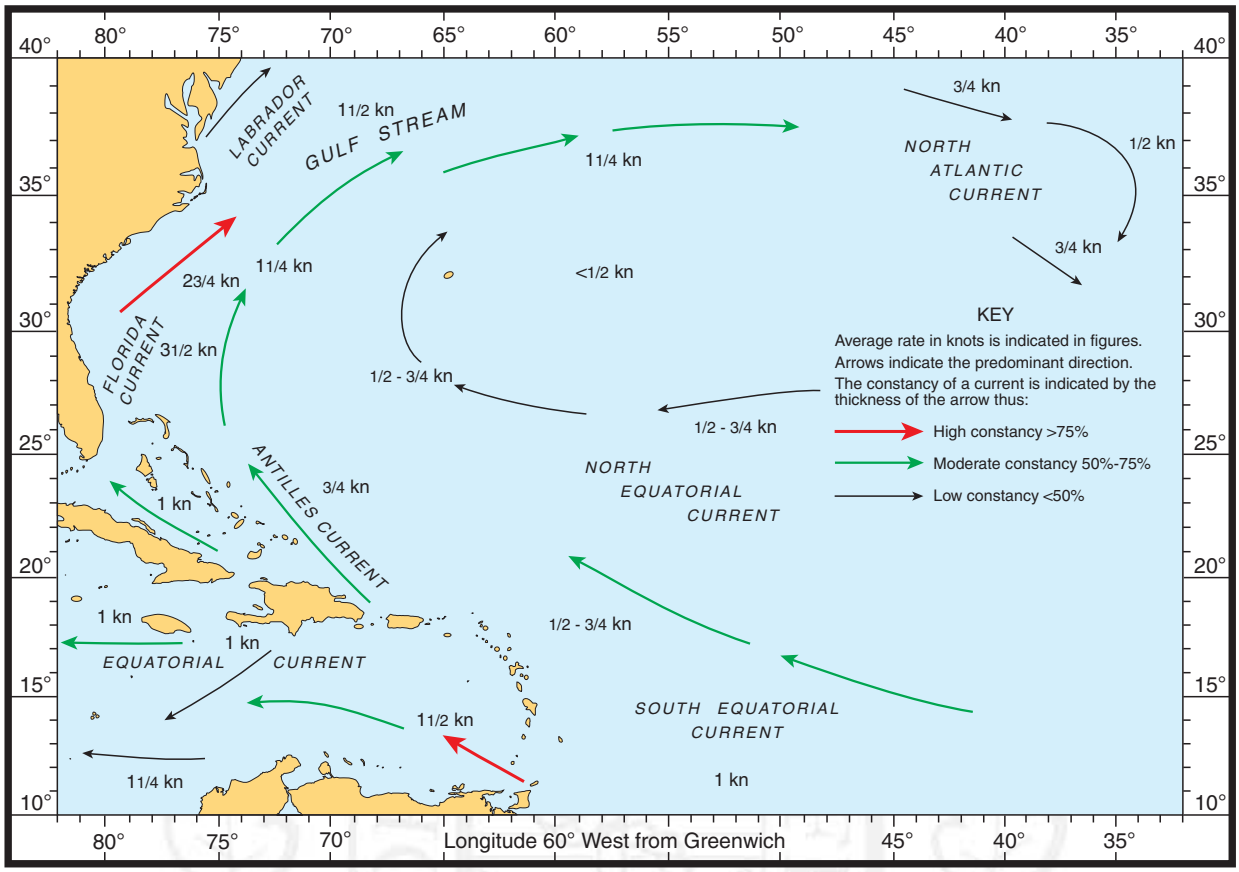
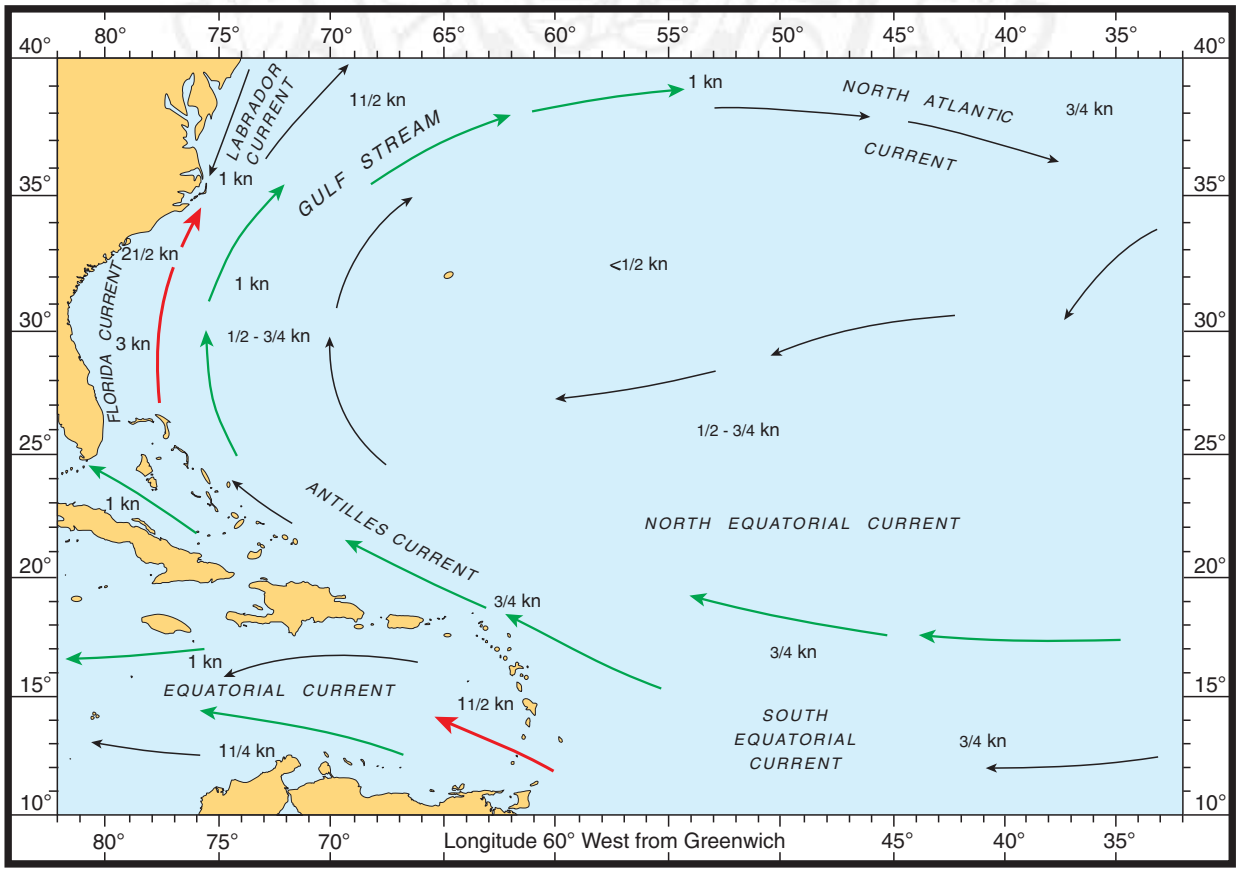


Predominant currents JUNE and JULY (1.210.3)



Predominant currents AUGUST to NOVEMBER (1.210.4)

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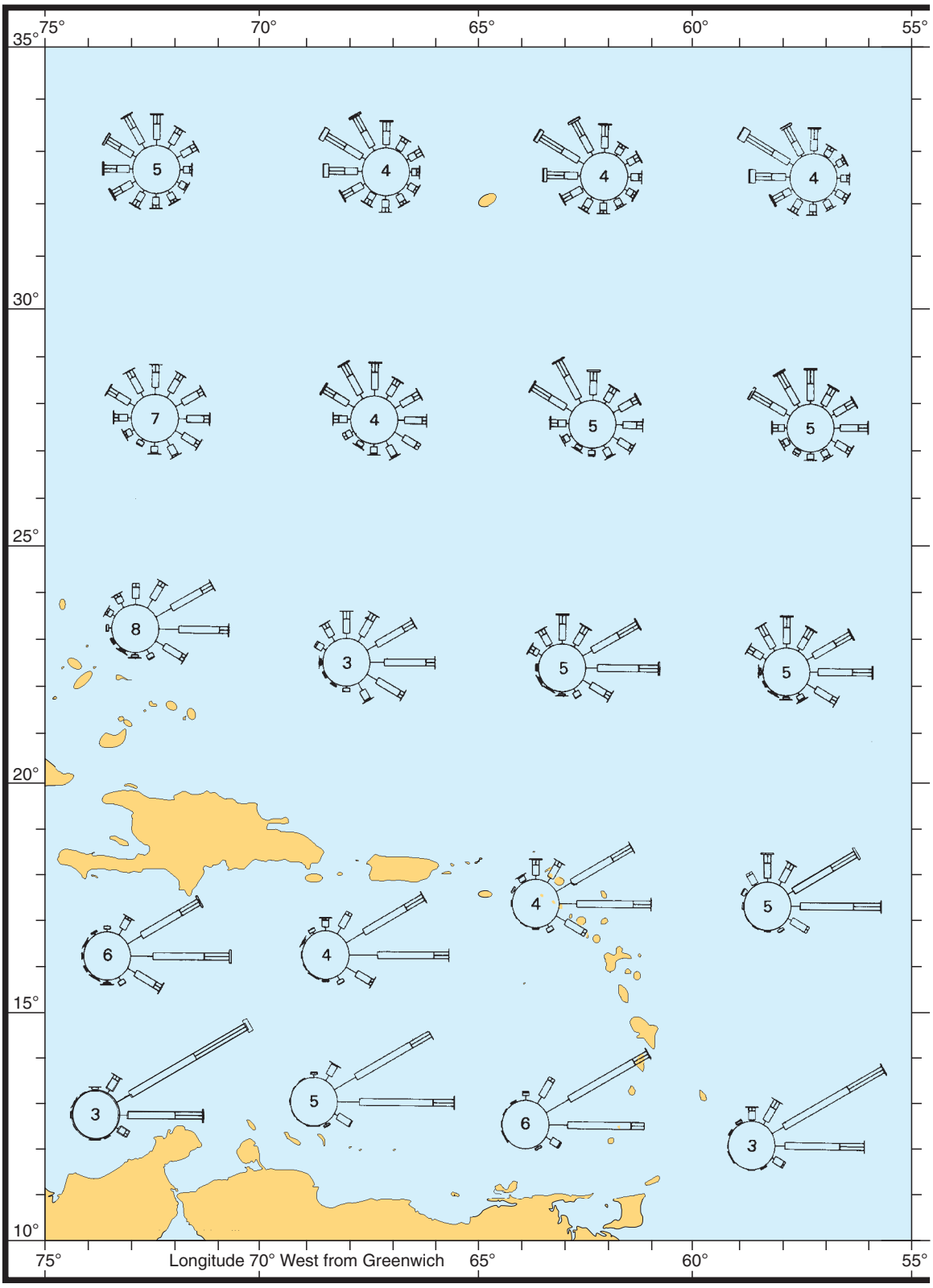

Swell distribution JANUARY (1.220.1)

EXPLANATION.The frequency of swell from any direction is given according to the scale:

0% 10 20 30 40 50%

This scale is further subdivided to indicate the frequency of swell of different heights (in metres) according to the legend:

4 0.1 1.5-2.5 3-5.5 6-8.5 9+

Swell direction is towards the circle centre. The figure within the circle gives the percentage of calms.

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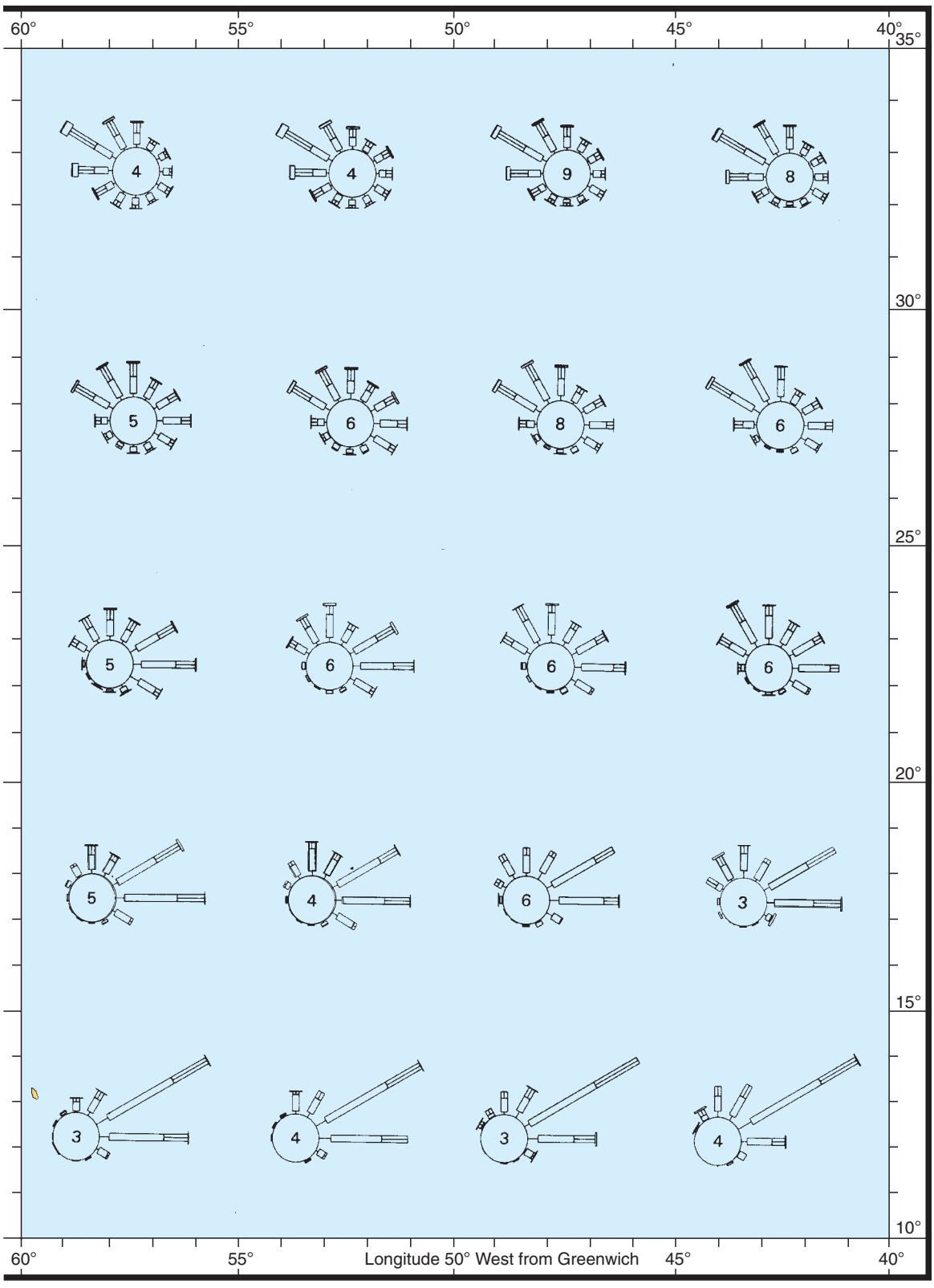
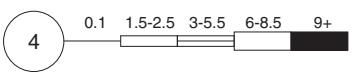


Swell distribution JANUARY (1.220.2)

EXPLANATION.The frequency of swell from any direction is given according to the scale:

0% 10 20 30 40 50%

This scale is further subdivided to indicate the frequency of swell of different heights (in metres) according to the legend:



Swell direction is towards the circle centre. The figure within the circle gives the percentage of calms.

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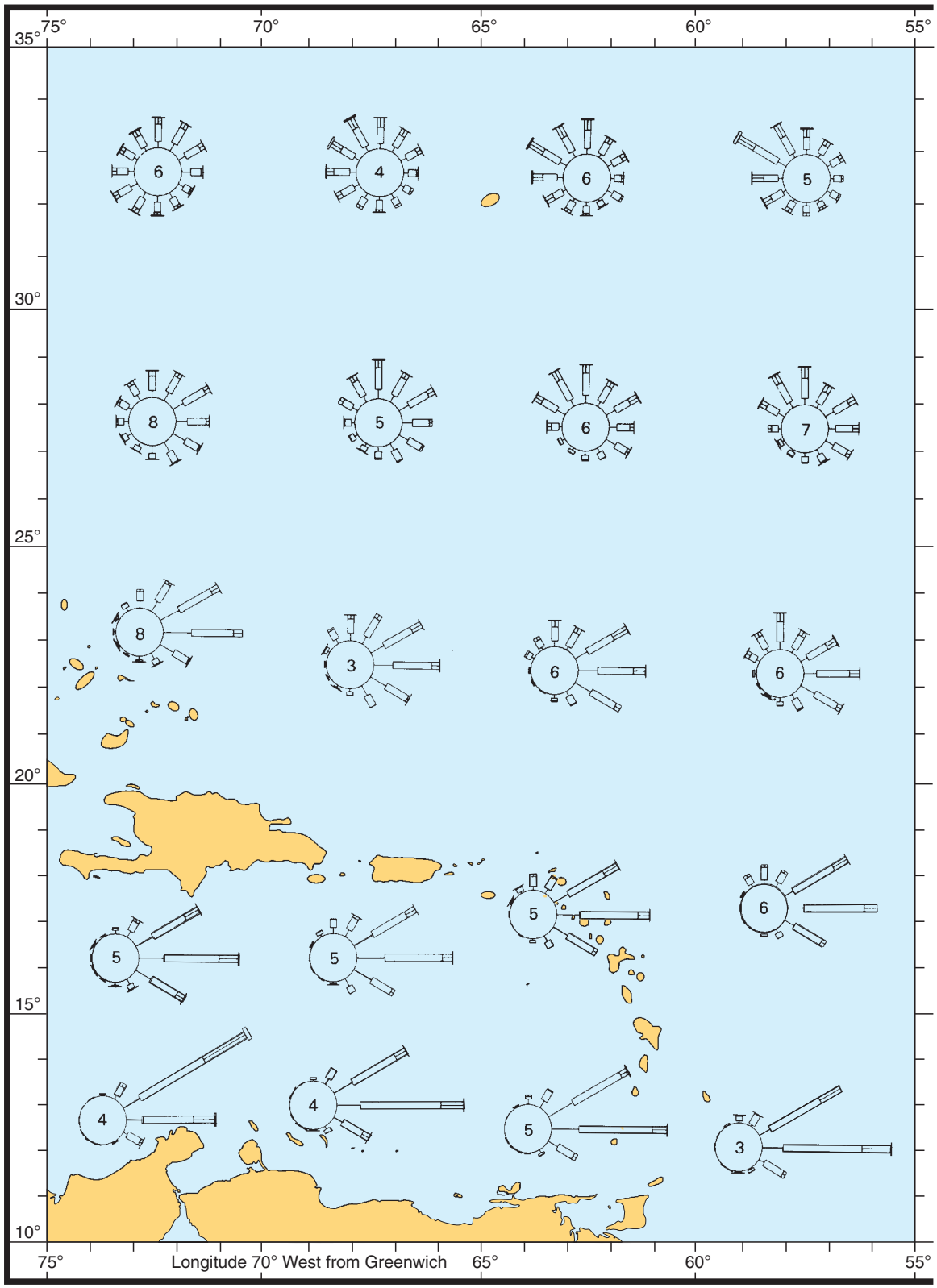
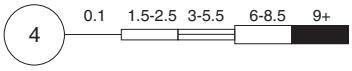


Swell distribution APRIL (1.220.3)

EXPLANATION.The frequency of swell from any direction is given according to the scale:

0% 10 20 30 40 50%

This scale is further subdivided to indicate the frequency of swell of different heights (in metres) according to the legend:



Swell direction is towards the circle centre. The figure within the circle gives the percentage of calms.

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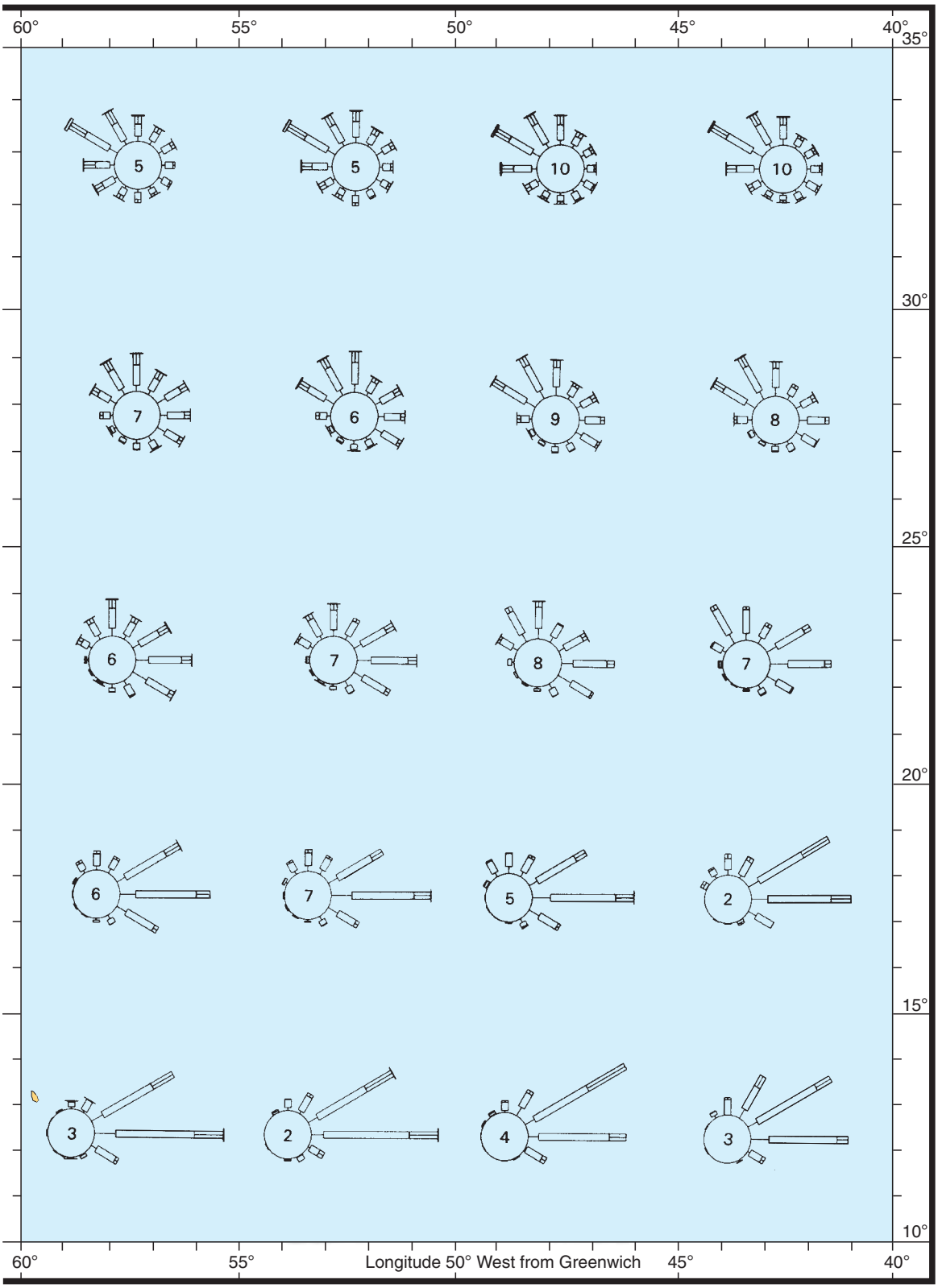
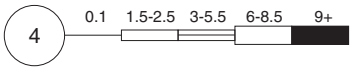


Swell distribution APRIL (1.220.4)

EXPLANATION.The frequency of swell from any direction is given according to the scale:

0% 10 20 30 40 50%

This scale is further subdivided to indicate the frequency of swell of different heights (in metres) according to the legend:



Swell direction is towards the circle centre. The figure within the circle gives the percentage of calms.

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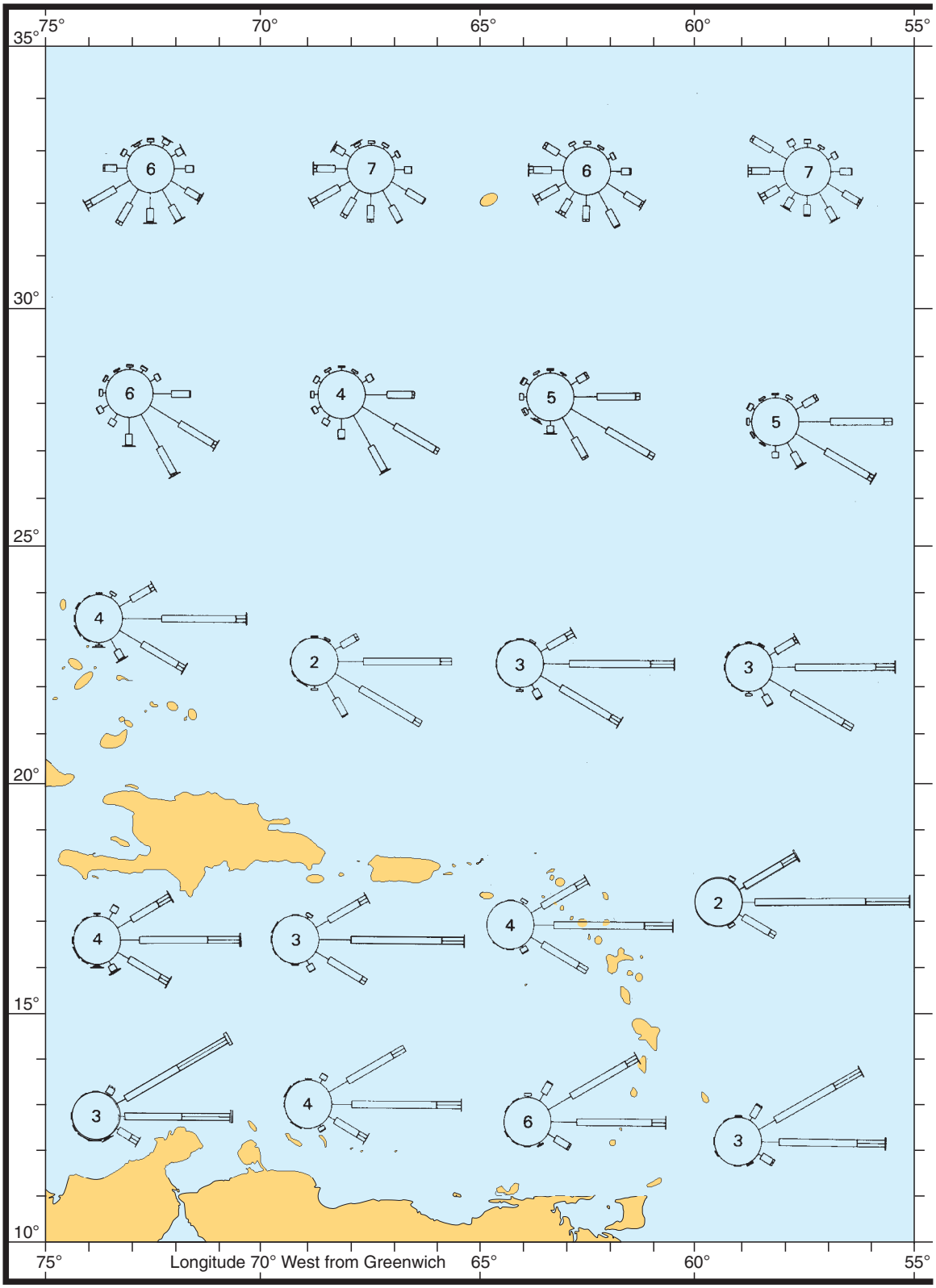
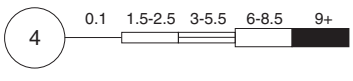


Swell distribution JULY (1.220.5)

EXPLANATION.The frequency of swell from any direction is given according to the scale:

0% 10 20 30 40 50%

This scale is further subdivided to indicate the frequency of swell of different heights (in metres) according to the legend:



Swell direction is towards the circle centre. The figure within the circle gives the percentage of calms.

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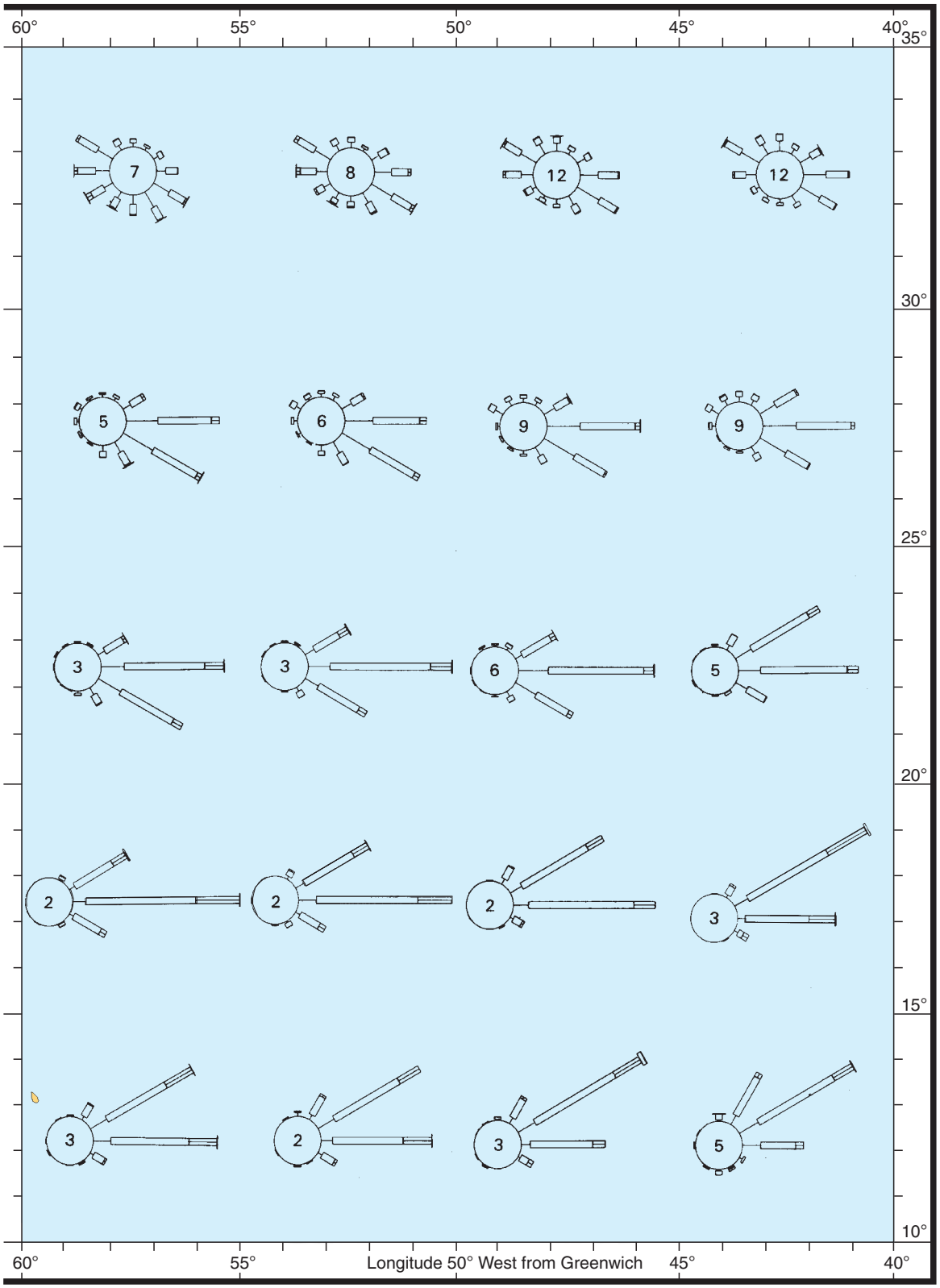
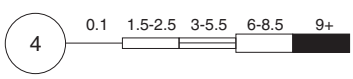


Swell distribution JULY (1.220.6)

EXPLANATION.The frequency of swell from any direction is given according to the scale:

0% 10 20 30 40 50%

This scale is further subdivided to indicate the frequency of swell of different heights (in metres) according to the legend:



Swell direction is towards the circle centre. The figure within the circle gives the percentage of calms.

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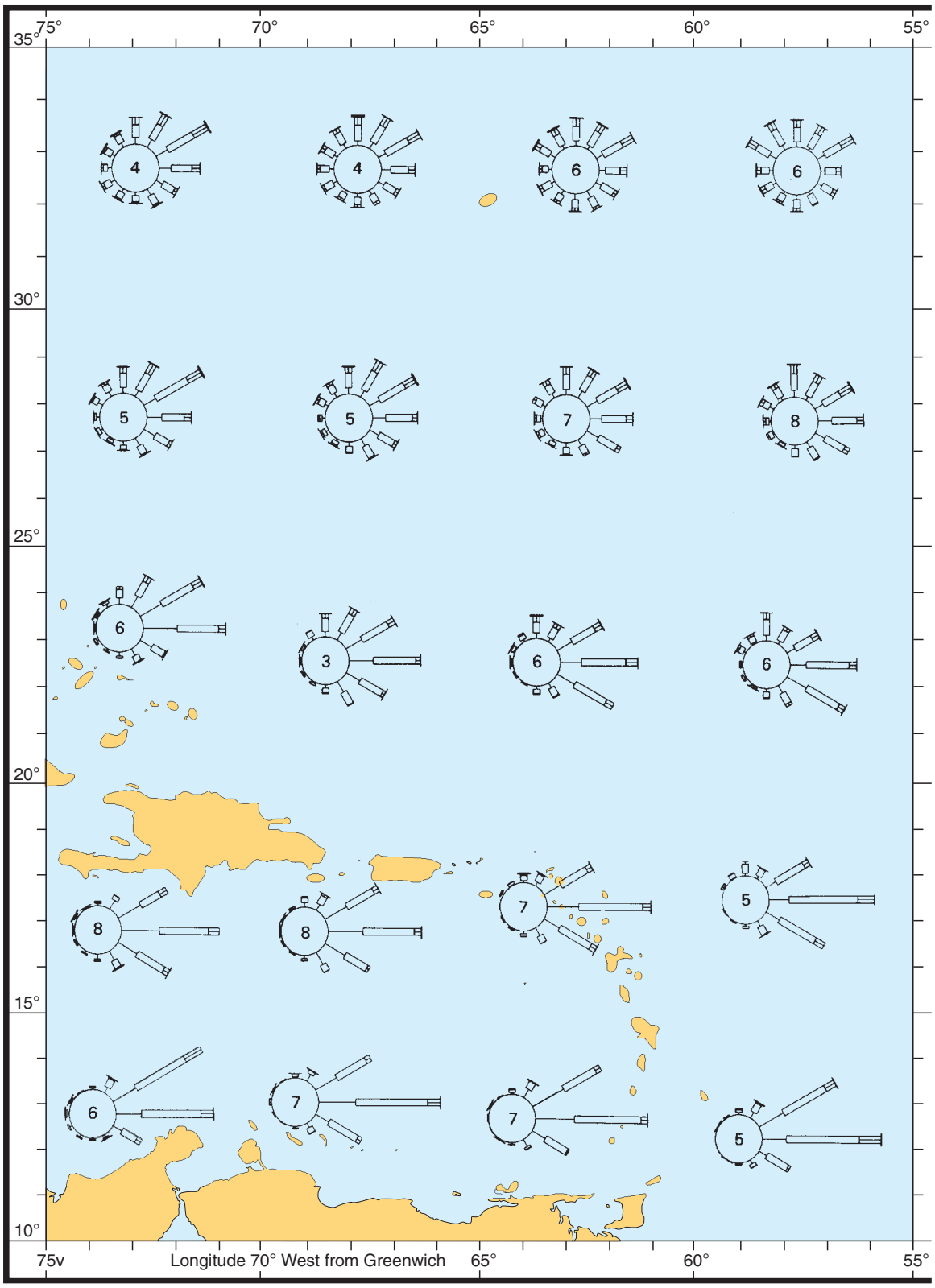
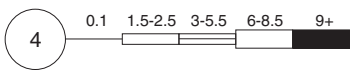


Swell distribution OCTOBER (1.220.7)

EXPLANATION.The frequency of swell from any direction is given according to the scale:

0% 10 20 30 40 50%

This scale is further subdivided to indicate the frequency of swell of different heights (in metres) according to the legend:



Swell direction is towards the circle centre. The figure within the circle gives the percentage of calms.

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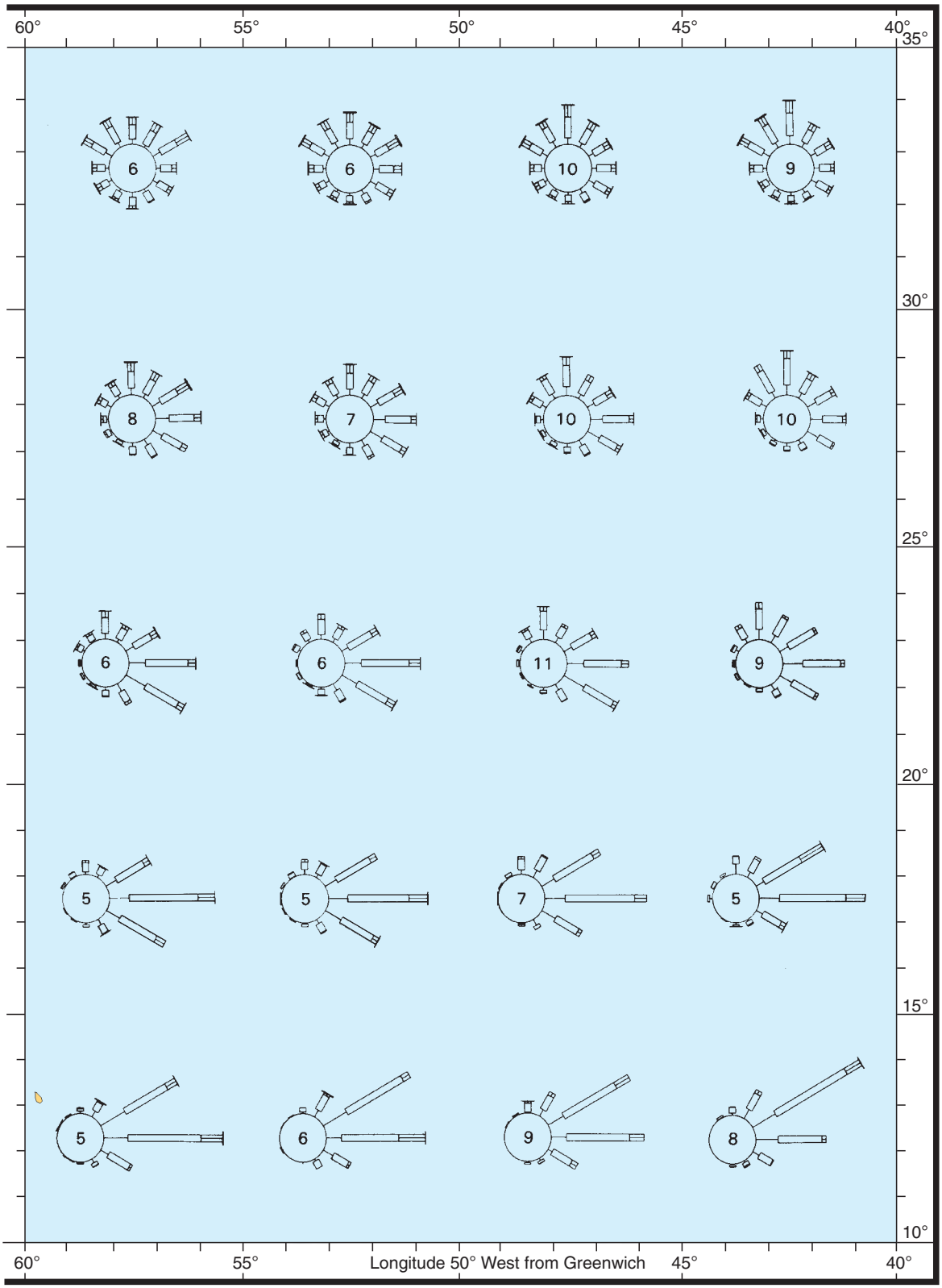
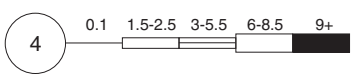


Swell distribution OCTOBER (1.220.8)

EXPLANATION.The frequency of swell from any direction is given according to the scale:

0% 10 20 30 40 50%

This scale is further subdivided to indicate the frequency of swell of different heights (in metres) according to the legend:



Swell direction is towards the circle centre. The figure within the circle gives the percentage of calms.

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2 The constancy of the South Equatorial Current is moderate to high, and with the highest constancies normally to the S of 15°N and W of 60°W. The average rate varies from around ½ kn on its N boundary to 1½ kn where its constancy is highest. The maximum rate is about 4 kn and with eddies and counter–currents possible.

1.213

1 **North Atlantic Current.** This current is E–going bordering the N limit of the North Equatorial Current. It usually remains N of the area covered by this volume but may at times extend into the NE part of the area (N of 25°N and E of 50°W) during the first 6 months of the year. Its constancy is generally low with an average rate of just over ½ kn but occasionally higher in association with deep winter depressions.

Effect of strong winds

1.214

1 Strong winds, resulting from the presence of tropical storms and hurricanes, may give rise to a wind drift current, which may enhance or reduce the main underlying current. For further information on how currents may be influenced by wind and topography see *The Mariner's Handbook*.

Tidal streams and resultant flow

1.215

1 Tidal streams which set through the many channels between the islands are mostly weak, with rates seldom exceeding 1 kn. These are greatly affected, both by island topography and by the variable currents which, in general, set into the Caribbean Sea from the Atlantic Ocean. Thus the resultant flow into the Caribbean Sea can, for the most part, be expected to have a greater rate and longer duration than that setting outwards. Local effects, where they are known, are described in the appropriate place in the body of the book.

SEA LEVEL AND TIDES

Chart 4402

Sea level

1.216

1 Mean sea level is, in general, lowered in the spring and raised in the autumn, though the overall change is no more than 0·2 m.

Tides

1.217

1 **Character.** In the central Atlantic Ocean the tides are predominantly semi–diurnal. However, amphidromic points of the two principal semi–diurnal constituents exist in approximate position 15°N, 65°W; so that the semi–diurnal contribution decreases as the islands described in this volume are approached. Thus, throughout the islands, the diurnal contribution is predominant, especially in the waters between Antigua (17°05′N 61°50′W) and Saint Thomas (18°20′N 64°55′W).

2 **Range** everywhere is less than 0·5 m.

SEA AND SWELL

Chart 4402

General

1.218

1 For definitions of sea and swell, and the terminology used in describing their characteristics see *The Mariner's Handbook*.

Sea conditions

1.219

1 In the S of the area the seas are moderate throughout the year owing to persistent North–east Trade Winds. Wind waves of 1 m or higher are recorded on 85% to 90% of occasions and waves of 2½ m or more between 10% and 20%. Calm seas are uncommon except in sheltered areas and in the lee of islands.

2 The NE of the area often experiences calm or slight seas in the late spring and summer months whilst situated beneath Azores Anticyclone (1.232). As the anticyclone moves S during autumn and winter, intermittent strong to gale force winds raise moderate to heavy seas. In January, combined sea and swell waves of 3½ m or more are reported on about 30% to 40% of occasions and waves of 6 m or more on around 5% to 10%.

Swell conditions

1.220

1 Diagrams 1.220.1 to 1.220.8 give swell roses for January, April, July and October. The roses show the percentage of observations recording swell from a number of directions and for various ranges of wave height. Moderate swell waves from between NE and E are predominant in all seasons in the S but are more variable in the NE of the area. In winter and early spring, NW swells are predominant in the N owing to deep Atlantic depressions moving E just N of the limits of this volume.

Sea and swell waves associated with tropical storms

1.221

1 Mountainous and confused seas are raised by the violent winds associated with tropical storms and hurricanes. Near the centre of a storm, groups of large waves moving in different directions, create very irregular wave heights and can combine together to form exceptionally high waves of around 30 m. Waves travel radially outwards from the centre as swell waves, and with the highest swell moving ahead of the storm and roughly in the same direction as the storm. Long period swell may indicate the approach of a tropical storm, and with increasing height as the storm nears the area.

2 When a storm approaches a coastline, high tides may occur, owing to the addition of the heavy swell and later the very high seas. Occasionally an exceptionally huge wave or "wall of water", some 6 to 7 m high, may race in from the sea with catastrophic consequences in low lying areas.

Rollers

1.222

1 Rollers are large swell waves, which grow in height as they move into shallower waters, and are described in more detail in *The Mariner's Handbook.* They are frequently experienced in the West Indies, particularly in the Virgin Islands (18°30′N 64°30′W) (3.11) and other islands NW of Guadeloupe (16°30′N 61°30′W) (6.7). The swell waves are predominantly from between E and N but owing to

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refraction can change direction on entering shallow water. For example a NE swell may be refracted and approach the shore from the NW. Although rollers are less frequent in the S, they are sometimes experienced on N and E facing coasts, particularly between December and March when the prevailing winds are usually strongest.

SEA WATER CHARACTERISTICS

Chart 4402

Salinity

1.223

1 For an explanation of salinity as applied to sea water, see *The Mariner's Handbook*.

Atlantic Ocean. The salinity of the water in that part of the Atlantic Ocean covered by this volume (mid Atlantic) remains stable at 37·25 ‰ throughout the year. This reduces across the area, towards the SW (off Grenada), to an average of 35·25 ‰ (parts per thousand) in winter and spring, and of 33 ‰ in summer.

2 **Islands at the eastern end of the Caribbean Sea.** The salinity of the waters around the island chain at the E end of the Caribbean Sea varies from N to S and according to season. In general terms this is from 36 ‰ in winter to 35 ‰ in summer round the N part of the chain, and from 35·25 ‰ in winter to 32 ‰ in summer round the S part of the chain.

3 **Eastern part of Caribbean Sea.** The salinity of the water in the E part of the Caribbean Sea is 35·75 ‰ across the area in winter. However, this varies in summer, from 33 ‰ in the E to 35·75 ‰ in the W.

Density

1.224

1 For an explanation of density as applied to sea water, and units used see *The Mariner's Handbook*.

Atlantic Ocean. Mean sea density in that part of the Atlantic Ocean covered by this volume varies across the area and according to season. In general terms this is from 1026 g/cm^3 in winter to 1024·5 g/cm^3 in summer in the NE part of the area (mid Atlantic); and from 1021 g/cm^3 in August to 1023·5 g/cm^3 in February in the SW part of the area (off Grenada).

2 **Islands at the eastern end of the Caribbean Sea.** Mean sea density of the waters around the island chain at the E end of the Caribbean Sea varies from N to S and according to season. In general terms this is from 1024·25 g/cm^3 in February to 1022·75 g/cm^3 in November, in the N part of the area (Anguilla); and from 1023·5 g/cm^3 in winter and spring to 1022·5 g/cm^3 in summer and autumn in the S part of the area (Grenada).

3 **Eastern part of the Caribbean Sea.** Mean sea density in the E part of the Caribbean Sea is reasonably uniform across the area, decreasing from 1024 g/cm^3 in February to 1022·25 g/cm^3 in August and November.

Sea surface temperature

1.225

1 Diagrams 1.225.1 to 1.225.4 show the mean sea surface temperature for February, May, August and November.

The warmest seas are found in the E Caribbean Sea where the temperatures average around 28° to 29°C from July to November and with maximum values occurring in September and October. The seasonal variation is between 2° and 3°C and with the lowest temperatures occurring in February and March.

2 In the SE of the area the seasonal variation is similar but slightly cooler, ranging from around 25°C in February and March to 27°C in late summer. To the NE the mean sea surface temperatures become progressively colder, and in winter the mean sea temperature is usually between 17° and 18°C near 35°N 40°W. Spring and summer heating is appreciable and with maximum values of between 25° and 26°C occurring in August in the extreme NE of the area.

3 Day to day sea surface temperatures seldom vary by more than 1° to 2°C from the mean.

CLIMATE AND WEATHER

General information

Chart 4402

1.226

1 The following information on climate and weather should be read in conjunction with the information contained in *The Mariner's Handbook*, which explains in more detail many aspects of meteorology and climatology of importance to the mariner.

2 **Weather reports** and forecasts are regularly broadcast in English, French or Spanish, according to country of origin. Hurricane and storm warnings are widely promulgated when required. See *Admiralty List of Radio Signals Volume 4.*

General conditions

Southern part

1.227

1 The S part of the area covered by this volume, including the E part of the Caribbean Sea, is hot and humid throughout the year. However, moderate to fresh trade winds blow from between E and NE with great persistence in all seasons and alleviate the discomforts of a tropical climate in those localities exposed to the breeze.

2 **The islands** experience considerable rainfall throughout the year, especially on the windward coasts, which mainly falls in showers. Most of the rainfall occurs in the "wet" season between May and December whilst February to April is regarded as the "dry" season.

3 **At sea** the weather is generally fair with broken cloud. Cloudy periods and showers become more widespread in summer and autumn when the Inter Tropical Convergence Zone (ITCZ) (1.237) is close to the S limit of the area. Fog is rare and visibility is generally good except in showers.

Northern part

1.228

1 The N part of the area, which extends to the mid–North Atlantic, is subject to generally light winds and warm, fair conditions during summer and autumn. However, as the Azores anticyclone (1.232) moves S, in late autumn and winter, this part of the area is increasingly affected by stronger winds from between SW and N. Frontal troughs, moving E across the Atlantic, bring cloud and rain at times during this period.

Pressure

Distribution

1.229

1 The average pressure distribution at mean sea level in January and July is shown in the accompanying diagrams 1.229.1 and 1.229.2. The dominating feature in all seasons is the ridge of high pressure extending W from the Azores anticyclone; the E–W axis of which lies across the N part in summer and early autumn then moves slowly S to around 25°N by February.

2 In the S of the area, lie the equatorial low–pressure trough and the ITCZ (1.237), which marks the boundary

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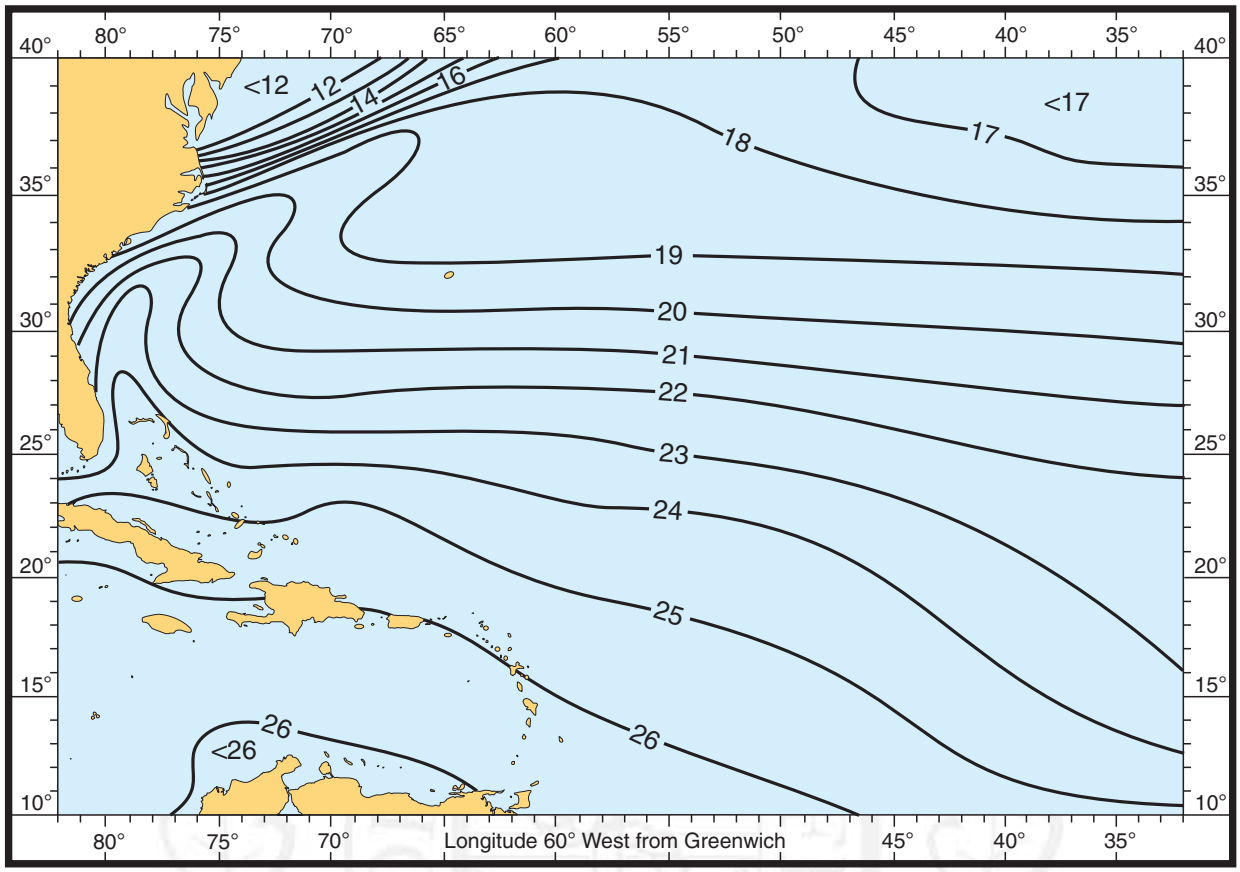
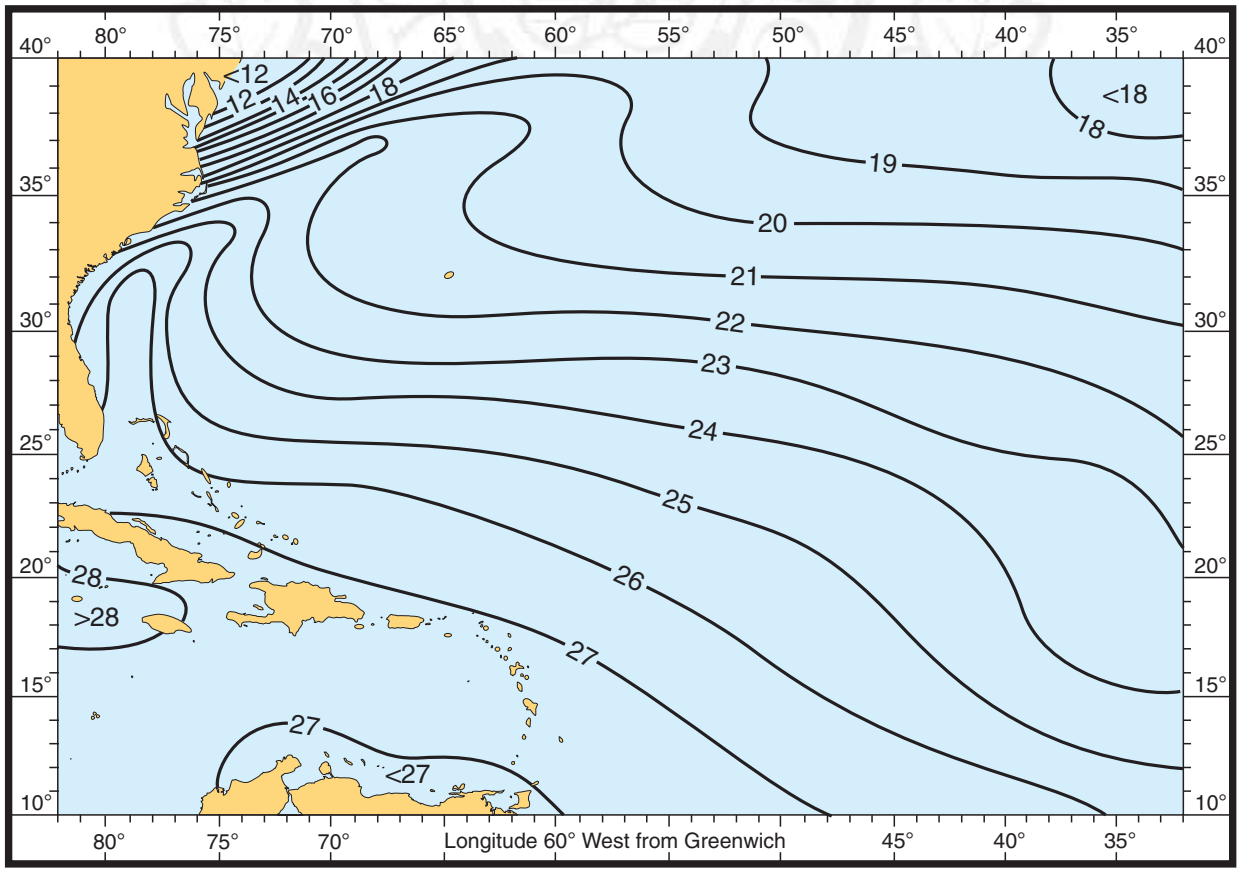


Mean sea surface temperature(C) FEBRUARY (1.225.1)



Mean sea surface temperature(C) MAY (1.225.2)

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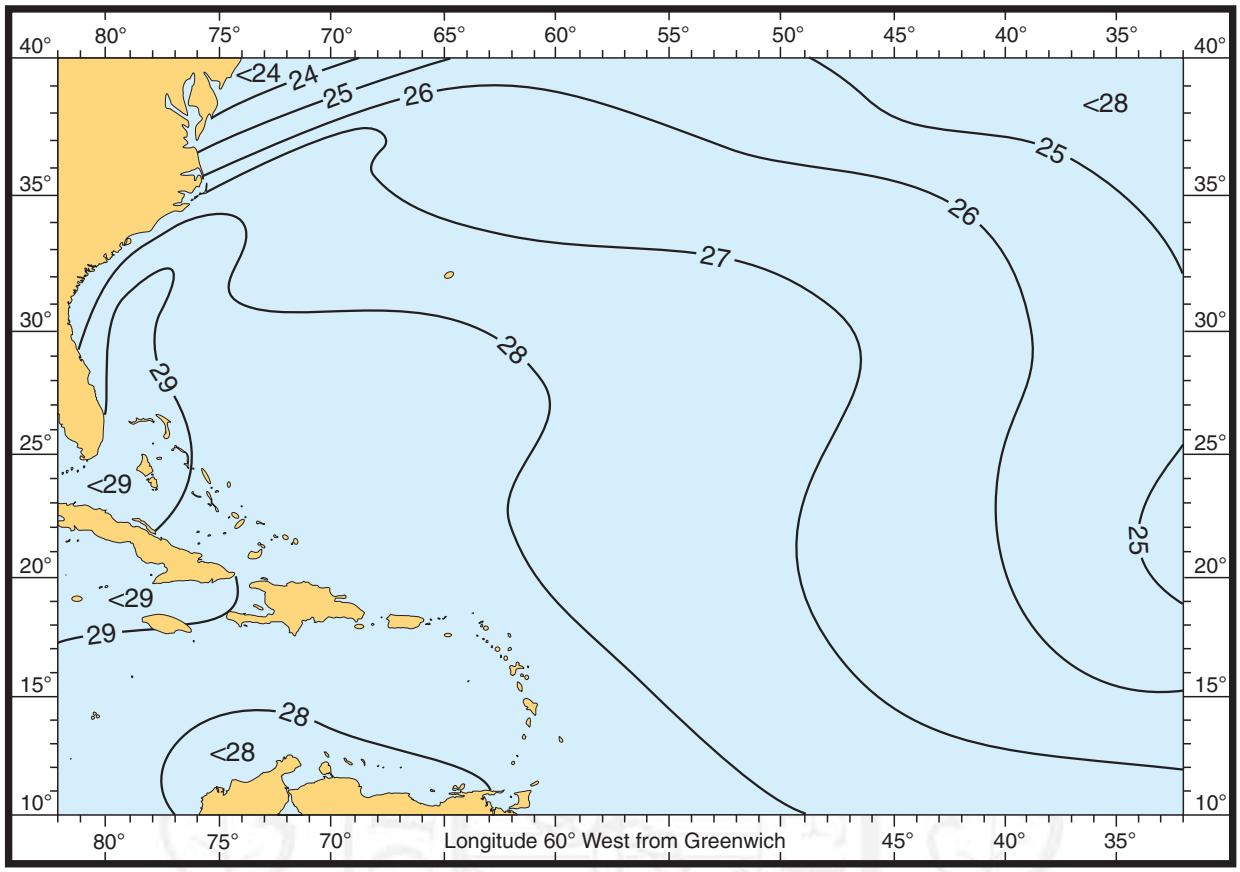
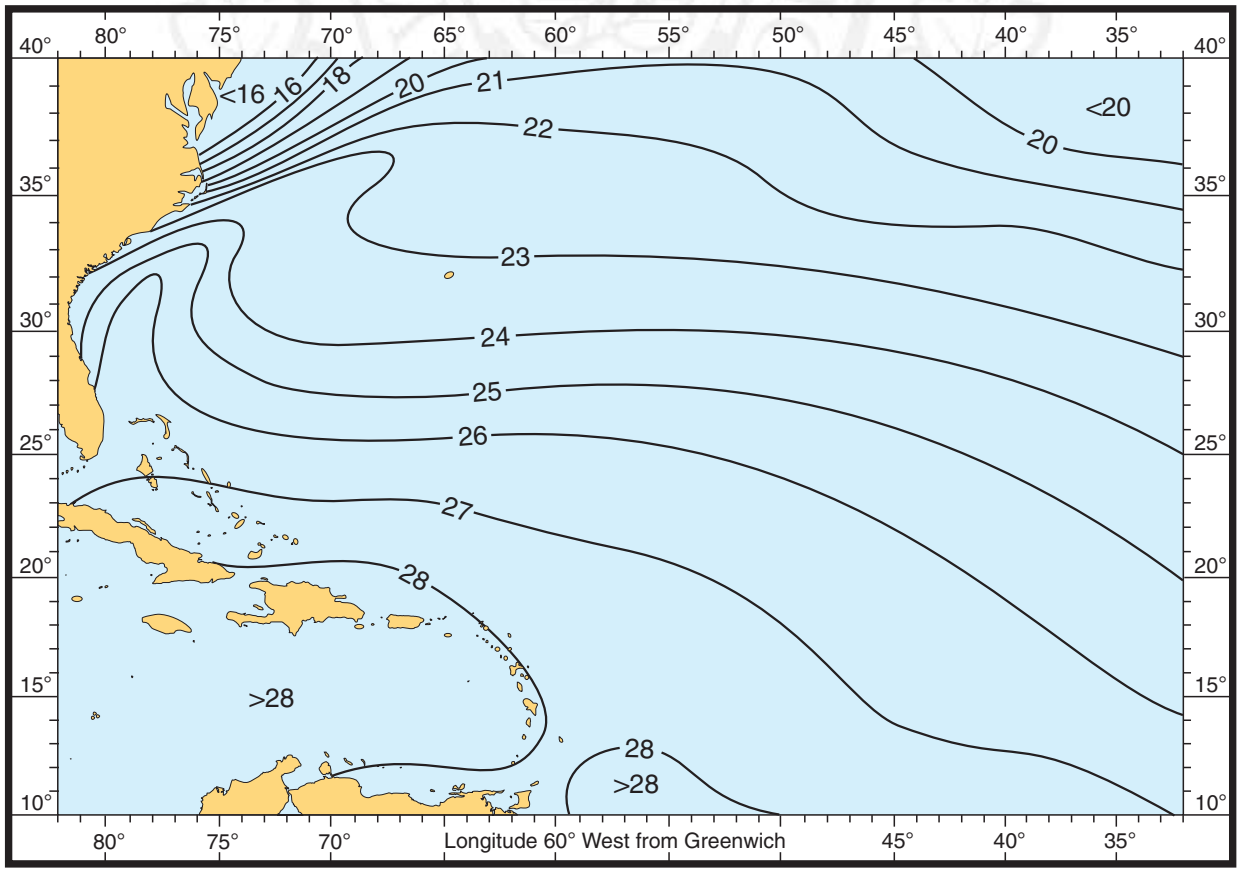


Mean sea surface temperature(C) AUGUST (1.225.3)



Mean sea surface temperature(C) NOVEMBER (1.225.4)

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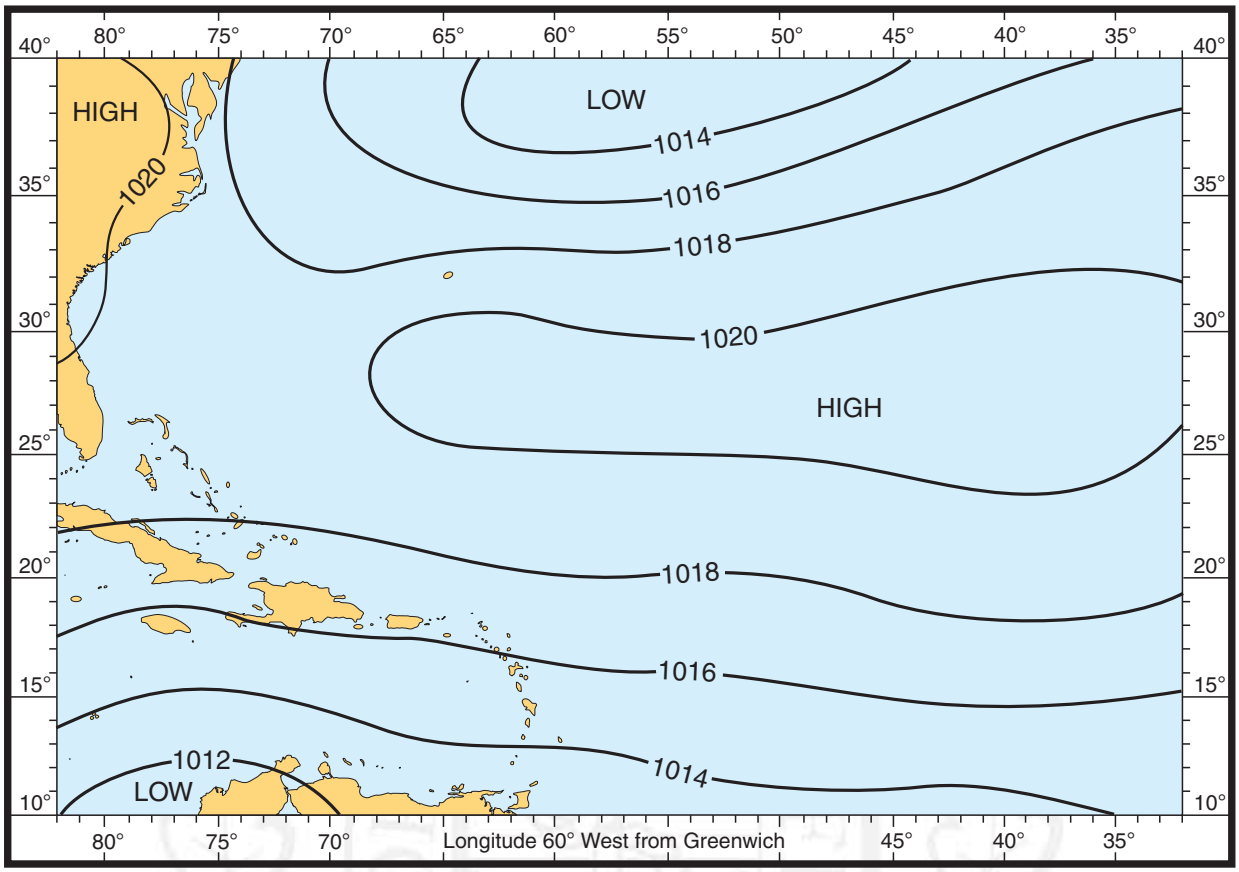
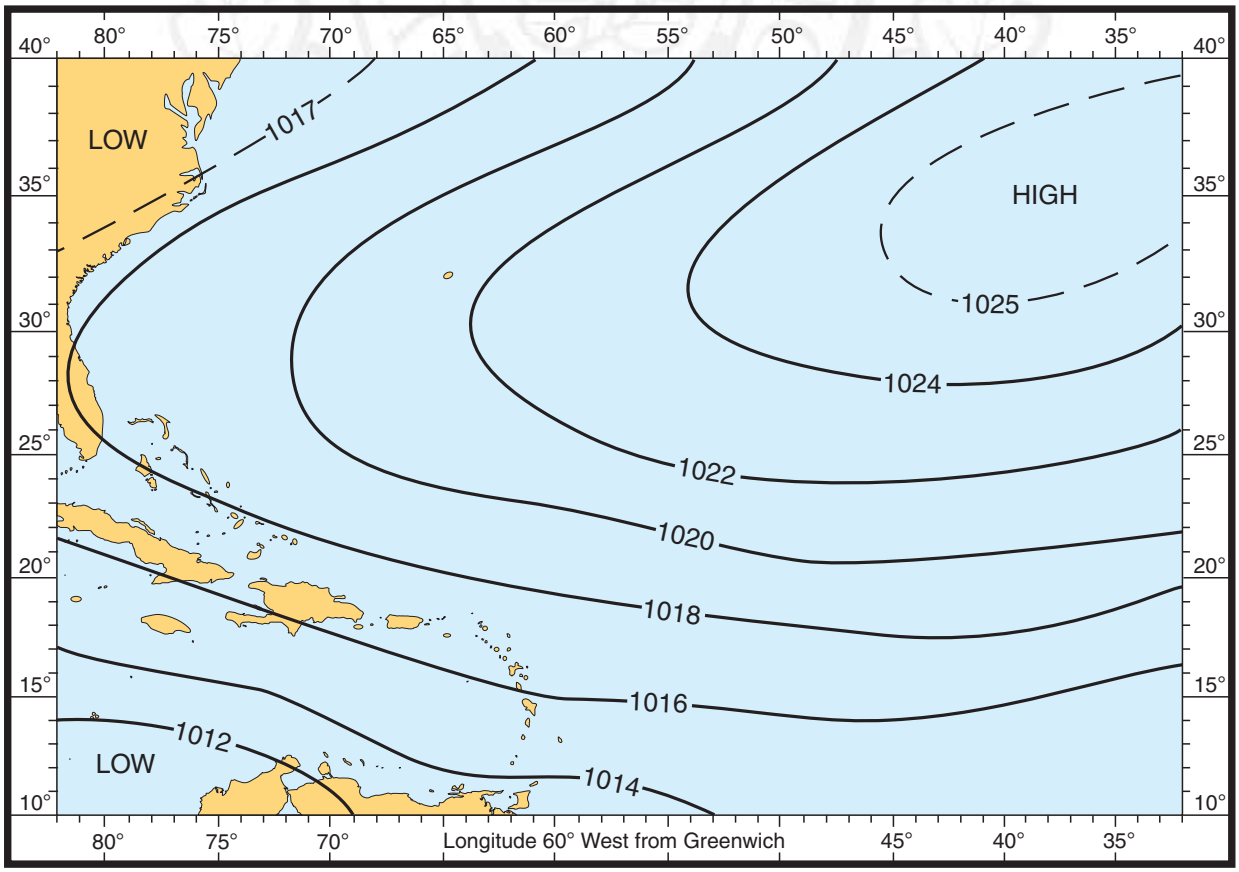


Average barometric pressure at mean sea level (hPa) JANUARY (1.229.1)



Average barometric pressure at mean sea level (hPa) JULY (1.229.2)

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where the trade wind airstreams of the N and S hemispheres meet. The ITCZ reaches it most N position at around 10°N in August then moves S in winter as the high–pressure ridge advances from the N.

Variability

1.230

1 In the extreme N of the area, frontal troughs, associated with E–going depressions, may cause marked changes in pressure particularly in winter and spring. In addition, weak troughs may exceptionally penetrate as far S as Puerto Rico. Apart from these changes, large pressure changes are unusual and daily and monthly pressure variations are generally small. Small disturbances known as *Easterly Waves* (1.238) arise in the vicinity of the ITCZ. These W–going troughs may cause minor pressure changes of around 2 hPa as they pass.

2 Any abnormal or appreciable change of pressure, particularly a fall, should be heeded as it may indicate the proximity of a potentially dangerous tropical storm. As a tropical storm or hurricane approaches a rapid and large fall is usual followed by an equally rapid and large rise as the storm moves away. A fall of more than 3 hPa (corrected for diurnal variation) in 24 hours or a value of 5 hPa or more below the monthly average may indicate the existence or impending development of a tropical depression. Such depressions are liable to intensify into tropical storms or hurricanes.

Diurnal variation

1.231

1 There is a regular diurnal variation of about 2·5 hPa in the S and 2 hPa in the N, and with maxima at 1000 and 2200 and minima at 0400 and 1600. To obtain the average pressure tendency, the following correction for diurnal variation should be applied.

Correction (hPa) to be applied to the barometer reading to allow for diurnal variation in latitudes 10° to 20°N

Local time	*Correction*	*Local time*	*Correction*
0001	–0·5	1200	–0·7
0100	–0·1	1300	–0·1
0200	+0·3	1400	+0·5
0300	+0·7	1500	+0·9
0400	+0·8	1600	+1·2
0500	+0·7	1700	+1·2
0600	+0·3	1800	+0·9
0700	–0·2	1900	+0·4
0800	–0·7	2000	–0·1
0900	–1·1	2100	–0·5
1000	–1·2	2200	–0·8
1100	–1·1	2300	–0·8

2 *Note. The above corrections should not be applied to barometric pressure values entered in the weather log, nor to those transmitted in weather reports.*

Anticyclones

Azores anticyclone

1.232

1 The Azores anticyclone, with its associated ridge of high pressure extending W to the vicinity of Bermuda, dominates the climate of the area. It is a semi–permanent feature which gives rise to the North–east Trade Winds along its S flank, which affect the larger part of the area throughout the year.

2 The E–W axis of the ridge migrates N and S, and in summer is situated at about 35°N, and in February at about 25°N. The intensity of the ridge varies with the seasons and is usually highest in July and lowest in October or November.

North American anticyclone

1.233

1 This anticyclone forms over N America in winter as the land mass cools and, on occasions, a ridge may extend S to the Caribbean Sea. Incursions of cold air bring brief cooler interludes to the N islands, but are usually of only minor significance to the islands further S and E. The anticyclone normally weakens in the spring as the land warms up and pressure falls.

Depressions

Frontal depressions

1.234

1 Mobile depressions of middle latitudes and their associated frontal troughs affect the N part of the area, particularly in winter. These move generally E or NE along the N side of the Azores anticyclone and, whilst most of them pass N of the area, they frequently give rise to strong to gale force winds (usually from between SW and N) with belts of cloud and rain on the frontal troughs.

2 Between late spring and autumn, occasional frontal troughs may continue to affect the N fringes of the area when the ridge of high pressure weakens sufficiently to permit incursions. However, the greatest threat to all parts of the area during this period is from tropical storms and hurricanes.

Tropical storms and hurricanes

1.235

1 Tropical depressions, which develop in the vicinity of the equatorial trough, are liable to affect all parts of the area but they constitute a particular hazard in the S part of the area and to the Caribbean Islands. These tropical depressions may rapidly intensify into hurricanes, with torrential rain, mountainous seas and high tides. In extreme cases winds of well over 100 kn have been recorded.

2 It is significant that many of the hurricanes which have caused widespread devastation around the Caribbean Sea, the Gulf of Mexico and the SE parts of the United States of America, have originated or passed through the area covered by this volume. For a general description of tropical storms and hurricanes, signs of their approach and recommended evasive action see *The Mariner's Handbook*.

3 **Average occurrence of tropical storms and hurricanes in the North Atlantic Ocean**

Month	*Number reaching tropical storm intensity*	*Number reaching hurricane strength*
December to April	Rare	Rare
May	1 every 5 years	Rare
June	1 every 2 years	1 every 3 to 4 years
July	1 every 1 to 2 years	1 every 2 to 3 years
Aug	2 to 3 per year	1 to 2 per year
Sept	3 to 4 per year	2 to 3 per year
Oct	1 to 2 per year	1 per year
Nov	1 every 3 years	1 every 6 years
Annually	9 to 10 per year	5 to 6 per year

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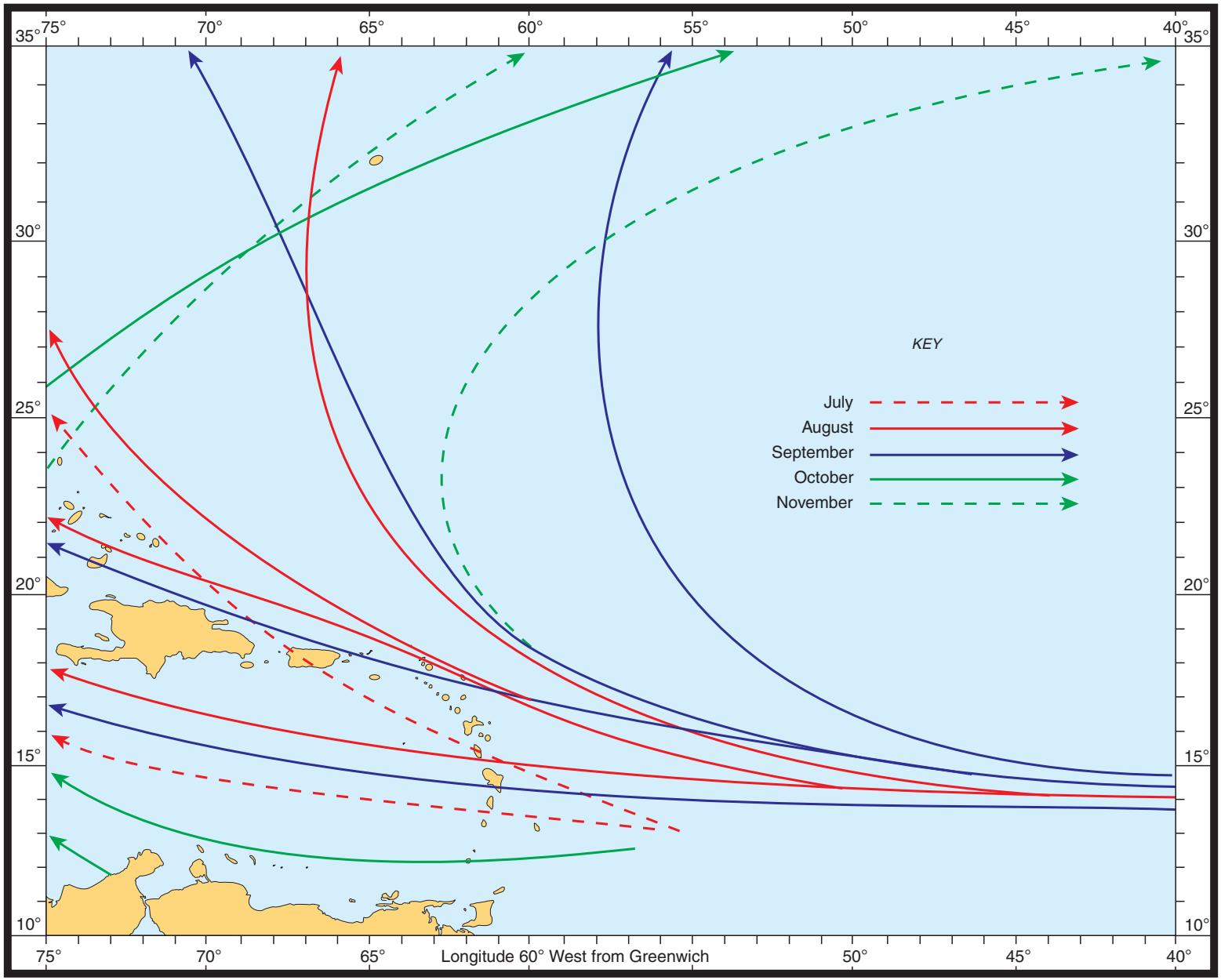

Typical tracks of hurricanes and tropical storms (1.235)

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4 Mariners are cautioned that the number of tropical storms occurring in any individual month or year may differ significantly from the average given in the table above. For example, as many as five hurricanes have been recorded in a single month in both August and September. The likelihood of a hurricane affecting an individual island varies considerably, and with the N islands being more likely to be struck than those further S. Also, whilst any particular island may not be affected for several years, it is possible for it to be affected by two or more hurricanes in a single year.

5 Initial development of a tropical depression usually takes place N of about 10°N, often in the vicinity of the ITCZ and/or near an *Easterly Wave*. Early and late in the hurricane season (June to November), tropical depressions usually form to the W of 50°W and occasionally in the W part of the Caribbean Sea. In August and September initial development may be much further E in the vicinity of West Africa and the Cape Verde Islands. These depressions often move W across the Atlantic between 10° and 15°N.

6 Diagram 1.235 illustrates, for different months of the main hurricane season, the most frequented tracks of past tropical storm and hurricanes. It must be emphasised, however, that the track of any individual tropical storm or hurricane can be very erratic with frequent changes in its speed of advance and its direction of movement.

7 Tropical depressions approaching the West Indies from the E usually follow a W or WNW track with an average speed of advance of about 10 to 15 kn. Storms in low latitudes tend to continue along this path but those that move into higher latitudes tend towards a more NW track and, in many cases, they then recurve towards the NE. As they recurve a tropical storm to tends to slow down and then accelerates again as it moves NE. After recurvature the diameter of the storm often expands and there is usually some moderation in the maximum winds; however, extremely strong winds, possibly storm to hurricane strength, may still be encountered.

8 A considerable number of tropical depressions remain relatively weak and do not develop further, especially those which form early and late in the hurricane season. However, others can intensify rapidly into severe storms or hurricanes. Storms that move inland usually weaken quickly but if they subsequently move out over a warm sea they may regenerate.

Fronts

Warm and cold fronts

1.236

1 Most of the mobile depressions, other than tropical storms or hurricanes, that affect the N of the area have well defined warm and cold fronts associated with them. The fronts mark the boundaries between the cool or very cold air of N regions and the mild or warm moist air of the sub–tropical S. They generally bring with them much cloud, rain and shifting winds. A detailed description of the weather patterns that are usually associated with warm and cold fronts is given in *The Mariner's Handbook.*

2 Exceptionally in winter, a cold front may penetrate as far S as the N end of the Caribbean Islands bringing an outbreak of cool air and fresh winds from the N and are known as *Northers.* In this latitude the cold fronts are usually weak but they are sometimes accompanied by squalls. In addition the *Northers* may at times give rise to rough seas along the N coast of Puerto Rico.

Intertropical Convergence Zone

1.237

1 The Intertropical Convergence Zone (ITCZ) lies close to the S edge of the area at around 10°N during August and September. The ITCZ marks the boundary between the North–east Trade Wind and the South–east Trade Wind of the N and S Hemispheres. Although it is not strictly a front it does have some frontal characteristics and is sometimes referred to as the *Intertropical Front.* Features of this zone or front are light variable winds with areas of extensive cloud and squally thunderstorms. The width of the zone may be as much as 200 miles but activity varies greatly, being diffuse and insignificant in some areas and well marked in others. The ITCZ is often the birthplace of disturbances, which may ultimately develop into tropical storms or hurricanes.

Easterly Waves

1.238

1 Easterly Waves are W–going disturbances, which take the form of troughs and with an axis, orientated approximately NNE to SSW. During the wet season they frequently appear in the S of the area between 10° and 25°N and to the N of the ITCZ. Although not strictly a front they do have some frontal characteristics and can give rise to considerable rainfall in the Caribbean Islands.

2 Easterly Waves often originate over the SE part of the North Atlantic and move W at about 15 kn and causing a dip in the barometer of about 2 hPa as they pass. Ahead of the wave, winds are usually NE or NNE with often fine weather and scattered small cumulus cloud. As the wave passes, the wind veers to the SE with increasing cloud and squally thundery downpours, although the arrival of the heavy downpours may be delayed for few hours after the wind has veered. The intervals between these waves are usually between 2 and 6 days.

Winds

Average distributions

1.239

1 Wind roses showing the frequency of winds of various directions and speeds for January, April, July and October are given in diagrams 1.239.1 to 1.239.8.

Open ocean

1.240

1 Over the open sea, S of about 25°N, the North–east Trade Winds predominate throughout the year with average strength of force 4 from between E and NE. These winds blow with remarkable constancy although there is some weakening and variability between August and October in the extreme S when the ITCZ moves N. Easterly Waves and tropical depressions are also most frequent at this time. Although tropical depressions and storms give rise to high winds at times they tend to be infrequent and it is unusual for the winds to exceed force 5 to 6. In the seas around the West Indies, winds of force 6 to 7 are recorded on about 5% to 10% of occasions in January, February, June and July, and on less than 5% of occasions in other months.

2 North of 25° N, in winter, E–moving depressions and frontal troughs frequently affect the area. Winds are frequently strong to gale force SW ahead of a system and then veer NW as it passes. In summer the Azores anticyclone tends to force E–moving depressions further N, and with mainly light to moderate variable winds prevailing. At the same time the zone of the North–east Trade Winds extend N to around 30°N.

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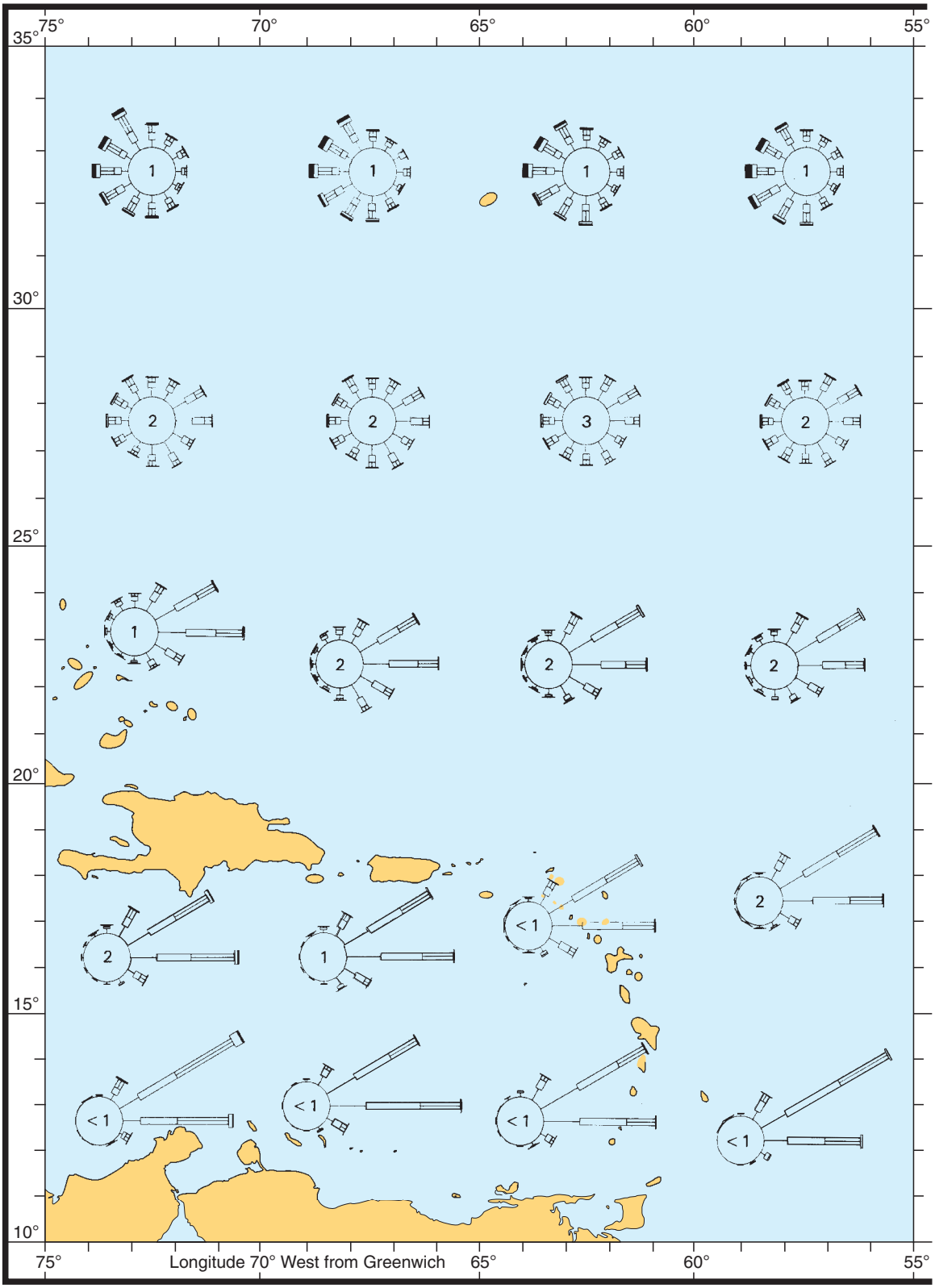
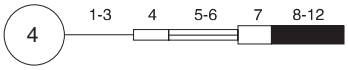


Wind distribution JANUARY (1.239.1)

EXPLANATION.The frequency of wind from any direction is given according to the scale:

0% 10 20 30 40 50%

This scale is further subdivided to indicate the frequency of winds of different Beaufort force according to the legend:



Wind direction is towards the circle centre. The figure within the circle gives the percentage of calms.

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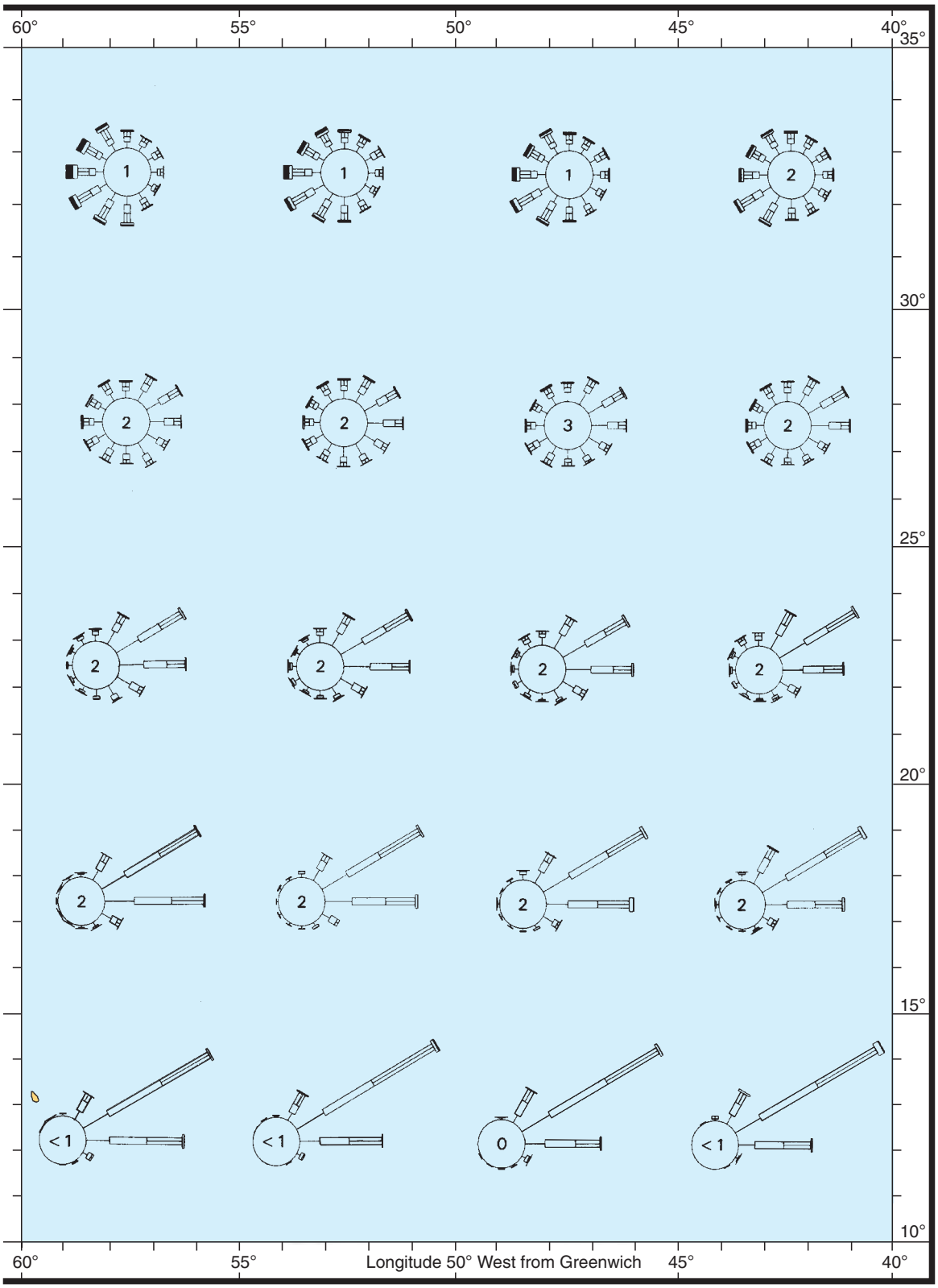
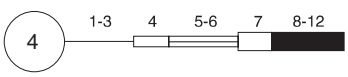


Wind distribution JANUARY (1.239.2)

EXPLANATION.The frequency of wind from any direction is given according to the scale:

0% 10 20 30 40 50%

This scale is further subdivided to indicate the frequency of winds of different Beaufort force according to the legend:



Wind direction is towards the circle centre. The figure within the circle gives the percentage of calms.

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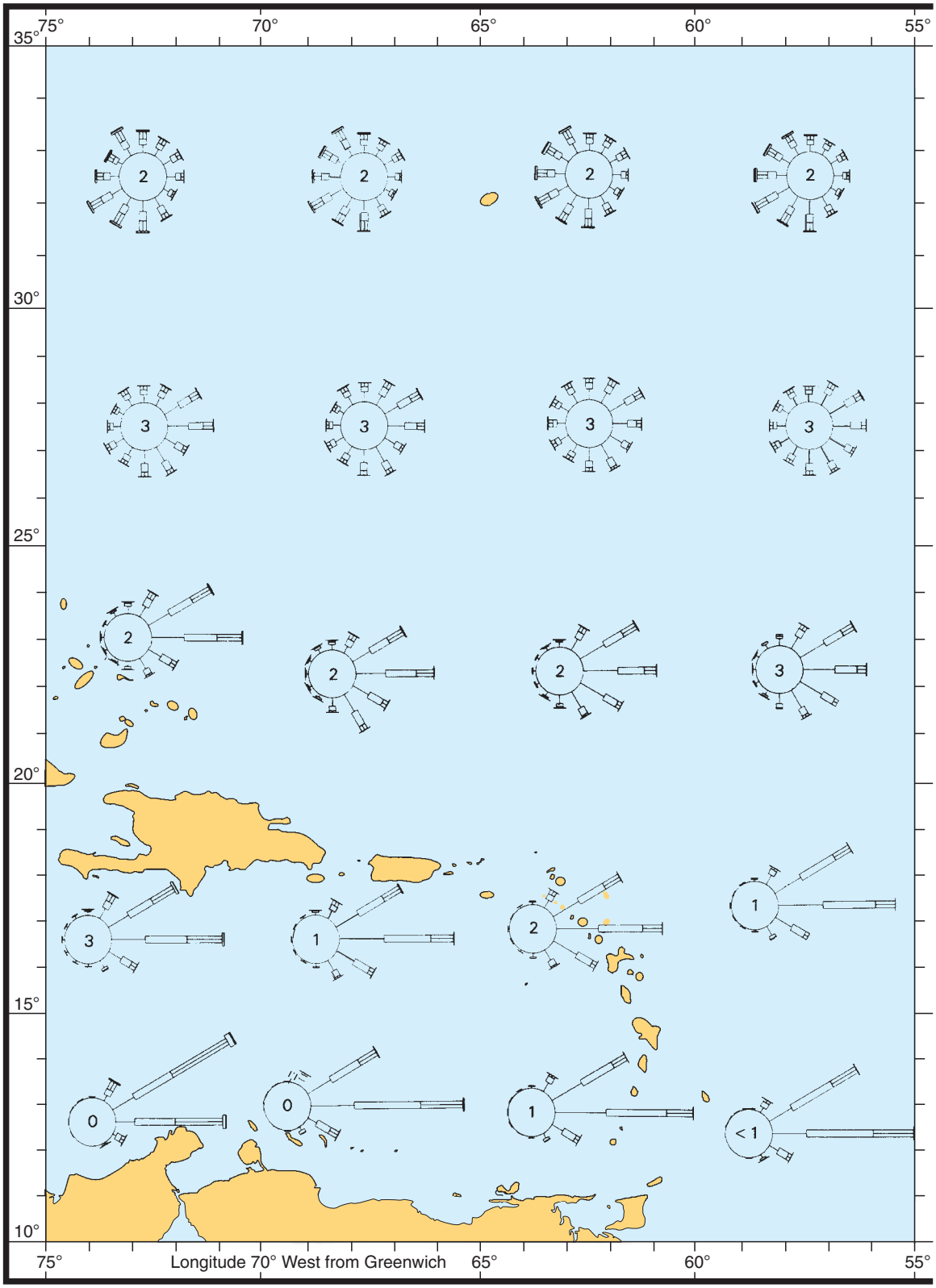
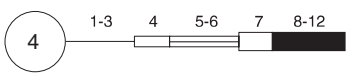


Wind distribution APRIL (1.239.3)

EXPLANATION.The frequency of wind from any direction is given according to the scale:

0% 10 20 30 40 50%

This scale is further subdivided to indicate the frequency of winds of different Beaufort force according to the legend:



Wind direction is towards the circle centre. The figure within the circle gives the percentage of calms.

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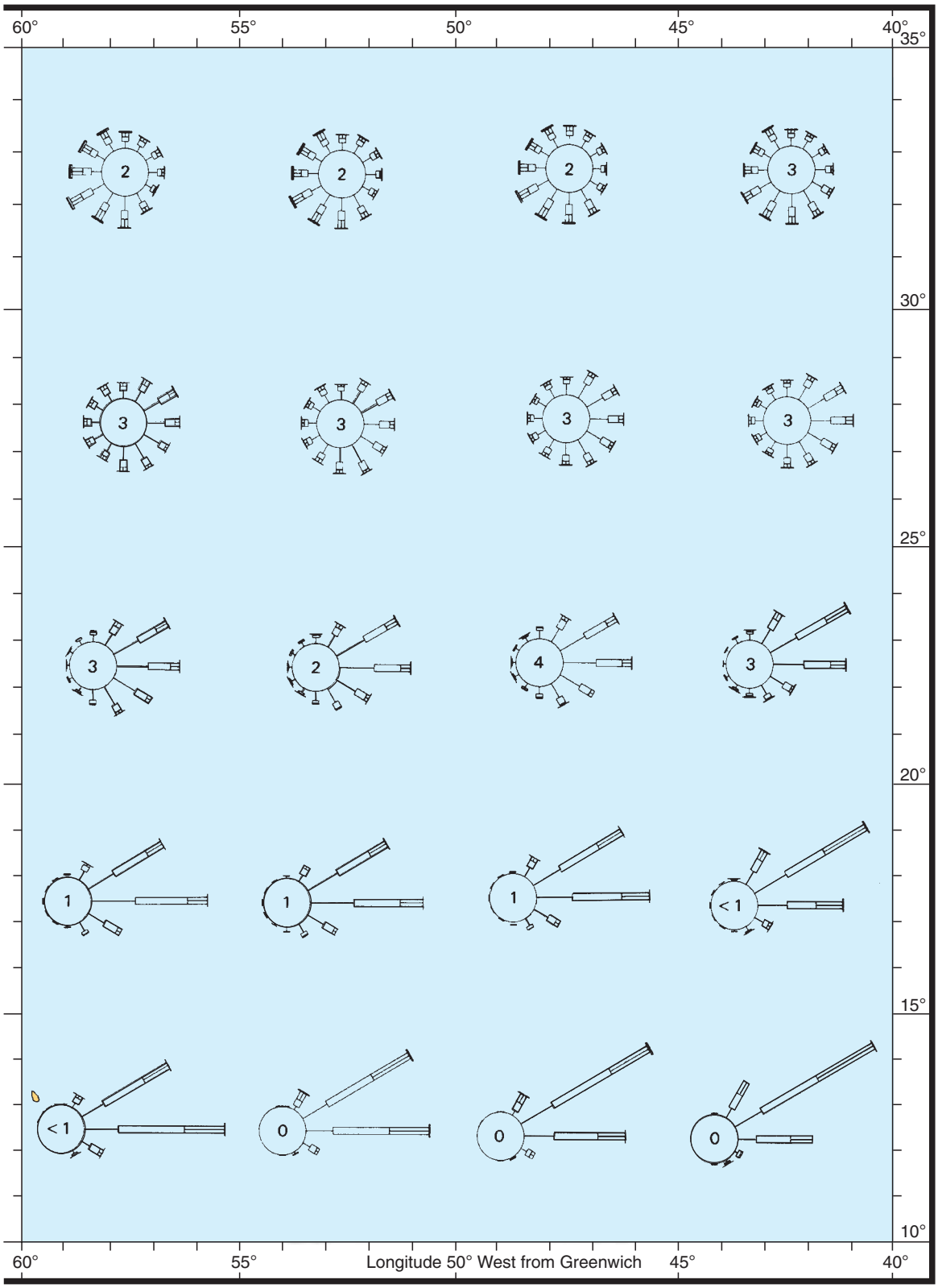
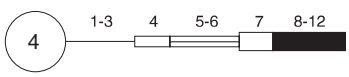


Wind distribution APRIL (1.239.4)

EXPLANATION.The frequency of wind from any direction is given according to the scale:

0% 10 20 30 40 50%

This scale is further subdivided to indicate the frequency of winds of different Beaufort force according to the legend:



Wind direction is towards the circle centre. The figure within the circle gives the percentage of calms.

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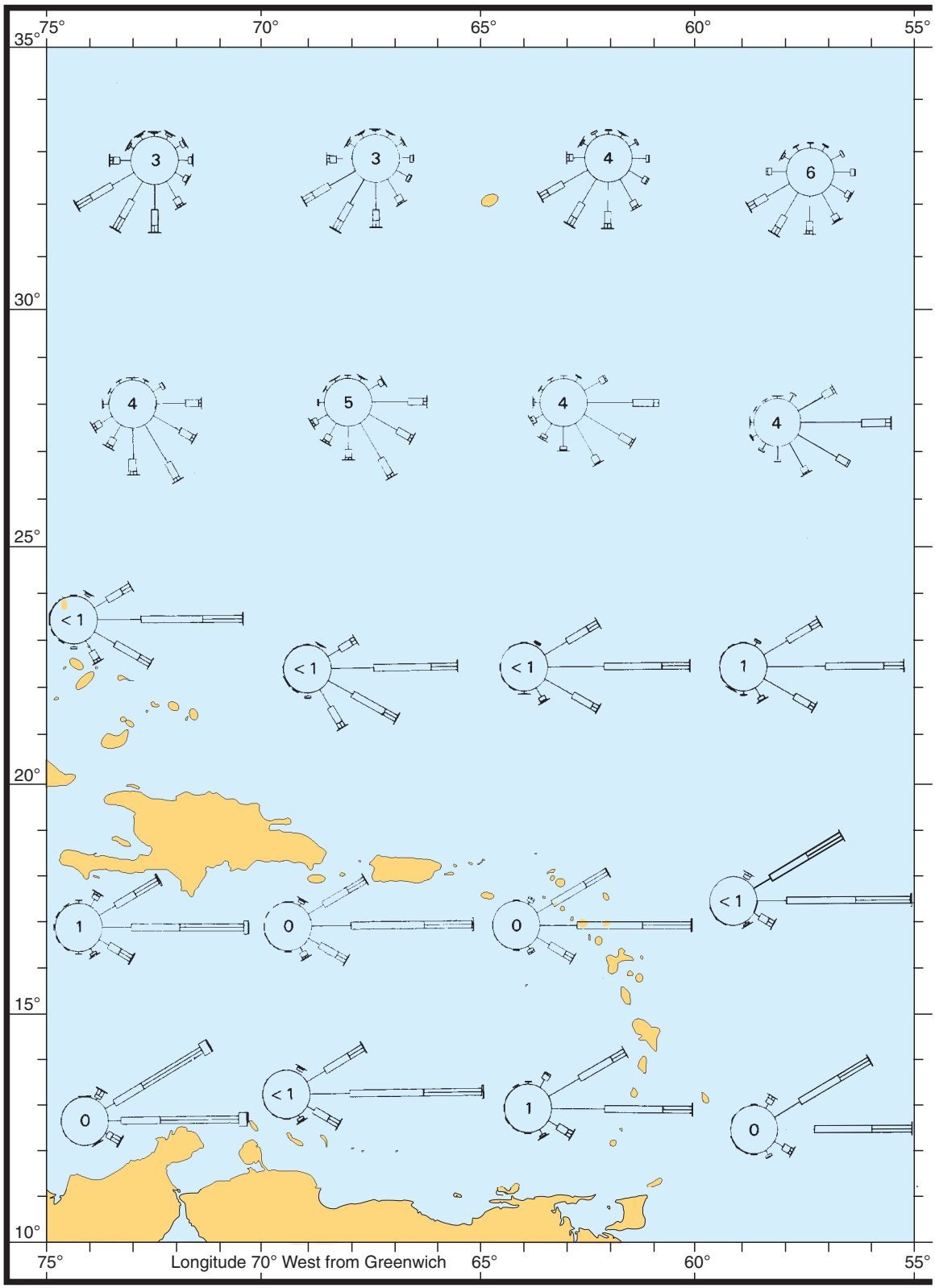
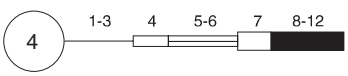


Wind distribution JULY (1.239.5)

EXPLANATION.The frequency of wind from any direction is given according to the scale:

0% 10 20 30 40 50%

This scale is further subdivided to indicate the frequency of winds of different Beaufort force according to the legend:



Wind direction is towards the circle centre. The figure within the circle gives the percentage of calms.

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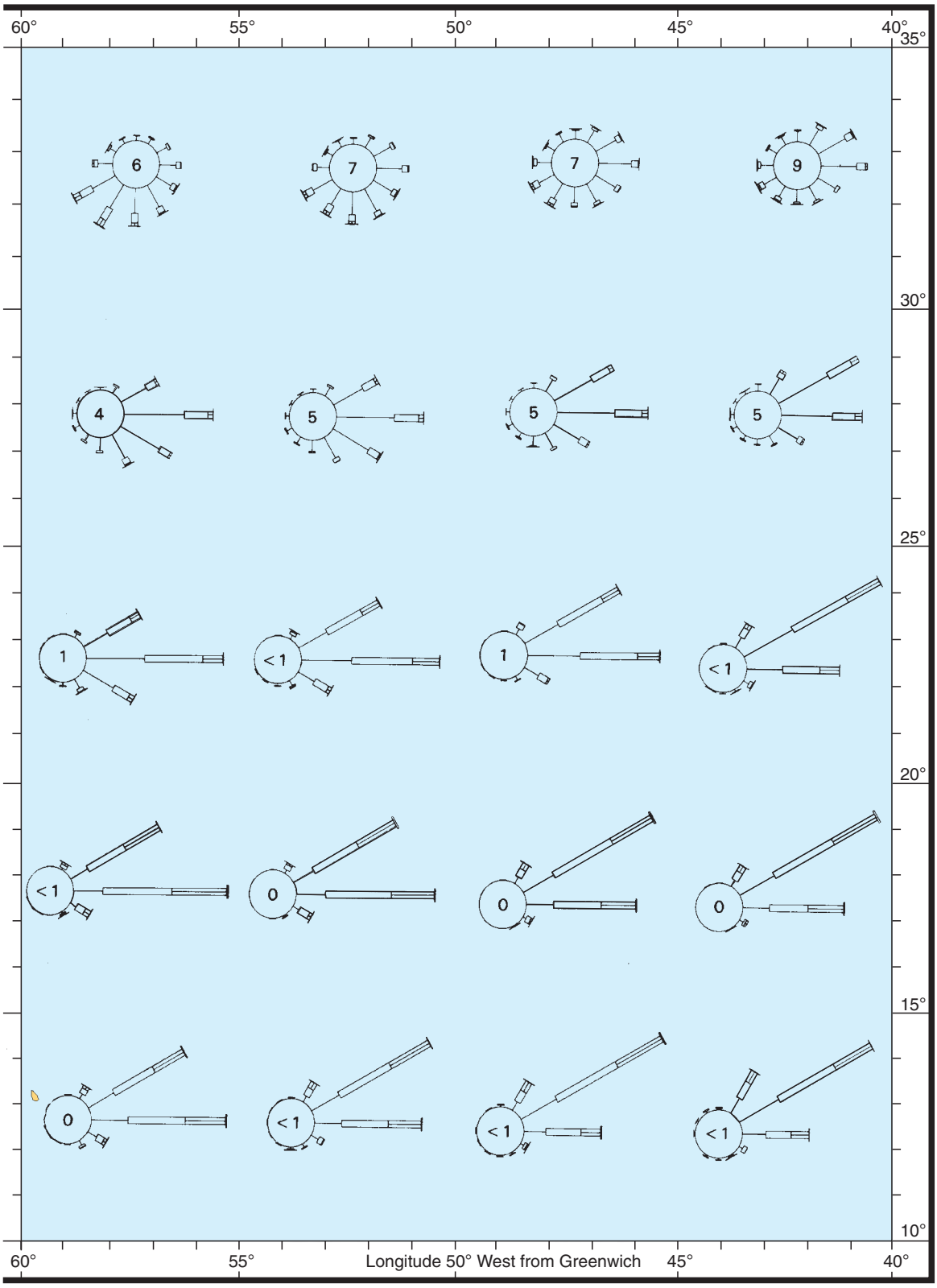
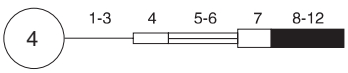


Wind distribution JULY (1.239.6)

EXPLANATION.The frequency of wind from any direction is given according to the scale:

0% 10 20 30 40 50%

This scale is further subdivided to indicate the frequency of winds of different Beaufort force according to the legend:



Wind direction is towards the circle centre. The figure within the circle gives the percentage of calms.

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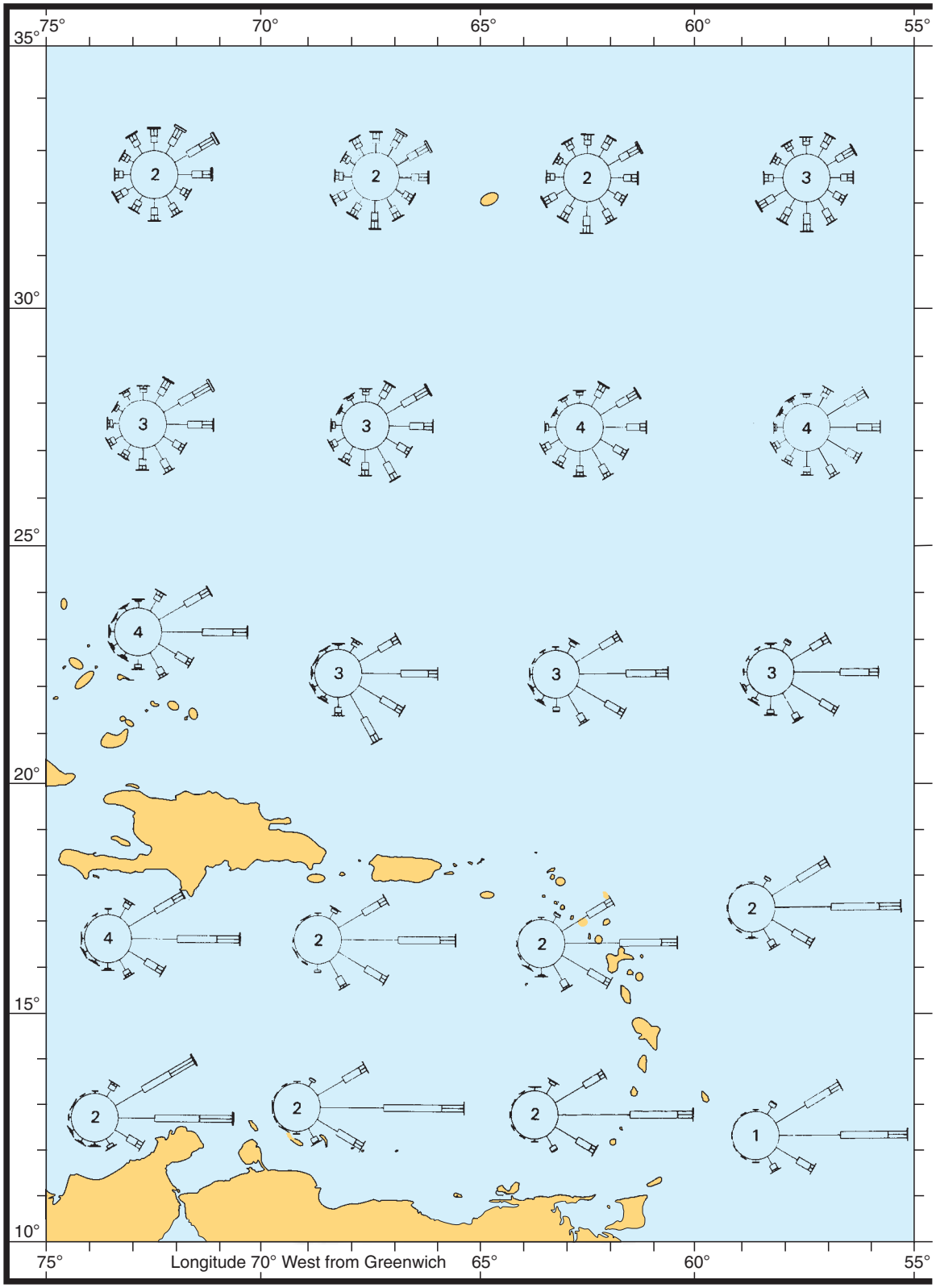
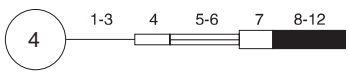


Wind distribution OCTOBER (1.239.7)

EXPLANATION.The frequency of wind from any direction is given according to the scale:

0% 10 20 30 40 50%

This scale is further subdivided to indicate the frequency of winds of different Beaufort force according to the legend:



Wind direction is towards the circle centre. The figure within the circle gives the percentage of calms.

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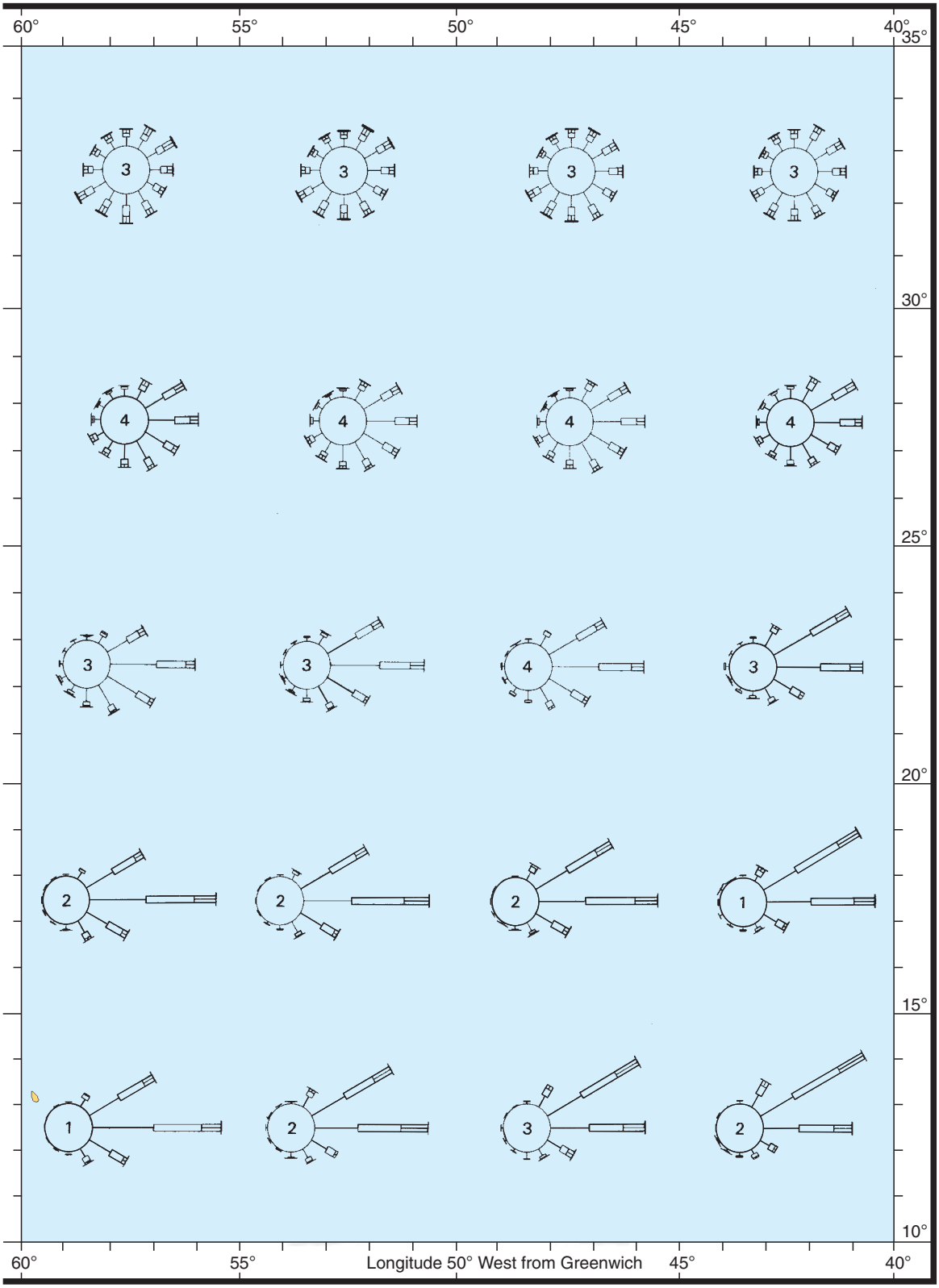
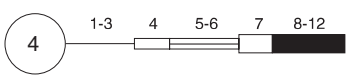


Wind distribution OCTOBER (1.239.8)

EXPLANATION.The frequency of wind from any direction is given according to the scale:

0% 10 20 30 40 50%

This scale is further subdivided to indicate the frequency of winds of different Beaufort force according to the legend:



Wind direction is towards the circle centre. The figure within the circle gives the percentage of calms.

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Coastal waters

1.241

1 Small low–lying islands have little moderating influence on the wind and any local variations only occur within a short distance of the coast. However, larger and higher islands cause very significant modifications, which may extend well out to sea. See *The Mariner's Handbook* concerning the effects of topography on the wind.

Land and sea breezes

1.242

1 The effect of land and sea breezes is most noticeable in sheltered leeward localities where there is a regular daily change in the direction and strength of the wind. See *The Mariner's Handbook* for description of these breezes. In other areas a common effect is to introduce a modifying influence by reinforcing, opposing or deflecting the prevailing wind. For example in some areas The North–east Trade Wind may be reinforced to give winds of about force 5 to 6 by day and fall light and variable at night.

Squalls

1.243

1 Squalls are a common occurrence in the West Indies, especially in association with thundery showers during the wet season. They are more often experienced in coastal waters rather than over the open sea and are particularly frequent along the leeward coasts of high islands, where turbulence is increased by the topography.

Gales

1.244

1 Winds of gale force 8 and over occur within the circulations of tropical storms and hurricanes (1.235) and can affect all parts of the area. In the S of the area, S of 25°N, winds of force 8 or more are relatively rare and are recorded on less than 4% of occasions in winter and less than 1% in summer. To the N of 25°N the frequency of gales increases with latitude, with gales reported on 10% to 15% of occasions in the extreme N of the area in winter and on less than 2% of occasions in summer.

Cloud

1.245

1 Over the open ocean in the S of the area the cloud is mainly scattered cumulus, and with a mean cover of 3 to 4 oktas. In summer the cloud amount increases to around 4 to 5 oktas as the ITCZ moves N towards the extreme S of the area. Near Easterly Waves, and near tropical depressions or hurricanes, the skies are cloudy to overcast with massive banks of cumulonimbus and higher level cloud.

2 In the N of the area, the summers are generally fine with around 3 oktas of cloud under the influence of the Azores anticyclone. Occasionally a frontal trough may bring more cloud in summer, and with these bands of cloud becoming more frequent and widespread in winter as more frontal depressions affect the area.

3 In coastal areas exposed to the North–east Trade Winds there is usually more cloud than over the open waters or in the lee of high islands. Summer tends to be cloudier then mid–winter (see the climatic tables which give average cloud amounts for a number of islands within the area). Broken cloud is common, and clear or overcast skies are usually infrequent and short–lived.

Precipitation

General

1.246

1 In the S of the area rain generally falls as showers and can vary from light showers in the dry season to torrential thundery downpours in the wet season, and particularly near Easterly Waves, Tropical Storms and the ITCZ. Over the land showers often develop during the afternoon and then drift offshore and die in the evening. In general rainfall is high but varies widely from place to place and with annual amounts ranging from 900 mm to 3800 mm. The windward slopes of the more mountainous islands receive most rain whilst those localities in the lee may record substantially less.

2 The wet season extends from May to December and with more rain falling in the latter part of the season. The drier season extends from February to April. Despite abundant rainfall, in some islands, notably the Virgin Islands, evaporation losses are high owing to high temperatures and brisk winds and lead to a lack of water and semi–arid conditions.

3 In the N of the area there is a completely different seasonal distribution of rainfall with the maximum rainfall occurring in the winter months when frontal depressions cross the area. Belts of rain and drizzle move E in association with these depressions followed by cooler showery weather to rear to the depressions or cold fronts. Rainfall amounts are not recorded at sea but rain is reported on 15% to 20% of occasions in winter and on about 5% of occasions in summer as the Azores anticyclone migrates N. The rain in summer is mainly associated with usually weak frontal troughs or when a tropical depression affects the area.

Thunderstorms

1.247

1 Thunderstorm activity is low in the winter months although they may occur in the N during the passage of a cold front with its associated squalls. The frequency is low in the summer months in the N but reaches a maximum in the S. See the climatic tables (1.251) for the frequency of thunderstorms at a number of coastal stations in the SW of the area.

Fog and visibility

1.248

1 Fog is practically unknown at sea with a frequency of occurrence of less than 1% although the visibility does on occasions fall to less than fog limits (1000 m) in heavy rain or showers. Visibility is generally good with rare instances of sightings in excess of 100 miles. Around the West Indies 2% to 5% of observations record visibility of less than 5 miles during most months.

Air temperature

1.249

1 Over the sea in winter, the mean air temperatures are around 25° to 26°C in the S and 17° to 19°C in the N. In summer the mean air temperature in the S is about 26° to 28°C and 25° to 26°C in the N. Air temperatures in the S usually remain within 2C of the mean but in the N the variation is greater, particularly in winter. When cooler air moves S to affect N areas then the mean air temperatures can, on occasions, fall to around 8° to 10°C, and in summer may reach 30°C on some occasions.

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2 Over the islands in the SW of the area, the diurnal and seasonal ranges are greater than that over the sea, and in areas sheltered from the prevailing winds the range is still greater. In general the average daily maximum air temperature is around 29°C in winter and 32°C in summer. The climatic tables (1.251) list the average and extreme air temperature values for each month at a number of coastal stations within the area.

Humidity

1.250

1 Humidity is closely related to air temperature and generally decreases as the temperature increases. During the early morning, when the air temperature is normally at its lowest, the humidity is generally at its highest, and falls to a minimum during the afternoon.

2 The airstreams affecting the whole of the area have a long sea track and therefore the humidity is moderately high at all times. In January the mean value of the relative humidity over the open ocean is around 74% to 75% in the N, central and SE parts and 78% in the SW. In July the mean values are 76% to 77% in the N and central areas and 80% in the S.

3 Over the islands in SW of the area the daily range of humidity values is higher than over the open ocean (see climatic tables 1.251). Onshore sea breezes usually cause a marked increase in humidity values, and with the lowest values usually occurring in March.

Climatic tables

1.251

1 The tables which follow give data for several coastal stations which regularly undertake weather observations. Some of these stations have been re–sited and so the position given is the latest available.

2 It is emphasised that these data are average conditions and refer to the specific location of the observing station and therefore may not be totally representative of the conditions over the open sea or in approaches to ports in their vicinity.

3 The following comments briefly list some of the differences to be expected between conditions over the open sea and the nearest reporting station. See *The Mariner's Handbook*:

Wind speeds tend to be higher at sea than on land, although funnelling in narrow inlets can result in an increase in wind strength.

4 Precipitation along high wind facing coasts can be considerably higher than at sea to windward. Similarly precipitation in the lee of high ground is generally less.

Air temperature over the sea is less variable than over the land.

Topography has a marked effect on local conditions.

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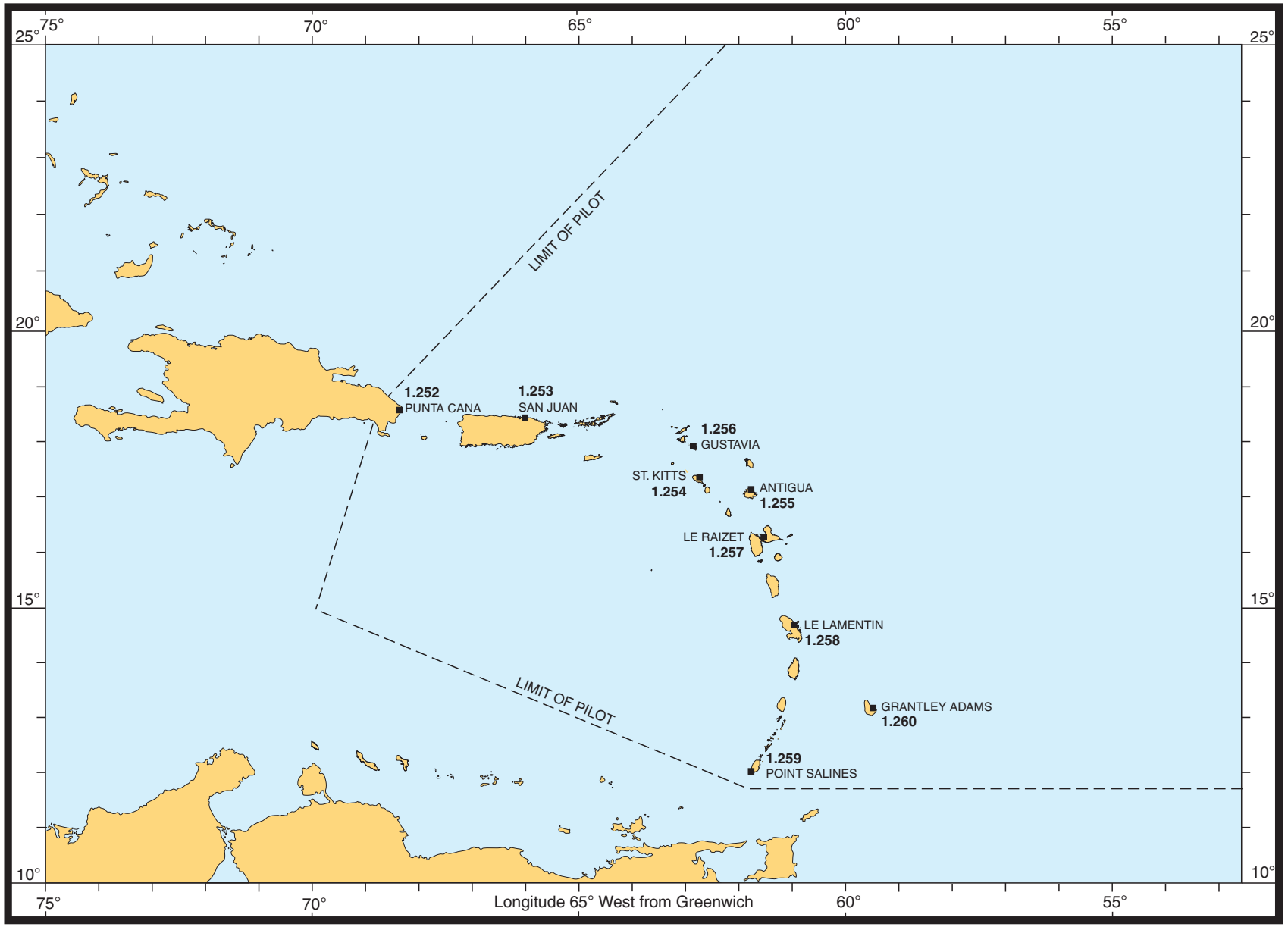

Location of climatic stations (1.251)

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1.252

WMO No 78479

PUNTA CANA, DOMINICAN REPUBLIC (18° 34′ N 68° 22′ W) Height above MSL – 12 m

Climatic Table compiled from 6 years observations, 1993 to 1998

Month	Average pressure at MSL	Temperatures				Average humidity		Average cloud cover		Precipitation		Wind distribution – Percentage of observations from																		Mean wind speed		Number of days with		
		Mean daily max.	Mean daily min.	Mean highest in each month	Mean lowest in each month	0800	1400	0800	1400	Average fall	No. of days with 1 mm or more	0800									1400									0800	1400	Gale	Fog	Thunder
												N	NE	E	SE	S	SW	W	NW	Calm	N	NE	E	SE	S	SW	W	NW	Calm					
	hPa	°C	°C	°C	°C	%	%	Oktas		mm																				Knots				
January	1015	29	21	31	19	89	76	3	3			7	15	39	2	2	0	1	1	33	8	9	53	23	5	1	0	1	0	6	10	0	1	0
February	1015	29	21	31	19	90	74	3	3			5	9	52	4	1	0	6	3	20	8	8	67	11	6	0	0	1	0	7	11	0	0	0
March	1014	30	21	32	19	89	71	3	2			4	4	46	7	1	0	2	2	34	2	7	57	23	11	0	1	0	0	6	11	0	0	0
April	1014	31	22	33	20	85	68	2	3			4	10	42	15	5	1	0	0	22	6	8	51	19	14	0	0	1	1	7	11	0	0	⊕
May	1014	32	23	34	20	85	70	3	3			2	0	55	17	4	1	0	0	22	1	2	58	30	8	0	0	1	0	7	10	0	0	1
June	1015	32	24	33	21	84	71	3	3			1	0	57	19	3	0	0	0	20	1	0	74	21	4	0	0	0	0	6	10	0	0	2
July	1015	32	24	33	22	85	72	3	4			2	5	70	9	2	1	0	0	12	1	2	75	18	2	0	0	0	0	8	11	⊕	1	5
August	1014	32	24	34	21	86	72	2	3			3	3	58	11	1	1	2	1	21	4	6	72	12	5	1	0	0	0	6	10	⊕	⊕	3
September	1012	32	24	33	21	88	74	3	4			2	4	52	10	4	1	1	2	25	6	3	65	15	6	1	2	1	2	7	10	⊕	⊕	4
October	1012	32	23	33	20	89	74	3	4			1	3	39	4	2	0	3	1	48	3	8	56	19	10	0	3	0	2	4	10	⊕	0	3
November	1013	31	22	32	20	90	77	4	4			3	11	41	10	1	0	⊕	1	33	4	13	61	13	5	1	0	1	1	6	10	0	0	3
December	1014	30	21	31	19	90	76	3	3			7	17	30	4	4	0	2	0	36	6	11	57	13	10	1	0	1	2	6	10	0	0	0
Means	1014	31	22	35*	18§	88	73	3	3	–	–	3	7	48	9	3	⊕	1	1	28	4	6	62	18	7	⊕	1	1	1	6	10	–	–	–
Totals	–	–	–	–	–	–	–	–	–			–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	⊕	2	18
Extreme values	–	–	–	36†	17‡	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
No. of years observations	6	6				6		6				6									6									6		6	6	6

* Mean of highest each year
§ Mean of lowest each year

† Highest recorded temperature
‡ Lowest recorded temperature

⊕ Rare
⊖ All observations

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1.253

WMO No 78526

SAN JUAN AIRPORT, PUERTO RICO (18° 26′ N 66° 00′ W) Height above MSL – 19 m

Climatic Table compiled from 16 to 30 years observations, 1960 to 1998

Month	Average pressure at MSL	Temperatures				Average humidity		Average cloud cover		Precipitation		Wind distribution – Percentage of observations from																		Mean wind speed		Number of days with		
		Mean daily max.	Mean daily min.	Mean highest in each month	Mean lowest in each month	0800	1400	0800	1400	Average fall	No. of days with 1 mm or more	0800									1400									0800	1400	Gale	Fog	Thunder
												N	NE	E	SE	S	SW	W	NW	Calm	N	NE	E	SE	S	SW	W	NW	Calm					
	hPa	°C	°C	°C	°C	%	%	Oktas		mm																				Knots				
January	1017	29	22	31	20	84	65	3	4	71	13	1	7	17	24	21	9	2	1	19	4	27	56	8	3	1	⊕	1	⊕	4	11	0	0	⊕
February	1017	28	22	31	20	82	63	4	4	55	9	1	5	20	28	21	7	1	⊕	17	5	29	49	9	4	⊕	1	1	⊕	4	11	0	⊕	⊕
March	1016	29	22	32	20	78	61	3	4	60	8	1	7	23	28	17	9	2	⊕	12	6	33	48	7	5	⊕	⊕	1	⊕	5	12	0	⊕	⊕
April	1015	30	23	33	21	75	62	3	4	96	9	2	8	28	29	15	6	2	⊕	10	7	33	41	10	7	1	⊕	1	⊕	5	11	0	0	1
May	1015	31	24	34	22	78	67	4	5	151	13	1	4	38	28	11	5	2	1	10	3	29	41	11	12	2	⊕	1	1	6	12	0	⊕	4
June	1016	31	25	34	23	78	66	3	4	102	12	⊕	3	50	35	7	1	1	⊕	3	1	28	53	10	6	1	⊕	⊕	⊕	7	12	0	⊕	4
July	1017	32	25	33	23	80	68	4	4	111	14	1	5	51	33	6	1	1	⊕	3	1	32	56	9	2	⊕	⊕	⊕	⊕	7	12	⊕	0	5
August	1016	32	25	34	23	80	68	3	4	135	15	⊕	4	37	38	10	2	1	1	8	2	32	54	7	3	1	⊕	⊕	⊕	5	12	⊕	0	6
September	1014	32	25	34	23	79	68	4	4	134	13	1	2	22	31	17	10	3	⊕	14	4	30	46	9	5	2	1	1	1	5	10	⊕	⊕	8
October	1013	32	24	34	23	80	67	3	4	145	14	⊕	3	12	22	27	15	3	⊕	17	6	29	39	11	10	2	2	1	⊕	4	10	⊕	0	7
November	1014	30	24	33	22	81	68	4	4	151	15	1	6	16	22	24	11	3	1	17	4	29	50	9	5	2	⊕	1	⊕	4	10	⊕	⊕	3
December	1016	29	22	31	21	83	67	4	4	120	14	1	8	17	20	21	10	2	⊕	20	5	32	47	9	4	1	1	2	⊕	4	10	⊕	0	1
Means	1015	30	24	35*	19§	80	66	3	4	–	–	1	5	28	28	16	7	2	⊕	13	4	30	48	9	6	1	1	1	⊕	5	11	–	–	–
Totals	–	–	–	–	–	–	–	–	–	1331	149	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	⊕	⊕	39
Extreme values	–	–	–	36†	18‡	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
No. of years observations	16	16				16		16		30		16									16									16		16	16	16

* Mean of highest each year
§ Mean of lowest each year

† Highest recorded temperature
‡ Lowest recorded temperature

⊕ Rare
⊖ All observations

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1.254

WMO No 78858

GOLDEN ROCK AIRPORT, SAINT KITTS (17° 18′ N 62° 41′ W) Height above MSL – 48 m

Climatic Table compiled from 6 years observations, 1993 to 1998

Month	Average pressure at MSL	Temperatures				Average humidity		Average cloud cover		Precipitation		Wind distribution – Percentage of observations from																		Mean wind speed		Number of days with		
												0800									1400												
		Mean daily max.	Mean daily min.	Mean highest in each month	Mean lowest in each month	0800	1400	0800	1400	Average fall	No. of days with 1 mm or more	N	NE	E	SE	S	SW	W	NW	Calm	N	NE	E	SE	S	SW	W	NW	Calm	0800	1400	Gale	Fog	Thunder
	hPa	°C	°C	°C	°C	%	%	Oktas		mm																				Knots				
January	1017	28	23	29	20	79	70	4	4			5	38	48	2	0	0	1	0	7	1	47	46	2	3	3	0	0	0	11	13	0	0	⊕
February	1017	29	23	29	20	78	67	5	5			3	33	50	6	3	0	1	1	4	2	28	58	3	7	1	0	1	0	11	13	0	0	0
March	1017	29	23	30	20	75	65	5	4			7	32	52	5	1	0	1	0	3	3	33	48	10	3	3	0	0	⊕	11	13	0	0	⊕
April	1016	29	23	30	21	74	65	5	4			6	23	56	12	0	0	0	0	3	2	30	52	4	8	4	0	0	0	11	12	0	0	0
May	1016	30	25	32	22	76	68	5	5			⊕	19	69	6	2	1	0	0	3	0	29	59	3	7	3	0	0	0	11	12	0	0	⊕
June	1017	31	25	32	23	77	70	5	5			⊕	20	77	1	2	0	0	0	0	0	32	65	2	1	0	0	0	1	12	13	0	⊕	2
July	1017	31	26	32	24	78	70	5	5			2	42	52	2	1	1	0	0	1	2	42	50	2	2	1	0	1	1	13	14	0	⊕	2
August	1015	31	26	32	24	78	71	5	5			1	44	46	1	2	3	1	0	2	2	41	48	1	4	4	0	0	⊕	12	13	0	0	3
September	1015	30	25	32	23	80	74	5	6			4	34	50	4	4	1	0	⊕	3	2	38	49	2	6	2	0	0	1	12	13	0	0	4
October	1014	30	25	31	22	81	73	5	5			5	32	44	4	1	4	1	⊕	8	2	41	39	2	8	8	0	0	0	9	11	⊕	0	3
November	1015	30	24	31	22	81	73	5	5			4	51	41	1	1	0	1	0	2	0	50	44	1	5	0	0	0	0	11	12	0	⊕	2
December	1016	29	23	30	21	78	71	5	4			5	43	41	2	1	0	1	0	8	2	47	41	4	3	2	1	0	⊕	10	11	0	0	⊕
Means	1016	30	24	32*	19§	78	70	5	5	–	–	3	34	52	4	1	1	1	⊕	4	1	38	50	3	5	3	⊕	⊕	⊕	11	13	–	–	–
Totals	–	–	–	–	–	–	–	–	–			–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	⊕	⊕	16
Extreme values	–	–	–	34†	18‡	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
No. of years observations	6	6				6		6				6									6									6		6	6	6

* Mean of highest each year
§ Mean of lowest each year

† Highest recorded temperature
‡ Lowest recorded temperature

⊕ Rare
⊖ All observations

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1.255

WMO No 78862

VC BIRD AIRPORT, ANTIGUA (17° 07′ N 61° 47′ W) Height above MSL – 10 m

Climatic Table compiled from 7 to 50 years observations, 1948 to 1998

Month	Average pressure at MSL	Temperatures				Average humidity		Average cloud cover		Precipitation		Wind distribution – Percentage of observations from																Mean wind speed		Number of days with		
		Mean daily max.	Mean daily min.	Mean highest in each month	Mean lowest in each month	0800	1400	0800	1400	Average fall	No. of days with 1 mm or more	0800									1400											
												N	NE	E	SE	S	SW	W	NW	Calm	N	NE	E	SE	S	SW	W	NW	Calm	0800	1400	Gale	Fog	Thunder
	hPa	°C	°C	°C	°C	%	%	Oktas		mm																				Knots				
January	1017	28	22	30	19	80	70	4	4	81	15	1	13	67	12	2	⊕	0	0	5	1	10	73	13	1	⊕	⊕	1	0	13	15	0	⊕	0
February	1017	29	22	30	19	79	68	3	4	53	12	1	8	61	20	5	1	0	⊕	4	1	11	64	21	2	1	⊕	⊕	0	12	15	⊕	⊕	⊕
March	1016	29	22	30	20	76	67	4	5	53	11	1	13	58	23	2	1	⊕	⊕	3	1	16	64	16	3	⊕	⊕	1	0	13	14	⊕	⊕	⊕
April	1015	30	23	31	20	75	68	4	5	81	10	1	9	53	33	4	⊕	0	0	1	2	11	68	16	3	0	0	⊕	⊕	12	14	1	⊕	1
May	1015	30	24	32	22	77	70	5	6	104	11	⊕	6	54	33	6	⊕	0	⊕	⊕	⊕	7	63	24	3	⊕	⊕	⊕	1	13	14	1	⊕	2
June	1017	31	25	32	23	76	70	5	6	99	12	⊕	3	69	25	2	⊕	0	0	⊕	⊕	6	73	19	2	0	0	0	0	14	15	1	0	1
July	1017	31	25	32	23	77	70	5	5	117	15	⊕	6	77	15	1	⊕	0	⊕	⊕	0	7	78	14	1	0	⊕	0	⊕	14	15	⊕	⊕	2
August	1016	32	26	33	23	78	70	4	5	125	15	⊕	7	70	20	2	1	⊕	⊕	⊕	⊕	8	73	17	1	⊕	1	⊕	⊕	13	14	⊕	0	2
September	1014	31	25	32	22	79	72	4	6	155	15	1	10	56	23	6	2	⊕	0	2	1	12	57	23	3	3	0	⊕	⊕	11	12	0	0	4
October	1013	31	24	32	22	78	71	4	6	147	16	1	8	49	32	6	1	0	⊕	3	1	10	56	25	5	2	⊕	1	⊕	10	12	0	⊕	4
November	1014	30	24	31	21	80	72	4	5	150	14	1	16	55	17	6	1	1	⊕	3	1	15	58	20	3	1	1	1	0	11	13	0	⊕	2
December	1015	29	23	30	20	78	71	4	5	99	16	1	17	58	15	2	⊕	0	1	6	1	19	62	15	2	⊕	1	⊕	0	12	13	0	⊕	1
Means	1016	30	24	33*	18§	78	70	4	5	–	–	1	9	61	22	4	1	⊕	⊕	2	1	11	66	19	2	1	⊕	⊕	⊕	12	14	–	–	–
Totals	–	–	–	–	–	–	–	–	–	1264	162	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	⊕	19
Extreme values	–	–	–	35†	17‡	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
No. of years observations	16	16				16		16		50	7	16									16									16		16	16	16

(1) Rainfall at St. John's

* Mean of highest each year
§ Mean of lowest each year

† Highest recorded temperature
‡ Lowest recorded temperature

⊕ Rare
⊖ All observations

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1.256

WMO No 78894

GUSTAVIA, SAINT BARTHÉLÉMY (17° 54′ N 62° 51′ W) Height above MSL – 52 m

Climatic Table compiled from 6 years observations, 1993 to 1998

Month	Average pressure at MSL	Temperatures				Average humidity		Average cloud cover		Precipitation		Wind distribution – Percentage of observations from																Mean wind speed		Number of days with		
												0800									1400											
		Mean daily max.	Mean daily min.	Mean highest in each month	Mean lowest in each month	0800	1400	0800	1400	Average fall	No. of days with 1 mm or more	N	NE	E	SE	S	SW	W	NW	Calm	N	NE	E	SE	S	SW	W	NW	Calm	0800	1400	Gale	Fog	Thunder
	hPa	°C	°C	°C	°C	%	%	Oktas		mm																				Knots				
January	1016	29	23	30	21	76	66	3	2			3	14	45	33	4	0	0	0	2	1	10	44	28	15	0	0	3	0	9	11	0	0	0
February	1017	29	23	30	22	75	63	4	4			1	17	37	30	11	2	0	3	0	1	3	45	23	23	0	4	0	0	9	11	1	0	0
March	1016	29	23	30	22	73	62	4	4			⊕	12	46	33	7	0	1	2	0	0	22	36	28	13	0	1	0	0	9	11	⊕	0	0
April	1015	30	24	32	22	74	64	4	3			3	20	39	28	10	0	0	0	1	1	25	28	25	20	0	0	0	0	10	11	0	⊕	0
May	1016	31	25	33	23	74	67	5	4			⊕	13	29	50	8	0	0	0	0	0	24	26	25	14	1	0	0	0	8	10	0	⊕	0
June	1017	31	26	33	24	76	68	4	4			0	18	49	30	3	1	0	0	0	0	14	46	38	3	0	0	0	0	9	11	0	0	0
July	1017	31	26	33	24	76	68	5	4			0	24	45	27	2	1	0	0	1	0	21	47	28	2	1	0	0	1	11	12	⊕	⊕	⊕
August	1015	32	26	33	25	77	69	4	4			0	7	56	26	5	3	2	1	0	0	13	54	20	5	5	4	0	0	10	12	⊕	1	1
September	1014	31	26	32	24	79	72	5	5			0	6	49	35	6	2	2	0	1	1	15	35	32	9	5	1	1	2	9	10	⊕	1	3
October	1014	31	25	32	24	78	69	4	4			0	18	40	29	9	1	0	2	1	0	18	32	23	21	5	2	0	0	8	9	⊕	⊕	2
November	1015	30	25	31	23	77	71	4	6			⊕	23	50	23	3	0	0	0	0	0	17	54	19	7	1	0	1	0	9	10	0	0	⊕
December	1016	29	24	31	22	77	68	4	5			1	23	40	27	7	0	1	0	1	2	16	44	26	10	1	0	0	0	9	10	0	0	0
Means	1016	30	25	33*	21§	76	67	4	4	–	–	1	17	43	31	6	1	⊕	1	⊕	1	16	41	27	12	2	1	⊕	⊕	9	11	–	–	–
Totals	–	–	–	–	–	–	–	–	–			–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	⊕	2	6
Extreme values	–	–	–	35†	20‡	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
No. of years observations	6	6				6		6				6									6									6		6	6	6

* Mean of highest each year
§ Mean of lowest each year

† Highest recorded temperature
‡ Lowest recorded temperature

⊕ Rare
⊖ All observations

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1.257

WMO No 78897

LE RAIZET, GUADELOUPE (16° 16′ N 61° 31′ W) Height above MSL – 11 m

Climatic Table compiled from 16 to 30 years observations, 1960 to 1998

Month	Average pressure at MSL	Temperatures				Average humidity		Average cloud cover		Precipitation		Wind distribution – Percentage of observations from																		Mean wind speed		Number of days with		
		Mean daily max.	Mean daily min.	Mean highest in each month	Mean lowest in each month	0800	1400	0800	1400	Average fall	No. of days with 1 mm or more	0800									1400									0800	1400	Gale	Fog	Thunder
												N	NE	E	SE	S	SW	W	NW	Calm	N	NE	E	SE	S	SW	W	NW	Calm					
	hPa	°C	°C	°C	°C	%	%	Oktas		mm																				Knots				
January	1016	30	21	31	18	87	63	3	5	84	15	1	4	51	17	2	0	1	1	24	1	11	50	32	4	⊕	⊕	1	1	4	12	⊕	0	⊕
February	1016	30	21	31	18	83	60	4	5	64	12	2	5	48	17	1	⊕	1	0	26	1	9	40	43	6	⊕	0	1	0	5	13	0	⊕	0
March	1016	30	21	31	18	78	59	4	5	73	12	1	7	51	22	4	1	1	⊕	13	1	9	36	44	8	0	⊕	1	1	6	13	⊕	⊕	⊕
April	1015	31	22	32	20	75	60	4	5	123	12	2	8	33	43	6	1	1	1	6	1	7	21	57	12	1	⊕	1	0	8	12	0	0	1
May	1015	31	23	32	21	75	63	5	5	148	14	⊕	4	44	39	7	⊕	⊕	⊕	4	1	5	26	56	11	⊕	0	⊕	1	9	12	0	⊕	2
June	1016	32	24	33	22	76	62	5	6	118	13	⊕	3	62	30	3	⊕	⊕	0	1	1	2	42	51	4	⊕	⊕	⊕	0	9	13	0	⊕	3
July	1016	32	24	33	22	76	62	5	5	150	15	0	7	72	18	2	0	⊕	⊕	1	0	11	46	41	2	⊕	0	⊕	⊕	8	13	0	⊕	3
August	1015	32	24	33	22	79	64	4	5	198	16	1	7	55	26	3	1	1	⊕	6	1	7	41	41	7	1	1	1	⊕	7	12	⊕	⊕	4
September	1014	32	24	33	22	82	67	4	6	236	17	2	7	47	23	7	2	⊕	1	12	2	11	33	38	10	2	1	2	1	6	11	0	⊕	7
October	1013	32	23	33	22	84	68	4	6	228	18	⊕	7	38	25	7	1	1	⊕	21	2	7	32	44	9	2	1	1	2	4	10	0	⊕	6
November	1014	31	22	32	20	87	68	4	5	220	17	2	9	42	15	2	1	1	2	27	2	19	41	28	7	1	1	1	⊕	4	10	0	⊕	3
December	1015	30	21	31	19	88	66	4	5	137	16	1	4	41	16	3	1	2	⊕	33	2	13	48	30	4	1	1	1	1	3	11	0	⊕	1
Means	1015	31	22	34*	17§	81	64	4	5	–	–	1	6	49	24	4	1	1	⊕	14	1	9	38	42	7	1	⊕	1	1	6	12	–	–	–
Totals	–	–	–	–	–	–	–	–	–	1779	177	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	⊕	⊕	30
Extreme values	–	–	–	34†	16‡	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
No. of years observations	16	16				16		16		30		16									16									16		16	16	16

* Mean of highest each year
§ Mean of lowest each year

† Highest recorded temperature
‡ Lowest recorded temperature

⊕ Rare
⊖ All observations

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WMO No 78925

LE LAMENTIN, MARTINIQUE (14° 36′ N 61° 00′ W) Height above MSL – 7 m

Climatic Table compiled from 6 to 30 years observations, 1960 to 1998

Month	Average pressure at MSL	Temperatures				Average humidity		Average cloud cover		Precipitation		Wind distribution – Percentage of observations from																Mean wind speed		Number of days with		
												0800									1400											
		Mean daily max.	Mean daily min.	Mean highest in each month	Mean lowest in each month	0800	1400	0800	1400	Average fall	No. of days with 1 mm or more	N	NE	E	SE	S	SW	W	NW	Calm	N	NE	E	SE	S	SW	W	NW	Calm	0800	1400	Gale	Fog	Thunder
	hPa	°C	°C	°C	°C	%	%	Oktas		mm																				Knots				
January	1015	29	22	30	19	84	68	4	5	121	18	3	31	50	3	1	0	0	0	12	0	16	77	5	0	0	2	0	0	4	11	0	0	0
February	1016	29	22	31	19	80	65	4	5	89	14	0	23	66	2	0	0	0	0	8	1	8	84	5	2	0	1	0	0	5	12	0	0	0
March	1015	30	22	31	19	77	63	5	5	88	14	2	23	66	2	1	0	0	0	6	0	12	80	6	2	0	1	0	0	5	11	0	⊕	⊕
April	1015	30	23	31	19	78	64	5	5	96	12	2	21	66	6	0	1	0	0	4	1	15	75	5	1	1	1	0	0	4	10	0	⊕	1
May	1015	31	24	32	21	76	65	5	5	123	15	1	16	72	10	0	0	0	0	1	0	8	80	10	2	0	0	0	0	4	11	0	0	1
June	1016	31	25	32	23	79	71	6	6	170	17	1	10	86	3	0	0	0	0	0	1	9	84	5	1	0	0	0	0	6	11	0	0	2
July	1016	31	25	32	23	80	71	5	5	204	20	⊕	26	70	2	1	0	0	1	1	1	11	85	2	1	0	1	0	0	5	11	0	0	4
August	1014	31	24	33	22	83	71	5	5	252	21	3	29	58	4	1	1	0	1	4	1	16	67	6	6	1	3	1	0	4	9	⊕	⊕	6
September	1013	31	24	33	22	84	72	5	6	236	19	1	34	48	9	2	2	0	1	5	2	15	62	5	7	3	5	0	1	3	9	⊕	⊕	9
October	1013	31	24	33	22	84	73	5	6	270	20	2	33	51	3	1	1	0	0	9	4	17	56	11	5	2	4	1	1	3	8	⊕	⊕	7
November	1013	30	23	32	22	84	73	5	5	224	18	2	33	54	2	⊕	0	0	1	8	3	23	65	5	2	1	1	1	1	3	8	0	0	3
December	1014	30	23	31	20	85	71	4	5	159	18	⊕	34	54	2	2	0	0	0	8	1	23	70	3	1	0	1	0	1	4	9	0	0	1
Means	1015	30	23	33*	17§	81	69	5	5	–	–	1	27	61	4	1	⊕	0	⊕	6	1	15	73	6	2	1	2	⊕	⊕	4	10	–	–	–
Totals	–	–	–	–	–	–	–	–	–	2032	206	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	⊕	⊕	34
Extreme values	–	–	–	34†	16‡	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
No. of years observations	6	6				6		6		30		6									6									6		6	6	6

* Mean of highest each year
§ Mean of lowest each year

† Highest recorded temperature
‡ Lowest recorded temperature

⊕ Rare
⊖ All observations

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WMO No 78958

POINT SALINES AIRPORT, GRENADA (12° 00′ N 61° 47′ W) Height above MSL – 7 m

Climatic Table compiled from 6 to 10 years observations, 1989 to 1998

Month	Average pressure at MSL	Temperatures				Average humidity		Average cloud cover		Precipitation		Wind distribution – Percentage of observations from																Mean wind speed		Number of days with		
		Mean daily max.	Mean daily min.	Mean highest in each month	Mean lowest in each month	0800	1400	0800	1400	Average fall	No. of days with 1 mm or more	0800									1400											
												N	NE	E	SE	S	SW	W	NW	Calm	N	NE	E	SE	S	SW	W	NW	Calm	0800	1400	Gale	Fog	Thunder
	hPa	°C	°C	°C	°C	%	%	Oktas		mm																				Knots				
January	1015	30	24	31	22	80	71	3	4			0	32	60	2	0	0	0	0	7	2	9	71	14	1	0	0	1	2	10	14	0	0	0
February	1015	30	24	31	22	78	69	4	4			1	10	81	5	0	0	0	0	3	1	5	76	17	1	0	0	0	0	13	15	0	0	0
March	1014	30	24	31	22	76	68	4	4			1	19	72	3	0	0	0	0	5	2	5	74	17	1	0	0	1	1	12	15	0	⊕	0
April	1014	31	25	32	22	76	69	4	4			1	17	78	4	0	0	0	1	⊕	0	5	69	25	1	0	0	0	1	13	15	0	0	0
May	1014	31	25	32	23	78	72	5	5			1	4	88	7	0	0	0	0	1	0	0	83	17	0	0	0	0	0	14	15	0	0	⊕
June	1015	31	25	32	23	82	76	6	6			0	9	85	5	1	0	0	0	⊕	0	2	87	11	0	0	0	0	0	13	15	0	0	1
July	1015	31	25	32	23	82	75	5	5			1	13	81	4	0	0	0	0	2	0	4	75	19	1	0	0	1	1	11	13	⊕	0	2
August	1014	31	25	32	23	82	76	5	5			1	14	60	12	0	2	0	1	10	2	5	46	35	6	2	1	1	3	9	11	⊕	⊕	3
September	1013	31	25	33	23	82	76	5	5			1	10	58	21	2	0	0	0	9	1	4	57	29	2	4	0	4	0	10	12	⊕	⊕	5
October	1012	31	25	32	23	83	78	5	6			⊕	11	66	14	3	0	0	0	6	1	4	56	32	3	0	0	2	2	9	11	⊕	⊕	6
November	1012	31	25	32	23	83	77	5	5			⊕	20	73	3	0	0	0	0	3	0	8	70	19	0	0	1	0	3	9	12	0	⊕	2
December	1013	30	24	31	22	82	75	4	4			0	23	67	4	0	0	0	0	7	1	6	76	15	1	0	0	1	2	9	13	0	⊕	1
Means	1014	31	25	33*	21§	80	73	5	5	–	–	1	15	72	7	1	⊕	0	⊕	4	1	5	70	21	1	⊕	⊕	1	1	11	13	–	–	–
Totals	–	–	–	–	–	–	–	–	–			–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	⊕	⊕	20
Extreme values	–	–	–	34†	19‡	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
No. of years observations	6	10				6		6				6									6									6		6	6	6

* Mean of highest each year
§ Mean of lowest each year

† Highest recorded temperature
‡ Lowest recorded temperature

⊕ Rare
⊖ All observations

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WMO No 78954

GRANTLEY ADAMS AIRPORT, BARBADOS (13° 04′ N 59° 29′ W) Height above MSL – 56 m

Climatic Table compiled from 16 to 32 years observations, 1950 to 1998

Month	Average pressure at MSL	Temperatures				Average humidity		Average cloud cover		Precipitation		Wind distribution – Percentage of observations from																Mean wind speed		Number of days with		
												0800									1400											
		Mean daily max.	Mean daily min.	Mean highest in each month	Mean lowest in each month	0800	1400	0800	1400	Average fall	No. of days with 1 mm or more	N	NE	E	SE	S	SW	W	NW	Calm	N	NE	E	SE	S	SW	W	NW	Calm	0800	1400	Gale	Fog	Thunder
	hPa	°C	°C	°C	°C	%	%	Oktas		mm																				Knots				
January	1015	29	23	29	20	77	69	4	4	62	10	1	29	65	2	0	0	⊕	0	3	1	20	74	4	1	⊕	0	0	⊕	10	11	⊕	⊕	⊕
February	1015	29	23	30	21	76	67	5	4	49	9	1	22	71	5	⊕	0	0	⊕	1	1	16	73	9	1	0	⊕	⊕	0	10	11	0	⊕	⊕
March	1015	29	23	30	21	74	65	5	4	37	8	1	19	71	8	1	0	0	0	1	⊕	12	76	11	⊕	0	0	0	⊕	10	12	⊕	⊕	0
April	1014	30	24	31	22	74	66	5	5	55	8	⊕	13	76	10	1	0	0	0	1	⊕	7	73	18	⊕	⊕	0	⊕	⊕	11	11	⊕	1	⊕
May	1014	30	25	31	23	76	69	5	5	53	7	⊕	8	79	13	⊕	0	0	0	1	⊕	4	75	19	1	0	0	⊕	⊕	11	12	⊕	⊕	⊕
June	1015	31	25	31	23	78	72	5	5	90	11	⊕	10	85	4	⊕	0	0	0	⊕	1	6	86	8	1	0	0	0	0	12	12	0	⊕	1
July	1015	30	25	32	23	80	73	5	5	130	15	1	19	74	6	1	0	⊕	0	⊕	⊕	11	78	11	1	0	0	0	⊕	10	11	0	⊕	2
August	1014	31	25	32	23	79	73	5	5	152	16	1	17	67	9	2	1	⊕	⊕	2	1	11	66	16	3	1	⊕	⊕	1	9	10	⊕	1	2
September	1013	31	25	32	22	81	75	5	6	141	13	1	15	61	16	3	1	⊕	⊕	3	1	9	57	24	7	2	⊕	0	⊕	9	9	⊕	1	4
October	1012	30	24	31	22	81	75	5	6	168	15	⊕	18	64	12	3	⊕	0	⊕	3	1	11	60	23	4	1	⊕	⊕	1	8	9	⊕	1	3
November	1012	30	24	31	22	81	76	5	5	139	13	1	19	67	11	1	⊕	0	0	2	⊕	13	70	14	2	⊕	⊕	⊕	⊕	9	9	⊕	1	1
December	1014	29	24	30	21	79	71	4	5	101	12	1	29	62	4	1	0	0	⊕	3	1	19	70	7	1	⊕	⊕	0	⊕	9	11	0	1	⊕
Means	1014	30	24	33*	19§	78	71	5	5	–	–	1	18	70	8	1	⊕	⊕	⊕	2	1	12	71	14	2	⊕	⊕	⊕	⊕	10	11	–	–	–
Totals	–	–	–	–	–	–	–	–	–	1177	137	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	⊕	6	13
Extreme values	–	–	–	36†	17‡	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
No. of years observations	16	16				16		16		32	17	16									16									16		16	16	16

* Mean of highest each year
§ Mean of lowest each year

† Highest recorded temperature
‡ Lowest recorded temperature

⊕ Rare
⊖ All observations

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METEOROLOGICAL CONVERSION TABLE AND SCALES

Fahrenheit to Celsius

°Fahrenheit

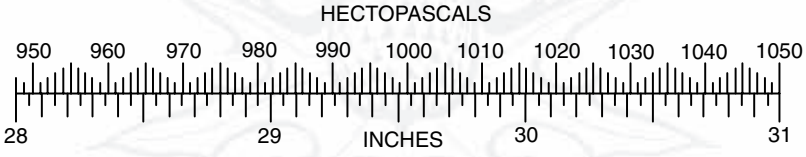
	0	1	2	3	4	5	6	7	8	9
°F				Degrees Celsius						
−100	−73·3	−73·9	−74·4	−75·0	−75·6	−76·1	−76·7	−77·2	−77·8	−78·3
−90	−67·8	−68·3	−68·9	−69·4	−70·0	−70·6	−71·1	−71·7	−72·2	−72·8
−80	−62·2	−62·8	−63·3	−63·9	−64·4	−65·0	−65·6	−66·1	−66·7	−67·2
−70	−56·7	−57·2	−57·8	−58·3	−58·9	−59·4	−60·0	−60·6	−61·1	−61·7
−60	−51·1	−51·7	−52·2	−52·8	−53·3	−53·9	−54·4	−55·0	−55·6	−56·1
−50	−45·6	−46·1	−46·7	−47·2	−47·8	−48·3	−48·9	−49·4	−50·0	−50·6
−40	−40·0	−40·6	−41·1	−41·7	−42·2	−42·8	−43·3	−43·9	−44·4	−45·0
−30	−34·4	−35·0	−35·6	−36·1	−36·7	−37·2	−37·8	−38·3	−38·9	−39·4
−20	−28·9	−29·4	−30·0	−30·6	−31·1	−31·7	−32·2	−32·8	−33·3	−33·9
−10	−23·3	−23·9	−24·4	−25·0	−25·6	−26·1	−26·7	−27·2	−27·8	−28·3
−0	−17·8	−18·3	−18·9	−19·4	−20·0	−20·6	−21·1	−21·7	−22·2	−22·8
+0	−17·8	−17·2	−16·7	−16·1	−15·6	−15·0	−14·4	−13·9	−13·3	−12·8
10	−12·2	−11·7	−11·1	−10·6	−10·0	−9·4	−8·9	−8·3	−7·8	−7·2
20	−6·7	−6·1	−5·6	−5·0	−4·4	−3·9	−3·3	−2·8	−2·2	−1·7
30	−1·1	−0·6	0	+0·6	+1·1	+1·7	+2·2	+2·8	+3·3	+3·9
40	+4·4	+5·0	+5·6	6·1	6·7	7·2	7·8	8·3	8·9	9·4
50	10·0	10·6	11·1	11·7	12·2	12·8	13·3	13·9	14·4	15·0
60	15·6	16·1	16·7	17·2	17·8	18·3	18·9	19·4	20·0	20·6
70	21·1	21·7	22·2	22·8	23·3	23·9	24·4	25·0	25·6	26·1
80	26·7	27·2	27·8	28·3	28·9	29·4	30·0	30·6	31·1	31·7
90	32·2	32·8	33·3	33·9	34·4	35·0	35·6	36·1	36·7	37·2
100	37·8	38·3	38·9	39·4	40·0	40·6	41·1	41·7	42·2	42·8
110	43·3	43·9	44·4	45·0	45·6	46·1	46·7	47·2	47·8	48·3
120	48·9	49·4	50·0	50·6	51·1	51·7	52·2	52·8	53·3	53·9

Celsius to Fahrenheit

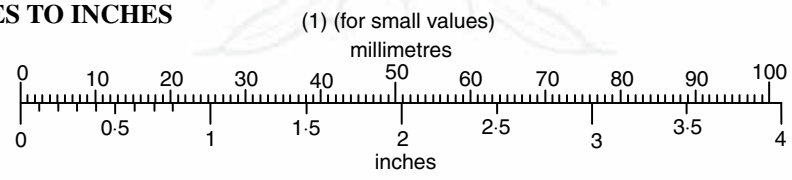
°Celsius

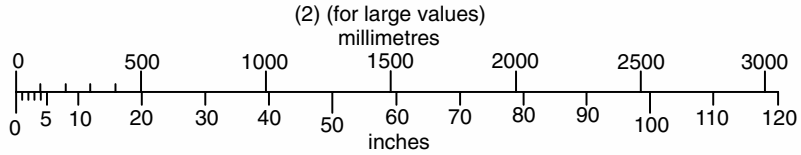
	0	1	2	3	4	5	6	7	8	9
°C				Degrees Fahrenheit						
−70	−94·0	−95·8	−97·6	−99·4	−101·2	−103·0	−104·8	−106·6	−108·4	−110·2
−60	−76·0	−77·8	−79·6	−81·4	−83·2	−85·0	−86·8	−88·6	−90·4	−92·2
−50	−58·0	−59·8	−61·6	−63·4	−65·2	−67·0	−68·8	−70·6	−72·4	−74·2
−40	−40·0	−41·8	−43·6	−45·4	−47·2	−49·0	−50·8	−52·6	−54·4	−56·2
−30	−22·0	−23·8	−25·6	−27·4	−29·2	−31·0	−32·8	−34·6	−36·4	−38·2
−20	−4·0	−5·8	−7·6	−9·4	−11·2	−13·0	−14·8	−16·6	18·4	−20·2
−10	+14·0	+12·2	+10·4	+8·6	+6·8	+5·0	+3·2	+1·4	−0·4	−2·2
−0	32·0	30·2	28·4	26·6	24·8	23·0	21·2	19·4	+17·6	+15·8
+0	32·0	33·8	35·6	37·4	39·2	41·0	42·8	44·6	46·4	48·2
10	50·0	51·8	53·6	55·4	57·2	59·0	60·8	62·6	64·4	66·2
20	68·0	69·8	71·6	73·4	75·2	77·0	78·8	80·6	82·4	84·2
30	86·0	87·8	89·6	91·4	93·2	95·0	96·8	98·6	100·4	102·2
40	104·0	105·8	107·6	109·4	111·2	113·0	114·8	116·6	118·4	120·2
50	122·0	123·8	125·6	127·4	129·2	131·0	132·8	134·6	136·4	138·2

HECTOPASCALS TO INCHES



MILLIMETRES TO INCHES





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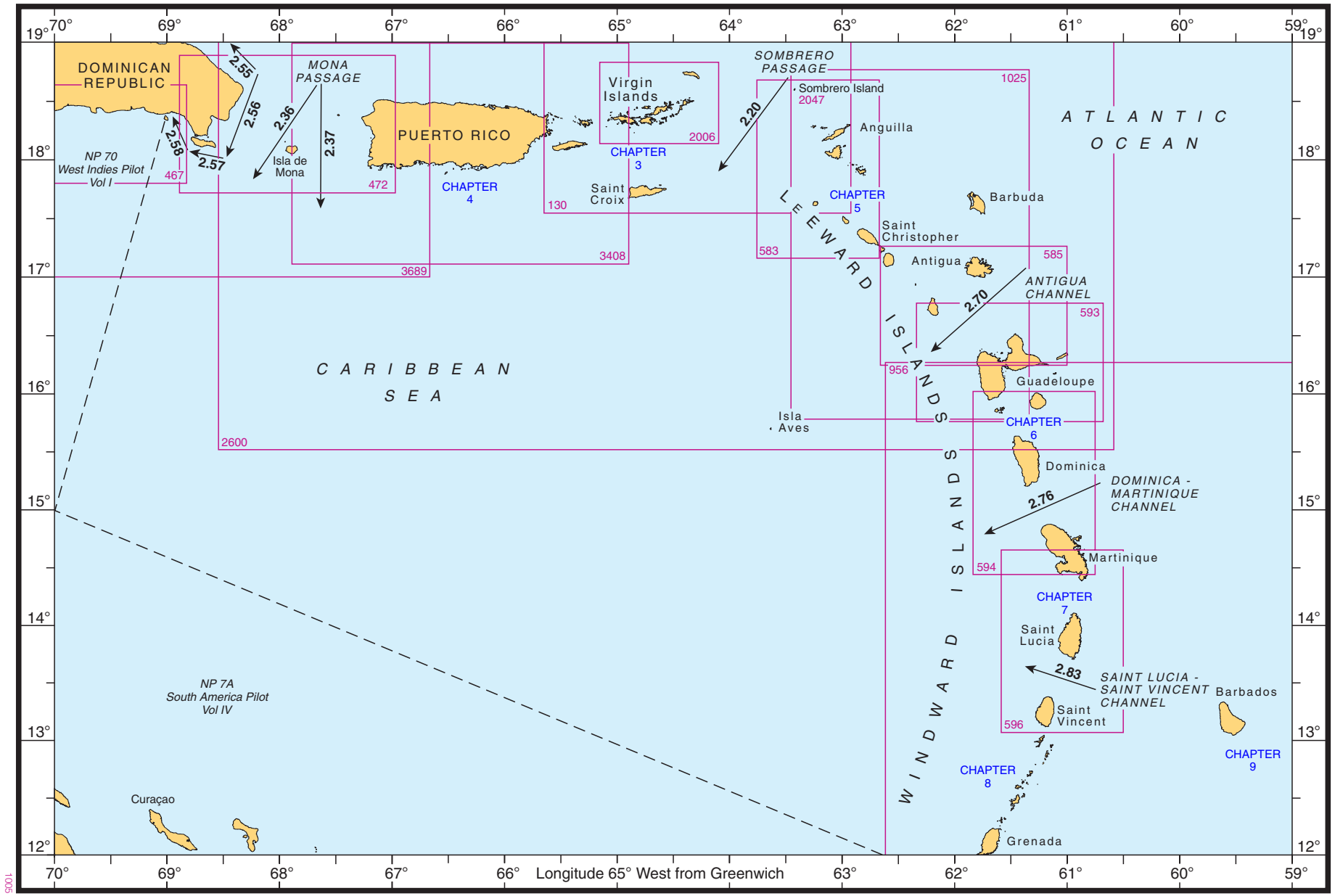
Chapter 2 - Entrance channels from Atlantic Ocean to Caribbean Sea



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CHAPTER 2

ENTRANCE CHANNELS FROM ATLANTIC OCEAN TO CARIBBEAN SEA

GENERAL INFORMATION

Chart 4402

Scope of the chapter

2.1

1 This chapter describes the principal entrance channels between the island groups described in the book (1.69) and includes the following outlying features:

Isla Aves (15°40′N 63°37′W) at 2.7.

Gibbs Seamount (16°40′N 64°00′W) at 2.6.

2 It also describes the coastal passage and anchorages off the E coast of Hispaniola from Río Maimón (18°51′N 68°37′W), to Boca de Chavón (Quiabon) (18°24′N 68°53′W), including the W side of Mona Passage, at 2.43.

Entrances

2.2

1 Entrances from the Atlantic Ocean to the Caribbean Sea which pass W of Puerto Rico (18°00′N 66°30′W) or through the Leeward Islands or Windward Islands (1.69) are described in this chapter as follows:

Sombrero Passage (18°30′N 63°40′W) (2.14).

2 Mona Passage (18°30′N 67°40′W) (2.22).

Antigua Channel (16°45′N 61°40′W) (2.64)

Dominica–Martinique Channel (15°00′N 61°15′W) (2.71).

Saint Lucia–Saint Vincent Channel (13°30′N 61°00′W) (2.77).

Routes

2.3

1 Routes from the Atlantic and those through the Caribbean Sea are described in *Ocean Passages for the World*. This includes distances to destinations within the Caribbean from the following entrances:

Sombrero Passage.

Mona Passage.

Saint Lucia–Saint Vincent Channel.

Landfall

2.4

1 Barbados (13°10′N 59°35′W) (9.1), situated about 100 miles E of Saint Vincent, provides a good landfall when making the Saint Lucia–Saint Vincent Channel from the E.

The other entrance channels have no such outlying islands to assist with a landfall.

Currents

2.5

1 Strong currents can be experienced in the entrances and channels leading to the Caribbean Sea. General remarks on currents are given at 1.209.

Outlying banks

2.6

Chart 4407

1 **Atlantic Ocean**:

A bank, with a depth of 66 m over it (21°16′N 58°45′W), lies about 300 miles NE of Antigua.

Caribbean Sea

Gibbs Seamount (16°40′N 64°00′W), with a depth of 29 m (16 fm) over it lies about 100 miles S of Sombrero Passage (2.14) and about 125 miles W of Antigua Channel (2.64).

2 A bank with a least charted depth of 23 m (13 fm) lies 5 miles NW of Gibbs Seamount.

A bank, with a least charted depth of 27 m (15 fm) (16°55′N 64°38′W) lies about 100 miles SSW of Sombrero Passage.

ISLA AVES

General information

Position

2.7

1 Isla Aves (15°40′N 63°36′W) is a Venezuelan island situated about 170 miles S of Sombrero Passage (2.14) and about 100 miles WSW of Antigua Channel (2.64).

Topography

2.8

1 Isla Aves, an isolated island nearly 3 cables long (N/S) and ½ cable wide, is formed of coral, overlaid with sand. It rises to its highest point at the N end and the sea breaks across the middle of the island in anything more than a moderate swell.

2 **Caution.** It has been reported that much of the island was washed away during a hurricane in 1979 leaving two sand cays, bordered by coral reefs, with a pool between them.

Isla Aves Light (elevation 22 m (72ft)) stands on the island.

Birds abound in the vicinity.

Radar characteristics

2.9

1 A racon transmits from Isla Aves and it is reported that the island can be detected on radar at a range of 30 miles.

Depths

2.10

1 Coral reefs, drying, and below water with depths of less than 30 m (17 fm) over them, extend 1¾ miles S, and about 1 mile in other directions from Isla Aves. The limit of the coral is normally visible by day.

In 1980 a depth of 7·3 m (24 ft) was reported 3½ miles S of the island.

2 A coral bank, 2 miles in diameter and with a least known depth of 22 m, lies 10 miles S of the island. It is possible that lesser depths exist and a wide berth is recommended. This bank then continues S for a farther 10 miles, with a least depth of 24 m near its S end, as shown on Chart 4402.

An isolated patch, with a charted depth of 33 m lies about 30 miles SW of Isla Aves.

Anchorage and landing

Anchorage

2.11

1 **Approach.** An approach from SSW is recommended, where regular depths of about 15 m (50 ft) should be found between 1½ miles and 4 cables from the shore, avoiding coral heads which can be seen along the route.

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Isla Aves Coast Guard Station (2.13)
(Original dated 2005)
(Photograph – Chris Carleton)

Local knowledge is required to approach within 1½ miles of Isla Alves (15°40′N 63°36′W).

2 **Anchorage.** The recommended position is with Isla Aves Light (2.8) bearing 077° distant 3 cables, in depths of 5 m (17 ft), clear of a 2·8 m (9 ft) patch ½ cable ENE of the anchorage position.

2.12

1 **Landing.** A jetty, with a depth of about 2·7 m (9 ft) alongside its head, projects 80 m W from the W coast of the island, about ½ cable N of its S end. It can be approached from W, in a least depth of 2·4 m (8 ft) avoiding the following patches, (with positions from the head of the jetty):

2 With a depth of 1·4 m (4½ ft) over it (½ cable SW).
With a depth of 1·5 m (5 ft) over it (¾ cable NW).

In moderate weather landing can be made over a narrow sandy beach situated near the middle of the W coast.

2.13

1 **Coastguard Station.** The tower on Isla Aves manned by the Venezuelan coastguard, call sign "Simon Bolivar Coastguard Station" is equipped with a helicopter landing pad.

SOMBRERO PASSAGE

General information

Charts 130, 2047 plan of Sombrero Island, 2006, 583, 130

Description

2.14

1 Sombrero Passage (18°30′N 63°40′W), sometimes known as Anegada Passage, between the Virgin Islands (NW) and the Leeward Islands (SE), is wide and clear of dangers in the fairway but is not lighted in its S approach.

Topography

2.15

1 **Topography** on either side of Sombrero Passage is given as follows:

General topography of the Virgin Islands at 3.6.
Anegada at 1.104 and 3.34.
Virgin Gorda at 3.6.

2 General topography of the Leeward Islands is given at 5.5.
Anguilla at 5.17.
Saint Martin (Sint Maarten) at 5.21.

2.16

1 **Sombrero Island** (18°35′N 63°26′W), situated on the E side of the N entrance, is the only above–water feature in Sombrero Passage. This island, which is low, has precipitous rocky sides which are, for the most part, inaccessible. Its quarried surface is rough and rises in sharp jagged points; the crevices between appear to have been scooped out by the action of the sea washing away the coral rock of which the island is composed.

2 Vegetation is sparse but there is abundant bird life on the island.

Sombrero Light (2.19) stands near the centre of the island. The old lighthouse (elevation 21 m) stands ¼ cable SSE, and a ruined chimney, about 10 m in height, stands ¾ cable SW of the light. A flagstaff stands close W of the light.

Depths

2.17

1 Sombrero Passage is deep in the fairway, however, isolated pinnacles, with considerably less depth over them than the surrounding area, are charted in the passage.

General depths along the edges of Sombrero Passage are described as follows:

2 W side at 3.35 and 3.120, with a caution at 3.38.
E side at 5.12.

The least charted depth in Sombrero Passage lies on Barracuda Bank (18°20′N 64°10′W) (3.129), situated about 15 miles SE of Virgin Gorda.

3 **Caution**. Numerous reports and some recent surveys (1970) indicate that shoal patches of small extent but with considerably less water over them than charted may exist on the banks in the area of Chart 130. Mariners are advised to exercise caution and deep draught vessels, particularly

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those drawing more than 12·2 m (40 ft) should keep outside the 183 m (100 fm) contour where possible.

Natural conditions

2.18

1 **Currents.** General remarks (1.209). Within Sombrero Passage the current is reported to be W to NW with a rate of 1 to 1½ kn.

Sea state. Sombrero Passage is always rough, owing to land and tidal effects on waves from the Atlantic, making a difficult and uncomfortable crossing for smaller vessels.

Principal marks

2.19

1 **Landmark:**

Virgin Gorda Peak (18°29′N 64°24′W) (3.46).

2 **Major lights:**

Sombrero Light, white column, elevation 28 m (92 ft) (18°35′N 63°26′W) situated near the centre of Sombrero Island (2.16).

Pajaros Point Light (18°30′N 64°19′W) (3.46).

Aid to Navigation

Racon at Sombrero Light—as above.

Directions

2.20

1 From the vicinity of 18°45′N 63°30′W, the route through Sombrero Passage leads generally SW or SSW, passing (with positions from Sombrero Light (18°35′N 63°26′W)):

WNW of a bank (1½ miles NW) with depths of less than 18 m (60 ft) over it, extending from Sombrero Island (2.16), thence:

2 WNW of an isolated bank (10 miles SE) (5.12), thence:

WNW of the coastal bank (20 miles SSE) extending W from West Cay (5.33), thence:

Clear of a charted depth of 100 m (55 fm) (reported 1968) (17½ miles SW), thence:

3 ESE of the E extremity of Virgin Bank (40 miles W) (3.35).

4 From this position the track continues SSW for about 14 miles to a position ESE of Barracuda Bank (45 miles WSW) (3.129).

(Directions continue for route N of Saint Croix at 3.352 and for route S of Saint Croix at 3.421. Directions continue for the route into the Leeward Islands at 5.33, for Necker Island Passage at 3.48, and for route S of the Virgin Islands at 3.129).

Anchorage

Chart 2047 plan of Sombrero Island

Sombrero Island

2.21

1 **Anchorage** may be obtained off the W side of Sombrero Island, in depths of about 22 m, 2¾ cables W of the light, as shown on the plan. However, this position is only 1½ cables W of Paynes Rocks situated about ¼ cable offshore.

2 **Landing** can be effected near the anchorage area, about 2¾ cables N of Point Warner, the S extremity of Sombrero Island by scaling a cliff, 6 m high using a ladder provided by the lighthouse keepers. Stores can also be landed.

Radio contact is maintained with Anguilla.

MONA PASSAGE

General information

Chart 472

Description

2.22

1 Mona Passage lies between the SE end of Hispaniola (Dominican Republic) and the W end of Puerto Rico.

2 This passage, which takes its name from Isla de Mona (Mona Isla) (18°05′N 67°55′W), has a least width of 61 miles in its N part and presents little difficulty in navigation but caution is required to avoid the various shoals mentioned below.

Routes

2.23

1 From the position 18°50′N 67°40′W, the routes through Mona Passage lead either S, to pass E of Isla de Mona, or SSW to pass W of the isle, for about 60 miles, in deep water outside the coastal and offshore banks, to positions SE or SW of Isla de Mona.

2 Coastal passages are given as follows:

W of Puerto Rico at 4.99 and 4.158.

E of Hispaniola at 2.43.

Topography

2.24

1 Topography on either side of Mona Passage is given as follows:

W coast of Puerto Rico at 4.100, 4.121 and 4.159.

E coast of Hispaniola at 2.44.

Three islands are located within the passage as follows:

2 Isla Desecheo (18°23′N 67°29′W) (2.34) situated E of the N entrance, about 12 miles W of Puerto Rico.

Isla de Mona (2.25) situated near the centre of the S approach.

Isla Monito (2.36) situated 3 miles NW of Isla de Mona.

2.25

1 **Isla de Mona**, 6 miles long (E/W) and 4 miles wide, lies approximately midway between Isla Saona (18°09′N 68°40′W) (2.48) and Cabo Rojo (88 miles ESE) (4.165). The surface of the island is composed of calcareous rock which is covered with scrub and cactus plants.

2 The N and NE sides, which are steep–to and exposed to the prevailing winds, are formed of whitish, perpendicular cliffs. On the NW and NE coasts these cliffs are penetrated by extensive caves which run in every direction.

On the S side of the island, the cliffs are lower and there is a narrow strip of low land between them and the sea.

3 The W, S and SE coasts are fronted by a bank of sand and coral and are fringed with detached coral reefs.

Depths

2.26

1 **On the west side of the passage** a bank, with depths of less than 200 m, extends about 25 miles ESE from Cabo Engaño (18°37′N 68°19′W) (2.56). Near the outer end of this bank (21 and 22 miles ESE of the cape) there is a shoal, with a least depth of 39 m over it and several depths of less than 50 m in the vicinity. This bank rises steeply from depths of over 200 m. The greatest depths over the bank appear to be between 9 and 13 miles ESE of Cabo Engaño.

2 Details of the bank extending ESE from Isla Saona (18°09′N 68°40′W) are given at 2.56.

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On the east side of the passage an extensive bank (18°07′N 67°27′W) (4.160) extends up to 15 miles from the W coast of Puerto Rico.

A detached bank, with a least charted depth of 80 m, lies 18 miles ENE of Isla de Mona.

Designated critical habitat

2.27

1 Areas surrounding Isla de Mona (2.25) and Isla Monito (2.36), extending to 3 miles offshore is declared by the United States as a Critical Habitat for Hawksbill Turtles.

Natural conditions

Magnetic anomaly

2.28

1 Local deflection of the compass was reported in 1969 to occur in the vicinity of 18°18′N 68°14′W.

Currents

2.29

1 For most of the year predominant currents in Mona Passage set between NW and NE, are of low constancy and have an average rate of about 1 kn, although in April 1981 a NE set of 3¾ kn was observed in the vicinity of 18°35′N 67°30′W. Reports indicate, however, that there is often a SW set in the middle of the passage, especially in winter.

In July 1946 a current setting WSW at a rate of 3½ kn was experienced to the N of Isla de Mona.

2 In summer, when the North–east Trade Wind slackens and winds blow more from E or ESE, a strong counter–current (2.51), setting along the S coast of Hispaniola, enhances the N–going current in Mona Passage.

Tidal streams

2.30

1 The true tidal streams in Mona Passage flow SSW on the rising tide and NNE on the falling tide at a rate of about 1 kn. Details of the times at which these streams turn are given at 4.9.

Tidal streams off the W coast of Puerto Rico are given at 4.162.

Flow

2.31

1 The combined tidal stream and current attain considerable rates, especially near the S side of Cabo Engaño (18°37′N 68°19′W), where, in May, it has been reported to attain a rate of 3½ kn as follows:

SW–going flow, on the rising tide, running for 9 hours.

NE–going flow running for 3 hours.

2 However the duration of the flow has been reported to be exactly the reverse at times, also to be the usual 6 hours each way, dependent on the strength and direction of the current.

Overfalls

2.32

1 Created by a strong flow of water and a sudden shelving of the seabed, occur over the bank (18°30′N 68°00′W) extending from Cabo Engaño, as shown on the chart, and are visible from a considerable distance.

In 1957 HMS *Cook* reported that the tidal streams were weak and that no overfalls were seen off Cabo Engaño.

Local weather

2.33

1 Heavy squalls, resembling tornadoes, but usually giving timely warning of their approach, may be expected in the passage, particularly in the summer. They are usually accompanied by a heavy threatening sky.

Principal marks

2.34

1 **Landmark:**

Isla Desecheo (18°23′N 67°29′W), an uninhabited and wooded islet, 1 mile in diameter, forms one of the best landmarks for Mona Passage and the W coast of Puerto Rico, being visible over 30 miles in clear weather. From SW, the S side of the island appears precipitous but from N the sides of the island appear to slope more. It is a forest reserve and a bird sanctuary.

2 **Caution.** Unexploded ordnance has been reported (1974) within the 200 m depth contour surrounding the island.

Landmarks on either side of Mona Passage are given as follows:

W coast of Puerto Rico at 4.105, 4.138 and 4.163.
E coast of Hispaniola at 2.54.

2.35

1 **Major lights:**

Punta Borinquen Light (18°30′N 67°09′W) (4.105).
Punta Cana Light (18°07′N 68°35′W) (2.54).
Cabo Rojo Light (17°56′N 67°12′W) (4.164).

Directions

Route passing west of Isla de Mona

2.36

1 From the position 18°50′N 67°40′W, the track leads SSW for about 60 miles passing W of Isla de Mona and passing (with positions from Isla Monito (18°10′N 67°57′W)):

2 WNW of Isla Desecheo (30 miles ENE) (2.34), thence:

ESE of a bank (20 miles N) (2.26) which extends 25 miles from Cabo Engaño (2.56) creating dangerous waters for some considerable distance from the cape, thence:

3 WNW of a narrow bank of sand and rock on the W side of Isla Monito, a high, bare rock, 2 cables in diameter, situated about 3 miles NW of Isla de Mona. The steep sides of the islet form cliffs which are lower than those of Isla de Mona and from some directions resemble a shoemaker's last. Thence:

4 WNW of Cabo Barrionuevo (3 miles SSE), a vertical cliff forming the NW extremity of Isla de Mona (2.25). A mass of rock projects from the foot of the cliff; when seen from N or S the summit of this rock has the appearance of two saw teeth, the inner and higher being nearly half as high as the cape. Isla de Mona Light (steel tower, 12 m in height) stands 1½ miles E; the light is obscured over several arcs. Thence:

5 WNW of the bank, with depths of less than 20 m over it, the inner half of which is covered by a reef, extending 5 cables W from Punta Arenas (Oeste) (4¾ miles S), a low narrow ridge covered with brushwood which projects nearly 1 mile W from the cliffs. Some buildings on the heights to

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the N of Punta Arenas are prominent, as also are their lights at night. Thence:

6 ESE of the coastal bank (30 miles WSW) (2.56).

(Directions for route NNE of Hispaniola are given at 2.55, and for route E of Hispaniola at 2.56)

Route passing east of Isla de Mona

2.37

1 From the vicinity of 18°50′N 67°40′W, the route through Mona Passage passing E of Isla de Mona leads generally S for about 60 miles, passing (with positions from Isla Monito (18°10′N 67°57′W):

W of Isla Desecheo (30 miles ENE) (2.34). The few dangers which lie close to the island are steep–to and are always visible. Thence:

2 Clear of an isolated shoal, with a least depth of 80 m over it, (24 miles ENE), thence:

E of Cabo el Toro (5¾ miles ESE) a vertical cliff forming the NE extremity of Isla de Mona (2.25), thence:

3 E of Punta Este (7½ miles SE), a vertical cliff 85 m in height forming the E extremity of Isla de Mona; a light, visible only from the SE quadrant, stands on the cape, and:

4 W of the coastal bank (30 miles ESE) (4.160).

(Directions for route W of Puerto Rico are given at 4.107, and for route N of Puerto Rico at 4.88)

Anchorages around Isla de Mona

General information

2.38

1 With a strong wind from any direction the sea usually sweeps round the island and into all of the anchorages. Within these constraints, the anchorages which follow are recommended or known to be used.

Anclaje Sardinera

2.39

1 **Description.** Anclaje Sardinera (18°06′N 67°57′W), situated on the W side of Isla de Mona, is exposed to NE winds but affords the best anchorage during SE winds (March to about December), in depths of 15 to 16 m, sand, about 5 cables offshore. Outside these depths the bank is steep, and W of Cabo Barrionuevo, at the N end of the anchorage (2.36), the depths are greater and the bottom is rocky.

2 **Tidal streams** in the anchorage sets N during the rising tide and S during the falling tide; both streams attain a rate of about ½ kn.

Local knowledge is required.

Anclaje Isabela

2.40

1 **Description.** Anclaje Isabela (18°04′N 67°57′W), situated on the S side of the ridge which terminates in Punta Arenas (2.36), is exposed to SE winds but affords the best anchorage during NE winds, in a depth of 13 m, sand, about 3 cables offshore, clear of a coral head with a depth of 8·7 m over it, which lies in the middle of the anchorage.

Anchorage, easily identified by a white sand beach which is free from rocks in places.

Playa del Uvero

2.41

1 **Description.** Playa del Uvero (18°03′N 67°54′W), situated on the S side of Isla de Mona about 5 cables WNW of Punta Caigo o'no Caigo, affords anchorage from which departure is advised on the first indication of a W gale or when the SE or S winds arise, exists in depths of 11 to 16 m, about 5 cables offshore.

There are boat passages through the reef to the shore.

Playa de Pajaros

2.42

1 **Description.** Playa de Pajaros (18°04′N 67°51′W), situated on the SE of Isla de Mona, is exposed to E winds thus ensuring many days when anchoring and landing are impossible. However this bay, which is best from December to March when the winds are more N, affords anchorage in a depth of about 16 m about 4 cables from the reefs. There are many rocks in the anchorage but the water is so clear that a sandy spot can be chosen. In depths greater than 20 m the bottom slopes steeply.

2 The tender for the lighthouse (2.35) anchors on the harbour leading marks (below), in a depth of 13 m and endeavours to arrive at daybreak, before the wind freshens.

In the anchorage the tidal streams are NE–going during the rising tide and SW–going during the falling tide. When combined with the current a rate of 2 kn is possible.

3 **Leading marks:**

Front mark white post; rear mark black post lead through the S and main entrance channel, which has a least depth 2·1 m in it.

There is a landing place with a depth of 2·1 m alongside but, with S or SE winds, there is a swell in the harbour.

HISPANIOLA — EAST SIDE

General information

Charts 472, 3689

Route

2.43

1 From a position NE of Rio Maimón (18°51′N 68°37′W), the route leads SE for about 25 miles, to a position ENE of Cabo Engaño (18°37′N 68°19′W) from whence it leads SSW for about 45 miles, passing over the coastal bank (2.26) extending E from Cabo Engaño. From this position the route leads WNW and NNW, to a position S of Boca de Chavón (Quiabon) (18°24′N 68°53′W).

Topography

2.44

1 Mona Passage (2.24).

General topography for the island of Hispaniola and the Dominican Republic, occupying the E end of the island, is given in *West Indies Pilot Volume I*.

2.45

1 **North–east coast.** The coast from Cabo Engaño to Río Maimón (22½ miles WNW) is low, sloping down from high bluffs some distance inland; and is fringed with a reef extending up to 1 mile offshore in places.

Many stranded wrecks lie along the coast WNW of Cabo Engaño.

2.46

1 **South–east coast.** The coast from Cabo Engaño (18°37′N 68°19′W) to Punta Espada (18 miles SSW) is low and wooded, sloping down from high bluffs some distance inland. These bluffs, at a distance of 9 or 10 miles, appear to be on the coast. A long conspicuous bluff approaches the coast over the S part of this stretch of coast, as shown on the chart.

2 A plough or ram shape is a distinctive feature of many of the cliffs along this part of the coast.

A radio mast, with flashing red lights, was reported in 1984 to stand 3¾ miles SW of Cabo Engaño.

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It is reported that the coastline of Hispaniola, as painted on radar, particularly between Cabo Engaño and Punta Juanillo (Juanita Point) (10 miles SSW), differs from that shown on the chart.

3 Between Punta de Águilas (Eagle Point) (2 miles SSW of Cabo Engaño) and Punta Juanillo the coast is fringed by a line of reefs through which there are 2 small openings abreast Punta Cana (5½ miles SSW of Cabo Engaño).

Along the coast SSW of Punta Juanillo are to be found numerous spouting rocks.

2.47

1 Punta Espada (18°21′N 68°27′W) is connected to Cabo Falso (False Cape) (8½ miles W) by high land which rises a short distance inland from the coast and from the shores of Bahía de Yuma. This bluff terminates in Cabo Falso (61 m high), a steep cliff of coral rock which, from S, has a sharply defined and conspicuous outline in the shape of a ram.

2 The coast from Cabo Falso (18°20′N 68°36′W) to Punta Algibe (Algive) (8 miles SSW), consist of high bluffs and coral ledges, against which the sea breaks heavily.

2.48

1 **South coast.** Isla Saona (18°10′N 68°40′W), which is connected to the SE extremity of Hispaniola by reefs and flats, is covered with trees and undergrowth and is difficult to distinguish at night. Its S side is, generally speaking, low and foul, whilst Punta Balajú (Roca Point) (its NE extremity) is a bold, rocky bluff forming the highest point of the island.

2.49

1 **South–west coast.** The coast from Punta Palmilla (18°12′N 68°45′W) to Boca de Chavón (Quiabon) (14 miles NW) consists, in general, of a succession of rocky cliffs and small indentations with sandy beaches. This coast is also wooded and rises abruptly to a tableland from 30 to 70 m high, from which streams descend through canyons or breaks in the plateau.

2 This coast is steep–to with the 183 m (100 fm) depth contour 2¾ miles offshore.

Depths

2.50

1 See 2.26.

Natural conditions

2.51

1 **Magnetic anomaly** in the vicinity of 18°18′N 68°14′W (2.28).

Currents through Mona Passage are described at 2.29.

Well to the S of Hispaniola, the direction of the Equatorial Current is W or NW with a rate of 1 to 1¼ kn.

Close to the coast, after fresh N or S winds, the current often sets E, as it occasionally does at other times.

2 **Tidal streams** (2.30).

South of Isla de Saona the tidal stream sets SW on the rising tide and NE on the falling tide. The rate is generally less than 1½ kn.

Flow. In Mona Passage (2.31).

3 A strong W set is often experienced off the coast in the vicinity of Cabo Engaño.

Near the S coast of Isla Saona observations, which are rather sparse, indicate that the flow is variable in both direction and rate, being more influenced by the wind than by the tidal stream, as the range of the tide is small.

4 **Overfalls** on the bank extending E from Cabo Engaño are described at 2.32.

Local weather (2.33).

Regulations

2.52

1 **Anchoring** is only permitted in designated charted areas, see 1.51.

Piracy

2.53

1 Piracy has occurred in the waters of the Dominican Republic, see 1.13.

Principal marks

2.54

1 **Major lights:**

Cabo Engaño Light–tower (red and white metal tower, 20 m in height) (18°37′N 68°19′W) standing on Cabo Engaño (2.56).

2 Punta Cana Lighthouse (white concrete tower, elevation 32 m) (18°07′N 68°35′W) standing on the SE extremity of Isla Saona (2.48)

Directions

Cabo Engaño to Río Maimón

2.55

1 From the position 18°40′N 68°13′W, the track leads NW for about 25 miles, passing (with positions from Punta Macao (18°47′N 68°31′W):

NE of Cabo Engaño (15 miles ESE) (2.56), thence:

2 NE of a stranded wreck (4½ miles SE), position approximate, conspicuous visually and on radar, thence:

NE of Cabezota Barlovento, a rocky islet close N of Punta Macao, thence:

NE of El Infiernito (2¾ miles NW) a rocky islet.

(Directions continue for route NW of Hispaniola in West Indies Pilot Volume I)

Cabo Engaño to Punta Cana on Isla Saona

2.56

1 From the position 18°40′N 68°13′W, the track leads SSW for about 45 miles, passing (with positions from Punta Espada (18°21′N 68°27′W)):

2 ESE of reefs, on which the sea breaks, extending 1½ miles NE from Cabo Engaño (18 miles NNE), a low, wooded cape forming the E extremity of Hispaniola. Cabo Engaño Light (2.54) stands on the cape and close within the cape rise two conspicuous hillocks, which, when seen from ENE at a distance of about 18 miles, appear wedged shaped. Caution is necessary when approaching Cabo Engaño owing to the reefs and flow of water (2.51); it is also dangerous to approach the cape at night as the light is unreliable and the high background makes distances from the cape deceptive. A number of stranded wrecks lie in the vicinity of Cabo Engaño. Thence:

3 Clear of shallow patches on the bank (2.26) extending E from Cabo Engaño, thence:

ESE of Punta de Águilas (Eagle Point) (15 miles NNE) which may be identified by low white cliffs, thence:

4 ESE of a stranded wreck (13½ miles NNE), the position of which is approximate, radar conspicuous. A light stands near the coast at Punta Borrachón situated 1 mile W of the wreck. Thence:

5 ESE of Punta Espada, a steep–to, bold headland, partly covered in vegetation, which, from NE, appears like a flat–topped wall ending vertically. Its base is strewn with rocks and a prominent rock,

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white on its S side with vegetation on top, lies close off the NE end of the point. Punta Espada is a good radar target. Thence:

6 ESE of the coastal bank, with depths of less than 16 m (52 ft) over it, extending 4 miles ESE from Isla Cuidado (16½ miles SSW). This islet lies close E of Punta Cana, the low SE extremity of Isla Saona (2.48), on which stands Punta Cana Light (2.54).

7 **Useful marks** in the vicinity of Bahía de Yuma (18°22′N 68°35′W) are given at 2.61.

Punta Cana on Isla Saona to Boca de Chavón

2.57

1 From the position 17°58′N 68°30′W, the route S of Isla Saona (2.48) leads WNW for about 20 miles, passing (with positions from Punta Laguna Light (18°08′N 68°45′W)):

2 SSW of the coastal bank, with depths of less than 20 m (11 fm) over it, which extends nearly 4 miles S from Punta Cana (10½ miles E) (2.56); a shoal with 7·5 m (24 ft) of water over it (position approximate) (reported 1962), lies 1½ miles NNE, thence:

SSW of a depth of 12·2 m (40 ft) (8¼ miles SE) (reported 1939), thence:

3 SSW of Bajos del Caballo (Caballo Blanco Reef), with a least depth of 0·6 m (2 ft) (charted as dangerous rock) over it (6¼ miles ESE), on which the sea always breaks, marked off its W side by a light–buoy. The depths over this reef are very uneven and the currents near its E end are frequently very strong. Thence:

4 SSW of Punta Laguna, the SW extremity of Isla Saona, on which stands Punta Laguna Light (white concrete tower).

2.58

1 From the position 18°03′N 68°50′W, the route W of Isla Saona and the SE extremity of Hispaniola, leads NNW for about 13 miles passing WSW of the coastal bank, with depths of less than 20 m (11 fm) over it, lying 2½ miles W of Punta Laguna and extending 2 miles SW from the SW end of Isla Saona (2.48).

(Directions continue for coastal route S of Hispaniola in West Indies Pilot Volume I)

Anchorages

Designated anchorages

2.59

1 Vessels are permitted to anchor only in those areas designated by Dominican Republic Naval Authority. Mariners should contact local authorities for details. See 1.51.

North–east coast

2.60

1 There is neither opening nor safe anchorage along the coast extending NW from Cabo Engaño, though there are several places where timber is shipped, including the mouth of Río Maimón (18°51′N 68°37′W). Anchorage on the bank outside the reef is totally exposed and is unsafe from about November to April owing to the strength of the North–east Trade Wind.

Subject to the above constraints, anchorage positions are as follows (with positions from Punta Macao (18°47′N 68°31′W)):

2 Outside the reef, abreast Punta de los Nidos (10½ miles SE) in depths of 20 m (11 fm) sand and rock. A break in the reef, named Nayba, with a maximum depth of 3·7 m (12 ft), leads into Cabeza de Toro, to the W of Punta de los Nidos.

3 Anchorage is also reported possible off Anclaje Babaro (near Punta Bávaro, 9 miles SE), and Anclaje Ranchitos, (near Punta Ranchitos, 6¼ miles SE), but the locations are uncertain and local knowledge is essential.

South–east coast

2.61

1 **Bahía de Yuma** (18°22′N 68°35′W) affords anchorage in a depth of 22 m (12 fm), good holding ground, off the mouth of Río Yuma, as shown on the chart. However the bay can be subjected to a heavy swell which renders it undesirable and dangerous as an anchorage.

There is a least depth of 2·4 m (8 ft) in the fairway over the bar of Río Yuma and there are depths of about 3·7 m (12 ft) within the bar.

2 Boca del Yuma is a fishing port and tourist centre.

Useful marks:

A conspicuous notch in the hills at the head of the bay.

Boca de Yuma Light (red metal pyramidal tower, 9 m in height) situated on the W side of the bay.

South–west coast

2.62

1 **Anchorage** may be obtained almost anywhere off the W coast of Isla Saona and the SE extremity of Hispaniola, between Punta Palmilla (18°12′N 68°45′W) (2.49) and Bayahibe (Bayajibe) (11 miles NW). Particular positions are as follows:

2 Anchorage, sheltered from E winds, exists in depths of about 9 m (30 ft), 1 mile W of Punta Catuán (Catuano Point) (18°12′N 68°46′W), the NW extremity of Isla Saona, as shown on the chart. A pier extends N from the coast 6 cables WSW of Punta Catuán.

3 Bahía de la Altagracia (W of Bayahibe) (18°22′N 68°50′W) affords anchorage about 5 cables offshore, clear of a dangerous rock (5 cables W of Bayahibe), in depths of about 12 m (40 ft), well sheltered from SE winds.

Bahía Catalinita

2.63

1 **Description.** In position (18°11′N 68°40′W), is a shallow bay between the SE coast of Hispaniola and Isla Saona (about 3 miles S). It has a narrow channel through its S part, navigable by smaller vessels with a maximum draught of 3·7 m. This bay can be entered from either E or W.

Local knowledge is required.

ANTIGUA CHANNEL

General information

Charts 585, 1025

Description

2.64

1 Antigua Channel (16°45′N 61°40′W), between Antigua and Montserrat, to the NW, and Guadeloupe, to the SE, is 30 miles wide and clear of dangers in the fairway.

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Hazard

2.65

1 In 1984 shipping in the channel was reported to be light and sporadic, consisting mainly of inter–island coasters with a few ocean–going cargo vessels. During winter months small craft were much in evidence.

Topography

2.66

1 Topography on either side of Antigua Channel is given as follows:

Antigua at 5.333 and 5.449.
Guadeloupe at 6.8.
Montserrat at 5.189.

Depths

2.67

1 Deep water exists throughout the length of Antigua Channel but there are several ill–defined banks, with depths of less than 100 m over them, as described at 2.70. In addition, from time to time, lesser depths than charted are reported in the channel; these are shown on the chart until either confirmed or disproved by survey.

2 General depths along the sides of the channel are described as follows:

Antigua at 5.327.
Guadeloupe at 6.16.
Montserrat at 5.315.

Currents

2.68

1 Between Antigua and Guadeloupe the current sets W and that between Montserrat and Guadeloupe sets NW. These currents are generally less than those in the entrance channels to the N or S of Antigua Channel, however the following reports have been received:

2 In May 1986 a NW current was recorded, with a rate of 3½ kn, in the vicinity of 16°50′N 61°45′W (about 10 miles S of Antigua).

In April 1969 a SE current was observed, with a rate of 2¾ kn, in the vicinity of 17°05′N 61°30′W (about 10 miles E of Antigua). It is thought this current was probably in connection with an eddy.

Principal marks

2.69

1 **Landmark:**

Radio mast on Boggy Peak (17°03′N 61°52′W) (5.376).

Major light:

Cape Shirley Light (17°00′N 61°45′W) (5.454).

Directions

2.70

1 From the position 17°00′N 61°20′W, the main route through Antigua Channel leads SW, passing (with positions from Cape Shirley Light (17°00′N 61°45·W)):

SE of the coastal bank (5.327) which extends up to 10 miles E from Hudson Point (3¾ miles ENE) (5.455), thence:

2 NW of an offshore bank, with a least depth of 67 m over it, (25 miles SSE) about 6 miles in length, the existence of which was confirmed in 1986 but the charted positions of the extremities are approximate, thence:

Clear of a steep–sided, flat–topped bank, with a least depth of 69 m over it (13 miles SSE), thence:

3 NW of the coastal bank (6.16) which extends up to 4½ miles NNW from Pointe Allègre (39 miles S) (6.18), thence:

SE of Montserrat (30 miles SW) (5.188). Owing to volcanic activity a 2 mile exclusion zone has been established off the S coast of Montserrat (5.279).

(Directions continue for route W of Guadeloupe at 6.44
Directions continue for route S of Antigua at 5.404,
for the route NE of Antigua at 5.430,
for the route SE of Antigua at 5.455,
for the route NW of Guadeloupe at 6.18,
for the route E of Montserrat at 5.320,
and for the route SW of Montserrat at 5.280).

DOMINICA–MARTINIQUE CHANNEL

General information

Chart 594, 956

Description

2.71

1 Dominica–Martinique Channel (15°00′N 61°15′W), separating Dominica and Martinique, is about 22 miles wide and free of dangers in the fairway but is not lighted in its E approach.

Topography

2.72

1 Topography on either side of Dominica–Martinique Channel is given as follows:

Dominica at 6.175 and 6.217.
Martinique at 7.8 and 7.14.

Radar characteristics of Dominica are given at 6.176.

Depths

2.73

1 Dominica–Martinique Channel is deep in the fairway, however, banks, with depths of less than 100 m (55 fm) over them lie in the E approach to the channel, as described at 2.76.

2 In 1908 discoloured water was observed in position 15°18′N 60°05′W, as shown on the chart, in the outer approach to Dominica —Martinique Channel. No soundings were obtained but there appeared to be a depth of less than 91 m (50 fm) over an area of 2 cables by 1 cable.

General depths along the S side of the channel are described at 7.15.

Currents

2.74

1 Details of currents are given at 1.209.

Within Dominica—Martinique Channel the current generally sets W at an average rate of 1 kn.

Principal mark

2.75

1 **Major light:**

Pointe du Prêcheur Light (14°48′N 61°14′W) (7.18).

Directions

2.76

1 From the position 15°10′N 60°45′W the route through the Dominica–Martinique Channel leads WSW, passing with positions from Basse–Pointe (14°52′N 61°07′W):

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2 Clear of a large bank with a least depth of 31 m (17 fm) over it, (20 miles ENE), and:
Clear of a bank, with a least charted depth of 77 m (42 fm) (21 miles NNE), thence:
NNW of Martinique (7.7), and:
SSE of Dominica (23 miles NNW) (6.174).

(Directions continue for route W of Martinique at 7.21. Directions continue for route W of Dominica at 6.183, and for route S of Dominica at 6.221. Directions continue for the route N of Martinique at 7.20)

SAINT LUCIA–SAINT VINCENT CHANNEL

General information

Chart 596, 956

Description

2.77

1 Saint Lucia–Saint Vincent Channel (13°30′N 61°00′W) has a charted width of 22 miles, is clear of dangers in the fairway and is well lighted in the approach from E.

Function

2.78

1 Saint Lucia–Saint Vincent Channel is used by many vessels on passage from Europe, the W coast of Africa and the E coast of South America to the Caribbean Sea, Panama Canal and the E coast of North America, as given in *Ocean Passages for the World*.

2 This channel is recommended as the best entrance for vessels on passage between ports in South America and the W end of the Caribbean.

Topography

2.79

1 Topography on either side of Saint Lucia–Saint Vincent Channel is given as follows:
Saint Lucia at 7.154 and 7.231
Saint Vincent at 8.10, 8.14 and 8.31.

Depths

2.80

1 Saint Lucia—Saint Vincent Channel is deep in the fairway; however, banks, with depths of less than 100 m (55 fm) over them lie in the E approach to the channel, as described at 2.83.

2 General depths along the sides of the channel are described as follows:
Saint Lucia at 7.232.
Saint Vincent at 8.5.

Natural conditions

2.81

1 **Flow.** General remarks (1.209).
The flow in Saint Lucia — Saint Vincent Channel generally sets NW with a rate of about 1½ kn.
Descriptions of the currents S of Saint Lucia are given at 7.156 and for those in the vicinity of Saint Vincent at 8.12.

Principal marks

2.82

1 **Landmark:**
Porter Point (13°23′N 61°10′W) (8.18).
Major light:
Cape Moule à Chique Light (13°43′N 60°57′W) (7.235).

Directions

(continued from 7.237)

2.83

1 From the position 13°25′N 60°50′W, the route through Saint Lucia — Saint Vincent Channel leads WNW or NW, passing (with positions from Cape Moule à Chique Light)):

2 SSW of a bank, with a depth of 98 m (54 fm) over it (10 miles S) which is the S extremity of a chain of banks extending S from Saint Lucia. Overfalls have been reported (1988) on the W side of the bank; see 7.156. Thence:

3 SSW of the coastal bank, with a depth of 22 m (12 fm) (3½ miles S) charted near its S edge, which extends up to 4 miles from Cape Moule à Chique (7.236), the S extremity of Saint Lucia, thence:

4 NNE of Cow and Calves (23 miles SSW), the NE extremity of Saint Vincent, near which stands Owia Light (8.19)

(Directions continue for the route W of Saint Vincent at 8.36 and for the route E of Saint Vincent at 8.19). Directions continue for the route W of Saint Lucia at 7.213 and for the route E of Saint Lucia at 7.236.

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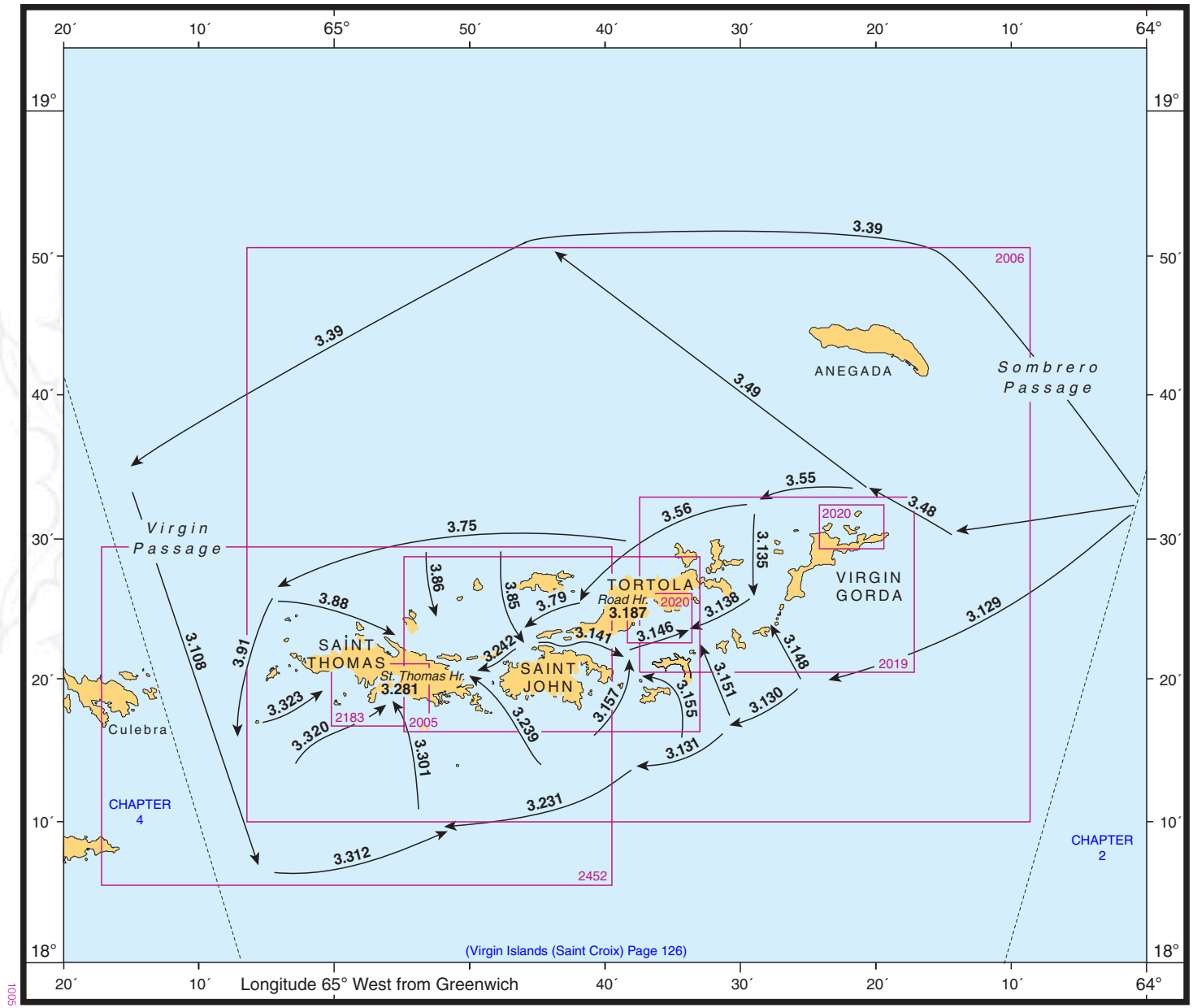
Chapter 3a - Virgin Islands



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CHAPTER 3

VIRGIN ISLANDS

GENERAL INFORMATION

Charts 2006, 130

Scope of the chapter

3.1

1 This chapter describes the Virgin Islands (18°30′N 64°30′W), presenting the coastal and inter–island waterways from Sombrero Passage (18°30′N 63°40′W) in the E, to Virgin Passage (60 miles W); including Anegada, to the N, and Saint Croix, to the S. This encompasses the enclosed waters of Sir Francis Drake Channel and of Pillsbury Sound, which have become one of the world's most concentrated sailing areas.

2 **Directions** are given for coastal passage on both sides of the island chain; for all routes between the islands; and for entry into all harbours and significant bays; as shown on the index diagrams.

Horizontal datum

3.2

1 The horizontal datums of the various charts of the Virgin Islands differ. See notes on charts regarding the datum used and differences between charts and 1.24.

International boundary

3.3

1 This chapter includes territory administered by Britain and by the United States, as follows:

2 The British Virgin Islands (1.98) include Tortola, Virgin Gorda, Anegada, Jost Van Dyke and Peter Island, as well as about 35 smaller islands and cays.

The Virgin Islands of the United States (1.192) include Saint Thomas, Saint John and Saint Croix (lying about 35 miles S of the main group) as well as about 50 uninhabited islands and cays.

3 From position 18°36′N 64°57′W the international boundary runs SSE between Little Hans Lollik Island and Little Tobago, thence through The Narrows between Saint John and Great Thatch Island, thence around the E side of Saint John and through Flanagan Passage between Flanagan Island and Norman Island. All islands S and W of this boundary are in the United States Virgin Islands; all islands to the N and E are in the British Virgin Islands.

Harbours

3.4

1 **Principal harbours** described in this chapter are as follows:

Road Harbour (18°25′N 64°37′W) (3.187) in Tortola.

Saint Thomas Harbor (18°20′N 64°56′W) (3.281), in Saint Thomas, including Charlotte Amalie.

2 Christiansted Harbor (17°45′N 64°42′W) (3.356) in Saint Croix.

Limetree Bay (17°42′N 64°45′W) (3.423) in Saint Croix, including HOVIC Terminal and Port Alucroix.

3.5

1 **Leisure craft facilities** abound on and around the Virgin Bank (18°35′N 64°45′W) (3.23) where many calm, comfortable anchorages, and a steady cooling breeze, make this a fine cruising ground.

2 Mariners may expect to encounter significant numbers of leisure craft in the area.

Topography

3.6

1 The Virgin Islands comprise a large number of small islands, only a few of which are large enough to support habitation. With the notable exception of Anegada they are mainly volcanic in origin and mountainous in nature, rising in some parts to over 450 m. Except for Saint Croix, all the islands are close to each other, providing shelter from the ocean swell but generally little protection from the E wind (3.9).

Depths

3.7

1 With the exception of Saint Croix, the Virgin Islands are situated on the E or S side of the Virgin Bank (3.26). Numerous reports and some recent surveys (1970), indicate that shoal patches of small extent but with considerably less water than charted, may be encountered on the banks around the Virgin Islands. Caution is recommended and masters of deep draught vessels, particularly those with a draught of more than 12 m, are recommended to remain outside the 183 m (100 fm) depth contour if possible.

Fishing

3.8

1 The coastal waters of the British Virgin Islands are heavily fished to provide one of the largest sources of protein in the local diet and the largest export (1.10). The chief centres of operation are: Anegada (3.17), Jost Van Dyke (3.31), Salt Island (3.178) and Peter Island (3.180).

Natural conditions

Weather

3.9

1 **The climate** is very pleasant with the prevailing wind keeping the temperature and humidity down. The average temperature varies little between winter (25°C) and summer (28°C).

2 **Wind.** An outstanding feature of the Virgin Islands is the steadiness of the trade winds. They blow, almost without exception, from E or between NNE and SSE. The highest mean maximum wind speeds usually occur in July. Superimposed on the trade winds are the land and sea breezes, which are important in most coastal areas. Night winds are lighter than the daytime winds. About daybreak the wind speed begins to increase, reaching a maximum late in the morning or early afternoon. A return to the lighter night winds begins during the late afternoon, usually about 1600.

3 **Caution.** These islands are located in the path of occasional tropical storms or hurricanes (1.235) and extremely high winds may be expected during such passages. These are most likely to reach the area during the months of August, September and October.

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4 **Rainfall.** Maximum rainfall occurs from May to November or December with showers providing most of the rain. The heavier rains have usually been associated with tropical storms or frontal systems.

Sea state

3.10

1 Away from the lee of the islands the seas are reported to build up to formidable size, particularly in the 30 mile channel between Saint Thomas and Saint Croix, the Virgin Passage and, of course, Sombrero Passage (2.14).

In Sir Francis Drake Channel (3.137) and Pillsbury Sound (3.233) waves seldom exceed 1 m, except when affected by tidal streams.

3.11

1 **Rollers,** a form of ground swell (1.222), are frequently experienced, and sometimes continue for 3 or 4 days in succession. These rollers appear to have great influence on the sea bed loosening the sand and so discolouring the water for some miles as far N as the edge of the Virgin Bank. In some places near the W end of Anegada, where the bottom is composed of very fine sand, the formation of the banks frequently changes.

2 It is reported that these rollers move in from the N after several days of light E or SE winds; they also follow winds from the NE, especially when these winds are strong. The wave height may exceed 2 m and they have been observed to break in depths of 16 m (54 ft) off the N coast of Tortola. They cause considerable movement in harbours exposed to the N.

Tide

3.12

1 The average range of the tide around the Virgin Islands is about 0·3 m. Along the coasts bordering the Atlantic the tide is chiefly semi–diurnal and along the Caribbean shores it is mostly diurnal. The actual rise and fall of the water level, however, is more influenced by the winds and other meteorological conditions than by the tide.

Flow

3.13

1 **Tidal stream** observations are not plentiful. From information supplied by local fishermen, it appears that the stream sets SE for 2 hours before HW until 4 hours after HW at Bermuda, and sets NW the remainder of the time; but this rule is greatly modified in different localities by the influence of the wind. General remarks on tidal streams are given at 1.215.

2 **Current.** Observations among the islands are not abundant. For much of the year the predominant ocean current in the area is W, of moderate constancy and of an average rate of ¾ to 1 kn. Strong variable currents are likely in the island passages.

3 Between Saint Thomas and Saint Croix, the predominant current sets W to NW with moderate constancy and an average rate of about ¾ kn. However a temporary reversal may occur in early winter.

General remarks on currents are given at 1.209.

4 **Flow.** In June and July, while predominant current data shows a bias to a NW or N flow, a strong S–going stream is reported to occur regularly in these months. This phenomenon is apparently well–known to local fishermen, who call it "Saint John's Tide" because of its reputedly regular arrival about 24th June. For the remainder of the above period, the N–going flow runs for only about 1 or 2 hours out of each 12½ hours. These factors, therefore, indicate a large variability in the direction and rate of the resultant flow during the summer months. A northerly flow is also likely to appear for a time in early winter.

Regulations

British Virgin Islands

3.14

1 **Marine Parks** have been established with regulations prohibiting anchoring and fishing, and the establishment of moorings (1.54.)

United States Virgin Islands

3.15

1 **Navigation safety and other regulations, including danger zones,** are given in the Appendices, see also 1.46 to 1.48.

Navigation regulations which apply within the Virgin Islands of the United States may be obtained from the Office of the District Engineers, Jacksonville, Florida, USA.

2 **Anchoring regulations** which apply within the United States Virgin Islands may be obtained from the Office of the Commander, 7th Coast Guard District, Miami, Florida, USA.

3 **National park regulations** apply to a number of bays in the United States Virgin Islands. In Saint John the National Park extends for the whole N coast from N of Cruz Bay (3.259) to W part of Haulover Bay (18°20′N 64°56′W), and part of the S coast; see 3.279. (See 1.55).

4 **Pollution reports** are to be rendered in accordance with 1.47.

Principal islands

General descriptions

3.16

1 Anegada at 3.17.
Virgin Gorda at 3.18.
Tortola at 3.19.
Saint John at 3.20.
Saint Thomas at 3.21.
Saint Croix at 3.22.

Chart 2006

Anegada

3.17

1 **Position**. Anegada (18°44′N 64°20′W), situated on the W side of Sombrero Passage, (2.14) is the NE–most of the Virgin Islands, being about 13 miles NNE of Virgin Gorda.

2 **Function.** Anegada, population 156 (1991), is traditionally used for raising fast growing crops during the rainy season; there are also fine beaches, reefs for scuba enthusiasts, many wrecks and waters which abound with fish.

3 The principal settlement, known as The Settlement, situated on the S side of the island, is a port of entry for small craft. There is also an airstrip which can accommodate light aircraft.

4 **Topography.** Anegada (a name which means drowned or inundated), the only coral island in the British Virgin Islands, is so low it can barely be seen on the horizon when approaching from seaward. The island is about 8 m high for the most part with a highest point of 11 m and, except for a few places that have been cleared for cultivation, is covered with brushwood. A large part of the interior is intersected by salt–water lagoons.

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Chart 2019

Virgin Gorda

3.18

1 **Position.** Virgin Gorda (18°29′N 64°24′W) is situated on the SE side of the Virgin Bank, to the E of Tortola.

2 **Function.** This island, with a population of 2495 (1991), has an economy predominantly based on tourism. It is a favourite stop–over for visitors as all land over 305 m (1000 ft) has been designated as national park, with laid–out trails. There are 20 good beaches and several places of interest for tourists.

3 **Topography.** The N (central) part of the island is mountainous and is easily identified by the distinct summit of Virgin Gorda Peak (18°29′N 64°24′W) (414 m in height) (shown as 1370 ft on charts 130 and 2600), as shown in view B on Chart 130.

4 The E part of the island consists of a narrow tongue of land composed of irregular rugged hills, to the N of which are several small, slightly wooded islands and cays, as shown in view B on Chart 130.

5 The SW part of the island consists of a relatively flat peninsula, with peaks between 73 and 137 m high, which is connected to the central part by a narrow isthmus.

6 The most remarkable feature of Virgin Gorda is the SW coast between Colison Point (18°28′N 64°27′W) and the SW extremity (2 miles S). This side of the peninsula has been broken by some violent action of nature into immense blocks of granite, that lie scattered about the coast.

Charts 2005, 2019

Tortola

3.19

1 **Position.** Tortola (18°26′N 64°37′W) is situated about 2 miles NE of Saint John, on the NW side of Sir Francis Drake Channel.

2 **Function.** Tortola, population of 13 568 (1991), is the main island of the group, with Road Town, the busy capital of the British Virgin Islands and administrative and business centre of the territory, located on the S shore. The island is flanked to the E, S, and W by smaller islands, which dot the sea enclosing an expanse of water considered to be one of the finest cruising grounds in the world; making Tortola a popular centre for tourists.

3 The principal port at Road Harbour (3.187) and an airport on Beef Island (3.173), provide facilities for the movement of visitors to the area, with ports of entry at Road Harbour and Sopers Hole (3.166).

4 **Topography.** The island is mountainous, with unbroken ranges running its full length; and rugged hills rising on all sides somewhat abruptly from the coast. Mount Sage, (about 3½ miles from the W end of the island) is the highest at 521 m, with the appearance from the N of a flattened and elongated summit.

Chart 2005

Saint John

3.20

1 **Position.** Saint John (18°20′N 64°45′W) is situated about 2 miles E of Saint Thomas and 32 miles N of Saint Croix.

2 **Function.** The economy, which was historically based on sugar, with over 100 plantations, is now dependent on tourism. Some two thirds of the island is designated as a national park, subjecting many of the bays to special regulations (1.55). In 2000 the population was 4197, mostly located in the small town of Cruz Bay (3.259), at the W end of the island and in the settlements around Coral Bay (3.270), at the E end. Communication is mainly by ferry with Saint Thomas.

3 **Topography.** The central and W portions of the island are composed of irregular hills, the highest of which is Bordeaux Mountain (18°20′N 64°44′W), 390 m in height. The N part of the E end is formed by a long, narrow, irregular peninsula, which extends about 3 miles ESE from the main body of the island, forming a deep bight on its SW side. For the most part the hills and mountains are covered with trees and bushes, with some patches of grass.

Charts 2005, 2006

Saint Thomas

3.21

1 **Position.** Saint Thomas (18°20′N 64°55′W) is situated about 33 miles E of Puerto Rico and 32 miles N of Saint Croix. The S side of the island borders the Caribbean Sea while the N side lies in the Atlantic Ocean.

2 **Function.** Saint Thomas is the most densely populated and commercially the most important of the Virgin Islands belonging to the United States. The greater part of the population of 48 166 (1990) live in Charlotte Amalie (3.283), which is the most important town and the capital of the US Virgin Islands.

3 The principal source of income is tourism, with a secure port and an international airport to facilitate the movement of visitors. Rum production also makes a significant contribution.

4 **Topography.** Saint Thomas is less rugged in outline than the surrounding islands with a lofty ridge extending the whole length of the island.

5 The E end has the appearance of two main ridges, separated by a valley, which slope E and S with numerous small ridges and spurs branching off from them. These two ridges join and form the main ridge through the centre of this part of the island, terminating at its E extremity. The highest elevation at this end of the island is Flag Hill, 299 m which stands about 4½ miles W of the E extremity.

6 The centre is distinguished by a mid–island saddle between Signal Hill (18°21′N 64°57′W), 454 m in height, near the centre, and Crown Mountain (2 miles W), 472 m, with large spurs branching N and S from it, terminating abruptly at the coast.

7 The W half has the appearance of a steep ridge sloping precipitously N and S. Numerous dry ravines, which become the beds of small torrents during heavy rains, descend to the coast widening at their lower ends into small tracts of level land. Between these level tracts the coast is usually bold with rocky promontories of considerable elevation. The higher hills are flat–topped and plateau–like, whereas the lower ones are for the most part dome–shaped. See view A on Chart 130.

8 The interior is almost entirely wooded; particularly at the W end which presents a forest–like appearance; and the island is almost surrounded by islets and cays, mostly bold and steep–to, with few submerged dangers.

Chart 485

Saint Croix

3.22

1 **Position.** Saint Croix (17°45′N 64°45′W) is isolated to the S of the main group, being some 32 miles S of Saint Thomas and 50 miles SE of Puerto Rico.

2 **Function.** Saint Croix, with a population of 53 234 (2000), is the agricultural centre of the US Virgin Islands, with the cultivation of sugar cane and the production of cattle for export to nearby islands as important commodities. The manufacture of sugar and rum are

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important occupations but the economy depends mainly on tourism and industry. The HOVIC Oil Refinery (3.444) on the S coast is reported to be one of the largest in the world, and aluminium processing provides employment for the second largest group of workers

3 There are two principal harbours, Christiansted (3.356) on the N coast and Limetree Bay (3.423) in the middle of the S coast. In addition, the minor port of Frederiksted (3.404) is situated on the W coast.

VIRGIN BANK

GENERAL INFORMATION

Charts 2006, 130

Area covered

3.23

1 This section describes the Virgin Bank (18°35′N 64°45′W) and the E approach, through Necker Island Passage (18°30′N 64°15′W) (3.48). It includes passage across the bank, with coastal passage on both sides of Anegada; and coastal passage, with inshore routes, along the N coasts of Virgin Gorda, Tortola, Saint John, and Saint Thomas, as shown on the chapter index diagram.

International boundary

3.24

1 Details of the international boundary within the area of this section are given at 3.3.

Topography

3.25

1 General topography (3.6).
Anegada at 3.17.
Virgin Gorda at 3.18.
Tortola at 3.19.
Saint John at 3.20.
Saint Thomas at 3.21.

Depths

3.26

1 For general depths within the Virgin Islands see 3.7.

Virgin Bank, with depths of less than 200 m (100 fm), extends W and WSW for nearly 90 miles from Anegada (18°44′N 64°20′W) to Puerto Rico, is an ocean shelf which drops abruptly at the edge.

The general depths on the bank are from 30 to 60 m (18 to 36 m), coral and sand, with patches, over which the depths are between 11 and 30 m (36 ft and 18 fm).

2 These patches, some of which are several miles in extent, are described as follows:
Whale Banks (18°42′N 64°43′W) at 3.49.
Turtle Head (18°37′N 64°47′W) at 3.75.
Barracouta Bank (18°34′N 64°52′W) at 3.75.
Kingfish Banks (18°32′N 64°41′W) at 3.75

East of the banks the depths gradually decrease to less than 10 m (33 ft) within 3½ miles W and S of Anegada.

Anchorage

3.27

1 In fine weather it is safe to anchor anywhere on the Virgin Bank, W of the meridian of Anegada, clear of a dangerous wreck (18°36′N 64°32′W), position approximate. However the N coasts of the islands on the bank offer very little protection and may become unsafe for small vessels, especially in the winter when the wind is from N of E or when heavy rollers (3.11) are passing over the bank.

Natural conditions

3.28

1 Weather (3.9). Sea state (3.10). Tide (3.12). Flow (3.13).

Regulations

3.29

1 For regulations within national park areas in the British and United States Virgin Islands see 1.54 and 1.55.

Principal islands

General information

3.30

1 Description of major islands:
Anegada at 3.17.
Virgin Gorda at 3.18.
Tortola at 3.19.
Saint John at 3.20.
Saint Thomas at 3.21.

Charts 2005, 2006

Jost Van Dyke group

3.31

1 Jost Van Dyke (18°27′N 64°45′W), situated 3 miles NNW of the W end of Tortola, has a population of 141 (1991) most of whom are settled around Great Harbour (3.176) and White Bay (3.65). Yachts are permitted to enter the British Virgin Islands at Great Harbour.

2 The island is lofty, rugged, bold and steep–to. The E part is the higher, rising to the summit, 321 m high, near the middle of the N side of the island.

Tobago group

3.32

1 The Tobago group (18°27′N 64°50′W), situated about 5 miles NE of Saint Thomas, is the W group of the British Virgin Islands.

Great Tobago rises to two peaks, the highest being 160 m, as shown on the chart. The S side is fringed with coral to a short distance offshore but elsewhere its coasts are steep–to, close to the cliffs.

2 **Little Tobago** (3.75) (about 1 mile SW of Great Tobago) has been reported to be a good radar target for a distance of up to 18 miles.

VIRGIN BANK—NORTH–EAST PART

General information

Charts 2006, 130

Route

3.33

1 The route passing E then N and NW of the Virgin Bank, from a position about 18 miles SE of East Point (18°41′N 64°16′W), the SE extremity of Anegada, leads NW for about 24 miles, then W for about 20 miles, in deep water, outside the bank, to a position 20 miles WNW of West End Point (18°45′N 64°25′W), the W extremity of Anegada, then WSW for about 33 miles to a position NNW of Virgin Passage (3.103).

2 A recommendation to the Masters of deep draught vessels is given at 3.7.

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Topography

3.34

1 General topography for the area is given at 3.6 and for each island as follows:

Anegada at 3.17.

Virgin Gorda at 3.18.

2 The N side of Anegada is bordered by a narrow barrier reef which continues, as Horse Shoe reef, about 8 miles SE, with detached coral heads and shallow ledges extending about 4½ miles SW to Herman Reef (3.48) from its extremity. On this ledge stands The White Horses, three heaps of dead white coral, 1 m in height, within a distance of 6 cables (positions approximate). These heaps are not visible from any distance and periodically disappear below the surface. A dangerous wreck, position approximate, lies 1 mile SSW of The White Horses.

Depths

3.35

1 For general depths on the Virgin Bank see 3.26.

Anegada lies about 1½ miles within the E edge of The Virgin Bank and the depths off the N and E sides decrease so rapidly from the Atlantic that soundings give little warning of approach to land. This side of the island is clear of offshore dangers.

2 The 200 m (100 fm) depth contour lies between 1½ and 3 miles NE of Horse Shoe Reef and between 1¼ and 2½ miles of the reef N and E of Anegeda, but the exact location of the contour is uncertain. The majority of the banks and shoals around Anegada were last surveyed in 1848 by lead–line or are unsurveyed, as indicated on the chart; due caution is therefore recommended.

Natural conditions

3.36

1 **Flow.** General information regarding the tidal stream and the current over the Virgin Bank is given at 3.13; and the effects in the Sombrero Passage are given at 2.18.

Principal mark

3.37

1 **Landmark:**

Virgin Gorda Peak (18°29′N 64°24′W) (3.46).

Caution

3.38

1 Anegada is low and unlit. The effects of tidal streams and currents are irregular in its vicinity. The predominant ocean current sets W towards the reefs (3.36). Surveys are very old and soundings give little warning. Approach to the island at night is extremely dangerous unless the position of the vessel is known for certain. See 3.35 for details on depths and the proximity of the 200 m (100 fm) line to the banks.

Directions

3.39

1 From the position 18°32′N 64°00′W the coastal passage leads NW for about 24 miles, then W, passing (with positions from East Point (18°41′N 64°16′W)):

NE of a stranded wreck (7 miles SE) on the E edge of the coral heads on Horse Shoe Reef, on which the sea breaks in even the finest weather, thence:

NE of a stranded wreck (2½ miles SE) which lies 2½ cables inside the barrier reef, thence:

2 NE of East Point, thence:

NE of a stranded wreck (1½ miles N) lying 2½ cables inside the barrier reef which continues NW from 1½ miles off East Point, thence:

NE and N of a stranded wreck (4 miles NW) on the edge of the barrier reef about 1¼ miles E of Soldier Point, the N extremity of Anegada, thence:

3 N of the barrier reef extending about 5 cables N from West End Point (8¾ miles WNW) (3.49); a light–beacon stands 3 cables NE of the point. Thence:

W and WSW, passing,

Clear of a light–buoy (special) (18°38′·8N 64°58′·7W);

4 To a position (18°35′N 65°15′W) NNW of Virgin Passage (3.103).

Useful marks

3.40

1 Pajaros Point Light (18°30′N 64°20′W) (3.46).

West End Point light–beacon (18°45′N 64°25′W) (3.49).

(Directions continue for Virgin Passage at 3.108, and for passage N of Puerto Rico at 4.22)

NECKER ISLAND PASSAGE

General information

Charts 2006, 130

Route

3.41

1 From a position E of Pajaros Point (18°30′N 64°19′W) the route leads WNW for about 6 miles to a position N of Necker Island (18°32′N 64°21′W) from whence it leads NW for about 13 miles to a position W of West End Point (18°44′N 64°25′W).

Topography

3.42

Anegada at 3.17.

Virgin Gorda at 3.18.

Depths

3.43

1 In the approach to Necker Island Passage the 200 m depth contour passes about 1 mile SE of Herman Reef (18°33′N 64°14′W) (3.48).

2 General depths on the Virgin Bank are described at 3.26. South of Anegada there are extensive banks and shoal patches which were last surveyed by lead line in 1848, as shown on the chart, which demands continuous echo–sounding whilst in the area.

Natural conditions

3.44

1 **Flow.** General information regarding tidal streams and currents over the Virgin Bank is given at 3.13.

In Necker Island Passage the SE–going tidal stream seldom attains a rate of more than 1 kn, but its duration varies.

Sea water characteristics

3.45

1 **Water clarity.** In the vicinity of the reef around Anegada the bottom may be seen distinctly in depths of 16 m (52 ft).

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Principal marks

3.46

1 **Landmark:**
Virgin Gorda Peak (18°29′N 64°24′W) serves as a guide when approaching Anegada in clear weather by day.

2 **Major light:**
Pajaros Point Light (with an elevation of 61 m) (18°30′N 64°20′W).

Caution

3.47

1 For the dangers in approaching Anegada at night see 3.38.

Directions

Necker Island Passage

3.48

1 **Caution.** Less water than shown on Chart 130 was reported 1987. Corrected depths are shown on Charts 2006 and 2019.

From a position E of Pajaros Point (18°30′N 64°19′W) the track leads WNW passing (with positions from Pajaros Point (18°30′N 64°19′W)):

2 SSW of the shoal patches extending up to 2 miles S from Herman Reef (5½ miles ENE) over which the sea only breaks with a swell or strong breeze.
SSW of a shoal patch on the bank, with a depth of 10·5 m over it (4¼ miles ENE), thence:

3 SSW of a shoal patch, with a depth of 11 m over it (4 miles NE), lying midway between Robert Reef and Herman Reef, thence:
NNE of Pajaros Point, a remarkable pinnacle rock, thence:

4 NNE of The Invisibles (1¾ miles NW), three small rocky heads on which the sea does not always break. These rocks are situated on the E edge of a shallow patch and soundings give no warning when approaching from the E. And:

5 SSW of Robert Reef (4 miles N), a rocky patch and 4 cables S a 9·8 m patch, thence:
SSW of Fox Rock (3 miles N), a coral head and:
SSW of shoal patches, with depths of 8·7 m lying about 1 mile SW of Hawk's Bill Bank (5½ miles NNE) which is a small rocky ledge. Thence:

6 NNE of Necker Island (2½ miles NW) the N of the islands N of Virgin Gorda. The SE side of the island is low and sandy, rising towards the SW coast, with a highest point of 32 m. The N and NE sides are reasonably steep–to, with the 15 m contour being between 1 and 2 cables offshore.
(Directions continue for N of Virgin Gorda and Tortola at 3.55.
Directions continue for Virgin Sound 3.58)

3.49

1 From the position NNE of Necker Island the track leads NW passing (with positions from West End Point (18°44′N, 64°25′W)):

2 SW of a detached shoal patch, with a least depth of 4·9 m over it (6 miles SE), lying 3¼ miles off the S coast of Anegada which is bordered by foul ground and a coral reef extending up to 2 miles offshore. Within 4 miles of the S coast the depths are less than 10 m. Thence:

3 NE of a dangerous wreck (11 miles SW), position approximate, thence:
SW of West End Point. Banks, with a least depth of 6·6 m over them extend 3½ miles SSW from West End Point; the sea breaks over them when rollers (3.11) are running. Within 1 mile of the coast is shallow water and coral reefs. A light–beacon (elevation 19 m) stands on the N shore of West End. Thence:
NE of Whale Banks, (18 miles WSW). These are the N of the banks on the Virgin Bank.
(Directions continue for Puerto Rico — N side at 4.22)

Anchorages south of Anegada

3.50

1 **Good anchorages,** recommended for use when the rollers (3.11) are running, are situated to the S of Anegada, as follows:
In a depth of about 10 m, in position 18°39′N 64°23′W, with West End Point bearing 341° and East Point bearing 073°, as shown on the chart.

2 In a depth of about 12 m, in position 18°38′N 64°20′W, with West End bearing 324° and East Point bearing about 048°, as shown on the chart.

It is recommended that these anchorages should be approached through waters with a depth greater than 10 m.

3 **Good temporary anchorage** may be obtained in depths of 9 to 11 m in position 18°45′N 64°27′W, about 1 mile W of West End Point but this anchorage is not recommended in a swell with heavy rollers (3.11).

4 In 1982 HM Surveying Ship *Fawn* (1030 tonnes) anchored in 10 m in position 18°43′N 64°26′W, with West End Point bearing 036° distant 1¾ miles, good holding.

VIRGIN GORDA AND TORTOLA — NORTH PARTS

General information

Charts 2019, 2006

Route

3.51

1 From a position N of Necker Island (18°32′N 64°22′W) the route leads WSW for about 17 miles, passing the NE entrance to Sir Francis Drake Channel (3.137), to a position about 3 miles N of Rough Point (18°27′N 64°39′W) the NW extremity of Tortola.

Topography

3.52

1 General topography:
Virgin Gorda at 3.18.
Tortola at 3.19.

The N coast of Tortola is marked by white sandy beaches, groves of bananas, mangroves and clusters of palm trees.

Depths

3.53

1 General depths on the Virgin Bank are described at 3.26.

Principal marks

3.54

1 **Landmarks:**
Virgin Gorda Peak (18°29′N 64°24′W) (3.46).
Three radio masts (18°25′N 64°39′W) (3.74)
Major light:
Pajaros Point Light (18°30′N 64°20′W) (3.46).

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Directions

(continued from 3.48)

North of Virgin Gorda

3.55

1 From a position N of Virgin Gorda the track leads WSW, passing (with positions from Necker Island (18°32′N 64°22′W)):

NNW of Necker Island (3.48), thence:

NNW of Mosquito Island (2¼ miles WSW) (3.63), thence:

NNW of Seal Dogs (4½ miles WSW) (3.135), thence:

NNW of George Dog (6 miles WSW)

(Directions continue for Sir Francis Drake Channel passing W of Dog Islands at 3.136.

Directions continue for Dog Islands E side at 3.135)

North of Tortola

3.56

1 From the position NNW of George Dog (18°30′N 64°27′W) the track continues WSW passing (with positions from Towing Point (18°30′N 64°32′W)):

SSE of a dangerous wreck (6 miles N), position approximate, thence:

2 NNW of Towing Point, the NW extremity of Great Camanoe, an island consisting of two parts, N and S, connected by a low narrow neck of land, thence:

NNW of Land's End, the N extremity of Guana Island (2½ miles W).

(Directions continue for Jost Van Dyke — N side at 3.75, and for the route between Jost Van Dyke and Tortola at 3.79)

Virgin Sound

Charts 2020 North Sound and Approaches, 2019

General information

3.57

1 **Route.** From a position S of The Invisibles (18°32′N 64°21′W) (3.48) the route leads W for about 3 miles to a position N of Mosquito Rock (18°31′N 64°23′W).

2 **Topography.** Virgin Sound passes between the reefs and shoals S of Necker Island (3.48) and those N and NE of Prickly Pear Island (3.58) and Eustatia Island (18°30′N 64°21′W). The channel has a minimum width of 2 cables between the 10 m contours and is clear of dangers in the fairway.

3 **Tidal Streams** through the sound attain a rate of about ½ kn, setting E with the rising tide and W with the falling tide, as shown on the chart.

Directions

3.58

1 From a position S of The Invisibles (18°32′N 64°21′W) (3.48) the track leads W passing (with positions from Opuntia Point (18°31′N 64°22′W)):

N of a patch with a least charted depth of 5·2 m (1¼ miles E) lying near the NW end of an extensive bank with depths of 5 to 11 m over it, thence:

2 S of a reef which dries (8 cables NE) near the S edge of foul ground extending 2½ cables S and nearly 3¼ cables SE and WSW from Necker Island (3.48). In 1985 a continuous bank of coral heads had grown between 1½ and 2 cables off the SW coast of the island. Thence:

3 N of foul ground, on which there are underwater rocks dangerous to navigation (4 cables ENE). This patch is at the NW end of a broken ridge, containing patches of reef and rocks, which extends over 2 miles ESE to Pajaros Point, passing about 1½ cables N of Eustatia Island. Thence:

4 N of Opuntia Point, the NE extremity of Prickly Pear Island, which is the largest of the islands on the N side of Virgin Gorda.

5 From this position the track continues W for about 3 miles to a position N of Mosquito Rock (18°31′N 64°23′W) the outer of a chain of small, detached, rugged rocks extending about 1¾ cables NNE from the E end of Mosquito Island, the highest of the islands N of Virgin Gorda.

Anchorages

3.59

1 Virgin Sound affords good temporary anchorage in depths of 13 to 18 m clear of the foul ground on both sides.

North Sound

Chart 2019, 2006, 2020, North Sound and Approaches

General information

3.60

1 **Position.** North (Gorda) Sound (18°30′N 64°22′W) is a large basin situated between Mosquito Island (to the NW), Prickly Pear Island (to the N) and the N coast of Virgin Gorda (to the S).

2 **Function.** North Sound, sheltered from all winds and protected from the rollers (3.11), provides secure anchorage for small vessels.

Tidal streams between the reefs at the entrance to the sound seldom attain a rate of more than ½ kn, but the E–going stream sets towards Prickly Pear Island.

3 **Caution.** Owing to the effects of leeway and set it may be difficult to pass through the channel under sail alone.

Outer approaches

3.61

1 Minimum charted depths of 14 to 18 m lie in the outer approach to the entrance which is approached as follows:

From E, through Virgin Sound (18°31′N 64°22′W) (3.57) (directions at 3.58) or N of Necker Island (directions at 3.48).

From N, the line of bearing, between 138° and 155°, of Virgin Gorda Peak (18°29′N 64°24′W) (3.46), leads towards North Sound, passing:

2 SW of the bank extending over 3 miles SW from West End Point (18°44′N 64°25′W) (3.49), thence:

NE of a dangerous wreck (18°36′N 64°32′W) the position of which is approximate.

When about 4 miles NW of Mosquito Island (3.63) the track leads ESE passing:

NNE of Mosquito Rock (3.63).

Directions for entering harbour

3.62

1 **Entrance channel.** North Sound is entered from the N between Mosquito Island and Prickly Pear Island, through a buoyed channel 1 cable wide with depths of 5·5 m in it. A deep water channel, only 41 m wide, situated on the W side of the main channel, has a least depth of 10·7 m throughout its length. Within the entrance the depths gradually increase to between 17 and 22 m.

3.63

1 **Leading mark.** From the vicinity of 18°33′N 64°22′W, the line of bearing, 211°, of Virgin Gorda Peak (3.46) leads towards North Sound, passing (with positions from Cactus Point (18°31′N 64°23′W)):

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NW of foul ground (8 cables NE) extending nearly 5 cables WSW from Necker Island (3.48).

2 When Gnat Point (1 mile SSW) bears 177° the track alters to 170° towards the middle of the deep water channel, passing:

E of Mosquito Rock, (8½ cables WNW) (3.58) thence:

3 E of Colquhoun Reef (with its centre 6 cables W), which extends nearly 6 cables SE from Mosquito Rock. This reef, which dries and on which the sea breaks, is reported to be visible at all tides and to be steep–to on its NE side.

4 Thence through the channel, between Colquhoun Reef and Cactus Reef, marked by five buoys (lateral) charted positions approximate, passing:

E of a light–buoy (starboard hand) (4 cables W) and a buoy (starboard hand) (3½ cables W), which mark the bank extending ½ cable NE from the S end of Colquhoun Reef and:

5 W of 2 port hand light–buoys (2½ cables W and WSW) marking the extension W of the bank from Cactus Reef (extending 2 cables W from Cactus Point) which is steep–to on its N side and over which the sea breaks heavily in a slight swell, thence:

6 Close E of a light–buoy (starboard hand) (3¼ cables WSW) marking the E extremity of the bank fringing Colquhoun Reef.

When clear of the channel, pass E of the bank extending S from Colquhoun Reef, thence:

E of a light–buoy (starboard hand) (5½ cables SW), position approximate, marking the SE end of the same bank, thence:

Clear of Gorda Rock with a charted depth over it of 9·1 m (5 cables SSW).

7 From this position the track leads SE for about 3½ cables to the anchorage.

8 **Anchorages** exist as follows:

In depths of 20 to 22 m in the middle of the sound, as shown on the chart.

About 3 cables NW of Oyster Rock (18°30′N 64°22′W) a pinnacle rock lying on a shallow patch 1 cable offshore, in depths of 19 m, as shown on the chart.

9 These anchorages are reportedly used by small cruise ships.

The W part of the sound is foul, as shown on the chart.

10 **Quarantine.** No health officer in the area. Pratique should be obtained at Road Harbour (3.207) prior to visiting North Sound.

Western Passage

3.64

1 **Description.** The narrow channel (18°30′N 64°24′W), reportedly known as Western Passage and ¾ cable wide, between Mosquito Island and Anguilla Point, is reported to be used by local craft as an alternative entrance channel into North Sound.

2 **Local knowledge** is required.

Anchorage north of Tortola

Chart 2019

White Bay

3.65

1 **Description.** White Bay (18°28′N 64°35′W) affords good, sheltered anchorage in a depth of 13 m, in the entrance to the bay, SE of The Iguana Head (a large limestone formation in the shape of a lizard's head) on the extremity of the headland which separates White Bay from Muskmelon Bay to the N.

2 **Anchorage** may also be obtained in a depth of 22 m with The Iguana Head bearing 347° and Monkey Point (1 mile SE) bearing about 112°, as shown on the chart. This anchorage has been reported as being uncomfortable owing to ground swell and it is not recommended for use when rollers (3.11) are running.

Side channels north of Tortola

South of Guana Island

3.66

1 **Description.** The passage (18°28′N 64°34′W) between Monkey Point, the S extremity of Guana Island (3.56), which is distinguished by a large rock, and the NE extremity of Tortola (3 cables S) has a least depth of 8·8 m in it and is reported to contain no dangers in the fairway.

Berths. There are moorings off Monkey Point.

West of Great Camanoe

3.67

1 **Description.** The passage between Great Camanoe (3.56) and Guana Island (3.56) is about 1 mile wide with charted depths of more than 10 m, but is incompletely surveyed. See note on chart.

2 The passage (18°28′N 64°33′W) between Great Camanoe and Little Camanoe, 32 m in height with cliffs on E and W sides, is about 1 cable in width. A reef, which breaks during periods of heavy swell, extends 1 cable NE from the N extremity of Little Camanoe, and there are rocks off both sides of the narrowest part of the passage. Other than these the passage is reported to be clear of dangers in the fairway. Use of this passage is recommended only for craft under power, during daylight when the light is good.

3 **Currents** are usually strong.

For details of the passage between Little and Great Camanoe and Beef Island see 3.172

SAINT JOHN AND SAINT THOMAS – NORTH SIDES — OFFSHORE ROUTE

General information

Charts 2005, 2006

Routes

3.68

1 **The offshore route** passing N of Jost Van Dyke (18°27′N 64°45′W), Great Tobago (18°27′N 64°50′W), Hans Lollik Island (18°24′N 64°54′W), Outer Brass Island (18°24′N 64°58′W) and Cockroach Island (18°24′N 65°04′W)). From a position about 3 miles N of Rough Point, the NW extremity of Tortola (18°27′N 64°39′W) the route leads WSW for about 19 miles to a position NNW of Rough Point (18°24′N 64°59′W), the N extremity of Outer Brass Island.

Topography

3.69

1 General topography for the area is given at 3.6 and for each island as follows:

Tortola at 3.19.
Jost Van Dyke at 3.31.
Saint John at 3.20.
Great Tobago at 3.32.
Saint Thomas at 3.21.

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3.70

1 **The north coast of Saint Thomas** is very irregular with rocky cliffs and sandy beaches in the shallow bays. Much of the beach is fringed with coral reef, making landing difficult in most places. Islands, rocks and shoals are found as much as 3 miles from shore.

3.71

1 **Hans Lollik Island** (18°24′N 64°54′W) consists of a ridge, highest point 215 m covered with palms, shrubs and undergrowth. The coasts are precipitous and rocky for the most part.

Depths

3.72

1 For general depths on the Virgin Bank see 3.26.

There are some patches with depths of 17·4 and 18·3 m over them between Kingfish Banks (18°32′N 64°41′W) and the N coast of Tortola (4 miles SSE).

Flow

3.73

1 General information regarding the tidal stream and the current over the Virgin Bank is given at 3.13.

Principal marks

3.74

1 **Landmarks:**

Three radio masts (18°25′N 64°39′W) on Tortola with an elevation of 486 m; two of which are fitted with dish aerials and from one a red obstruction light.

2 A television tower (18°21′N 64°57′W) (3.311), on Saint Thomas, with an elevation of 522 m.

Directions

(continued from 3.56)

3.75

1 From a position N of Rough Point (18°27′N 64°39′W) the track leads WSW, passing (with positions from Little Tobago (18°26′N 64°51′W)):

SSE of Kingfish Banks (11 miles ENE), consisting of several coral patches, with depths of 14·6 to 30 m, spread over a large area, thence:

2 NNW of Little Jost Van Dyke (7 miles ENE), which is connected to Jost Van Dyke (close W) by a shallow ledge, thence:

NNW of the NW extremity of Jost Van Dyke (5 miles ENE) (3.31). The N coast rises in precipitous cliffs against which seas break violently during the winter. Thence:

3 SSE of Turtle Head, (12½ miles NNE), a coral reef position approximate, the shallowest of the shoals on the Virgin Bank, thence:

NNW of Mercurius Rock (2 miles ENE), small and steep–to, breaking in heavy weather. It lies near the N edge of a bank which extends about 1 mile E from Great Tobago. Thence:

4 NNW of dangerous rocks, steep–to, (1¼ miles NE) lying close off the N extremity of Great Tobago Island; and:

SSE of Barracouta Banks, (between 8 miles N, and 10 miles NNW) consisting of several patches, the shoalest being at the NE and NW extremities, thence:

NNW of Little Tobago, steep–to on all sides except to the SE, thence:

5 NNW of Pelican Cay (3¾ miles WSW), a grassy islet close off Little Hans Lollik Island (3.86). An area of dangerous rocks extends 1 cable N and E of Pelican Cay.

6 From this position the track continues WSW for about 4 miles to a position NNW of Rough Point (18°24′N 64°59′W) and a detached shoal with a depth of 4·6 m over it 3 cables WNW.

(Directions continue for Virgin Passage at 3.109, for passage N of Puerto Rico at 4.22, and for NW approach to Leeward Passage at 3.88. Directions for N approach to The Narrows and to Windward Passage are given at 3.85, for N approach to Middle Passage and Leeward Passage at 3.86, and for NE approach to Dutchcap Passage and Salt Cay Passage at 3.91)

SAINT JOHN AND SAINT THOMAS – NORTH SIDES — INSHORE ROUTE

Charts 2005, 2006

Route

3.76

1 **The inshore route,** passing S of the offshore islands. From a position about 3 miles N of the NW extremity of Tortola (18°27′N 64°39′W) the route leads SSW, passing between the islands of Jost Van Dyke and Great Tobago and the main islands of Tortola and Saint John, as far W as the Leeward Passage (18°22′N 64°53′W).

Topography

3.77

1 See 3.69.

Depths

3.78

1 The area within this waterway may have been incompletely surveyed. Uncharted coral heads, which may dry are liable to exist anywhere within the area of the fringing reefs.

Directions

(continued from 3.56)

Between Jost Van Dyke and Tortola

3.79

1 From a position about 3 miles N of Rough Point (18°27′N 64°39′W) the NW extremity of Tortola, the route leads SW passing between the islands of Jost Van Dyke and Tortola (with positions from Du Bois Point (18°26′N 64°40′W)):

2 SE of Sandy Spit (2½ miles WNW) a small above–water rock lying near the S edge of a shoal bank extending 3 cables S and 4 cables SE from Green Cay (3.100), thence:

NW of detached shoal patches with charted depths of 16·5 m (1¼ miles W), 15·5 m (1¾ miles SW) and 9·1 m (8 cables SW).

3 From this position the track continues SW for about 7 cables to a position SE of Sandy Cay (2½ miles W) high on its E end decreasing towards the W and terminating in a low sandspit. The cay is bordered by a shoal bank extending nearly 2 cables offshore. Its E and W extremities are foul for about 1 cable offshore.

Between Jost Van Dyke and Saint John

3.80

1 From a position SE of Sandy Cay (18°26′N 64°43′W), the track leads WSW, passing (with positions from Belmont Point (18°24′N 64°42′W)):

SSE of Black Point (3 miles NNW) the W entrance point to Garner Bay (Little Harbour) (18°26′N 64°44′W) at the SE end of Jost Van Dyke, thence:

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2 NNW of Great Thatch (2½ miles WSW) which rises to a peak, 188 m in height, near its centre and is bold and steep–to at its E end. This island is reported to be uninhabited. Thence:
SSE of the E entrance point to White Bay (4 miles NW) (3.65).

3 From this position the track continues WSW for about 1¼ miles to a position SSE of West End Point (18°27′N 64°47′W), the W extremity of Jost Van Dyke (3.31).

3.81

1 **Useful mark:**
A white statue of Christ, with hands outstretched (elevation 52 m) (18°21′N 64°47′W), standing close N of an abandoned mill on the E entrance point of Hawksnest Bay.

(Directions continue for The Narrows at 3.141, and for Windward Passage at 3.242. Directions for the route between Great Tobago and Jost Van Dyke are given at 3.85).

Between Great Tobago and Saint John

3.82

1 From a position SSE of West End Point (18°27′N 64°47′W) the track leads WSW, passing (with positions from Carval Rock (18°22′N 64°48′W)):
SSE of a 14·2 m coral patch (3½ miles N), thence:
NNW of Carval Rock (3.243), thence:
NNW of Congo Cay (5 cables WSW) which is precipitous and covered with shrubs and bushes, thence:

2 SSE of King Rock (4 miles NNW), situated near the S end of a bank over which there are general depths of less than 18 m, which extends about 7 cables S from Great Tobago. King Rock is steep–to, with dangerous rocks within 1 cable, and it is reported that seas seldom break on this rock, which, under favourable conditions, may be seen from a distance of about 5 cables. And:

3 NNW of Lovango Cay (1 mile SW) which has a summit at both ends, 75 m high at the E end and 78 m at the W, thence:
NNW of Mingo Cay (1½ miles WSW), the N coast of which is precipitous, thence:

4 SSE of Little Tobago (4½ miles NW) (3.75), and:
NNW of Grass Cay (2¼ miles WSW) the N coast of which consists of rocky cliffs, which in places attain an elevation of 46 m. A narrow rocky ledge (4 m high at its E end) lies close off the N side of the W end of the cay.

5 From this position the track continues WSW for about 6 cables to a position 5 cables E of Bull Point (18°22′N 64°51′W) the NE extremity of Thatch Cay lying on the W side of the entrance into Middle Passage.

3.83

1 **Useful mark:**
Statue (1½ miles SE) (3.81)

(Directions continue for Middle Passage at 3.245. Directions for the route between Little Tobago and Hans Lollik Island are given at 3.86)

North of Thatch Cay

3.84

1 From a position 5 cables E of Bull Point (18°22′N 64°51′W) the NE extremity of Thatch Cay the track leads WNW passing. (with positions from Mother East Point (18°22′N 64°52′W)):

2 NNE of Bull Point (1 mile E), prominent, projects N from the N coast of Thatch Cay, which forms a ridge, highest, at its E end, thence:

3 NNE of Mother East Point, prominent, projecting N from the N coast of Thatch Cay, thence:
NNE of Mandal Point (1¼ miles W), faced with cliffs from 30 to 37 m high.

4 From this position the track continues WNW for about 1 mile to a position SSW of Hans Lollik Rock (3.88).

(Directions continue for Leeward Passage at 3.247)

Side channels

Charts 2005, 2006

Virgin Bank to Windward Passage and The Narrows

3.85

1 **Caution.** The areas E of Great Tobago and S of West End Point are incompletely surveyed, see note on chart 2005.

2 From a position on the offshore route NNE of Mercurius Rock (18°27′N 64°49′W) the track leads SSE for about 5 miles passing between Jost Van Dyke and Great Tobago, passing (with positions from West End Point (18°27′N 64°47′W)):

3 ENE of Mercurius Rock (1¾ miles WNW) (3.75), the only danger in the channel which lies on the N edge of a bank, with a depth of less than 15 m, extending 1 mile E from Great Tobago (3.32), thence:
WSW of West End Point, the W extremity of Jost Van Dyke (3.31), thence:
ENE of a 14·2 m coral patch (1¼ miles SW).

4 From this positiion the track continues SSE for about 2¼ miles to a position on the inshore route WNW of West Point, the extremity of Great Thatch (3.80).

(Directions continue for The Narrows at 3.141, and for Windward Passage at 3.242)

North approach to Middle Passage

3.86

1 **Passing W of Little Tobago.** From a position on the offshore route in the vicinity of 18°29′N 64°53′W, the track leads SSE for about 6 miles, passing between Little Tobago and Hans Lollik Island, and passing (with positions from the summit of Little Tobago (18°26′N 64°51′W)):
WSW of Little Tobago (3.75), thence:
ENE of Pelican Cay (3¾ miles WSW) (3.75), thence:

2 ENE of Little Hans Lollik Island (3½ miles WSW), connected to Hans Lollik Island by a coral ledge, about 2 cables in length, over which seas break. The N half of Little Hans Lollik Island is low and grass–covered, the S half is higher and wooded. The coasts consists mainly of rocky cliffs from 6 to 18 m high. Steep Rock is a detached rock lying off the E side of the island. Thence:

3 ENE of Hans Lollik Island (3½ miles SW) (3.71) the E side of which is fringed by a coral ledge, and:
ENE of isolated patches, with charted depths of 18·3 and 14 m (2¼ miles SW and 2¼ miles SSW). See note on Chart 2005. Thence:
ENE of Hans Lollik Rock (4 miles SW) (3.88).

4 From this position the track continues SSE for about 2 miles to a position 5 cables E of Bull Point (18°22′N 64°51′W), the NE extremity of Thatch Cay.

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3.87

1 **Passing E of Little Tobago.** From a position on the coastal route NW of the N extremity of Great Tobago (18°33′N 64°51′W) the track leads S, passing (with positions from King Rock (18°26′N 64°50′W)):

2 W of Cable (Watson) Rock (6 cables NNW) with perpendicular sides above a ledge extending about ½ cable offshore rising from a depth of 36 m on its W side, thence:

E of Little Tobago (8 cables W) (3.75), and:

W of King Rock (3.82).

3 From this position the track leads SSW for about 4 miles to a position 5 cables E of Bull Point (18°22′N 64°51′W), the NE extremity of Thatch Cay.

(Directions continue for Middle Passage at 3.245 and for Leeward Passage at 3.247)

Charts 2005, 2006

North–west approach to Leeward Passage

(continued from 3.75)

3.88

1 From a position on the coastal route NNW of Rough Point (18°24′N 64°59′W) the track passes between Hans Lollik Island and Saint Thomas, leading SE, passing (with positions from Picara Point (18°23′N 64°57′W)):

2 NE of Rough Point (2¼ miles NW), the sharp and jagged N extremity of Outer Brass Island. The coast to Grasklip Point, the rocky SE extremity of the island, is bold and precipitous with vertical cliffs. A detached patch (3.75), lies about 3 cables W of Rough Point. Thence:

3 NE of rocks (1½ miles W), bordered by a shoal bank, extending about 3 cables E from the NE extremity of Inner Brass Island an uninhabited island the N coast of which is rocky with cliffs from 12 to 15 m high, thence:

4 NE of Ornen Rock (6 cables NW), seas seldom break over Ornen Rock Thence:

NE of Picara Point, the NW extremity of an exposed, precipitous, cliff rising, in places, to an elevation of 61 m. It extends 3¼ miles ESE to Mandal Point (3.84). A dangerous rock lies about 1 cable NW of Picara Point. Thence:

5 SW of Hansa Rock (5·8 m high) (2 miles E) lying close off the S extremity of Hans Lollik Island.

From this position the track continues to a position SW of Hans Lollik Rock (2¼ miles E) a rock awash lying near the extremity of a sunken ridge extending about 5 cables SSE from Hans Lollik Island (3.71).

3.89

1 **Clearing bearings:**

The line of bearing, less than 126°, of Shark Islet (18°20′N 64°51′W) (3.239), open SW of Thatch Cay (2¼ miles NW) (3.84), passes SW of Hans Lollik Rock.

2 The line of bearing, 264°, of Dutchcap Cay (Dutchman's Cap) (18°23′N 65°04′W) (3.108) seen between Outer Brass Islet and Inner Brass Islet, passes N of Ornen Rock.

3.90

1 **Useful marks:**

A white square steel tower (the centre of three towers) with white and orange bands standing on Crown Mountain (18°21′N 64°59′W) (3.21).

A tower (9 cables SE of Picara Point (3.88)).

(Directions continue for Leeward Passage at 3.247)

Charts 2006

North–east approaches to Dutchcap Passage and Salt Cay Passage

3.91

1 From a position on the coastal route NNW of Rough Point (18°24′N 64°58′W) the track leads SW, passing (with positions from Stumpy Point (18°22′N 65°00′W)):

NW of a detached patch (2½ miles NE) (3.75), situated about 3 cables NW of Outer Brass Island (3.88), the W side of which is rocky, irregular, and indented by Cave Cove, which has a large cave opening into it, thence:

2 NW of Lizard Rocks (1½ miles NE) a group of six rocks with a height of 4 m, and a group of three rocks, awash, about a ¼ cable W, thence:

NW of Stumpy Point, and:

SE of Cricket Rock (3¼ miles NW) (3.75),thence:

3 SE of an 8·7 m (28 ft) patch lying close off the W extremity of Cockroach Island (3¾ miles NW), which has precipitous, white rocky cliffs 30 to 36 m high. On the N side, the cliffs (21 to 24 m high) recede from the coast which is indented by numerous small bights.

4 From this position the track continues SW for about 7 cables to a position NW of Botany Point (1½ miles WSW) at the W end of rocky cliffs about 9 m high.

Useful marks

A tower on a peak 212 m high (18°21′N 65°01′W).

A house with a red roof (18°22′N 65°01′W).

(Directions continue for Salt Cay Passage at 3.115. Directions for Dutchcap Passage are given at 3.91)

Side channels

Charts 2005, 2006

Brass Channel

3.92

1 **Description.** With a depth of 15·5 m in the fairway, the channel (18°23′N 64°58′W), passes between Outer Brass Islet (3.88) and Inner Brass Islet (3 cables S) (3.88). A detached rock 8·8 m high lies close off the N extremity of Inner Brass Islet.

2 **Local knowledge** is required.

Between Jost van Dyke and Sandy Cay

3.93

1 **Description.** This channel (18°26′N 64°43′W), about 2¾ cables wide between the 20 m depth contours is the recommended track favouring the island side but keeping clear of the dangers within 1¾ cables of Georgy Hole Point and S of Green Cay (3.100).

Anchorages and harbours

South of Jost Van Dyke

3.94

1 The charted anchorage in position (18°26′N 64°46′W), situated 3 cables S of White Bay (3.65) is suitable for smaller vessels.

HMS *Aurora* (2350 tonnes) anchored 5 cables off the reef in 1987.

Magens Bay

3.95

1 Magens Bay (18°22′N 64°57′W), entered between Tropaco Point and Picara Point is the only bay of any importance on the N coast of Saint Thomas. Depths in the bay vary from 10 to 20 m but S of the bay is shallow, terminating in a fine sand beach. About 3 cables offshore at

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the head of the bay is a rock with a reported depth of 3 m. Local fishermen use Reseau Bay and Lerkenlund Bay, small bights on the W shore of Magens Bay, to beach their boats.

3.96

1 **Directions.** From the vicinity of 18°25′N 64°59′W, the approach to Magens Bay leads SE, passing (with positions from Picara Point (18°23′N 64°56′W)):

NE of Rough Point (2¼ miles WNW) (3.88), thence:

Clear of Ornen Rock (5 cables NW) (3.88); for clearing line see 3.89, thence:

2 NE of Tropaco Point (8 cables SW) which terminates in a cliff, 15 m high, on which there are several prominent grey square buildings. When a heavy ground swell is running (3.11) a confused sea exists in the area of some rocks lying close NE of the point. Thence:

3 SW of Picara Point (3.88), thence:

Clear of an isolated shoal with a depth of 7·3 m over it (9 cables SSE).

Useful mark:

Tower (9 cables SE).

Anchorage

3.97

1 **Magens Bay** and its approaches lie almost entirely within a submarine cable area, as shown on the chart, and the bay is exposed to rollers (3.11). It is therefore not recommended as an anchorage.

Local knowledge is required.

Chart 2005, 2006

North–west coast of Tortola

3.98

1 **General information.** The NW coast of Tortola is exposed to Atlantic swells and is reported to contain no harbours that offer protection against them. Some beaches may be accessible during the summer.

3.99

1 **Brewers Bay** (18°26′N 64°39′W) is completely exposed to the ground swell (3.11) and mariners are warned not to anchor in the vicinity, owing to the existence of submarine cables as shown on the chart.

Chart 2005

Jost Van Dyke

3.100

1 **Green Cay** (18°27′N 64°42′W) is reported to afford good anchorage, W of the sand bar, in depths of about 6 m. It is well protected by Little Jost Van Dyke and Green Cay and is therefore comfortable in summer months. During the winter the ground swell, making the anchorage uncomfortable, enters between the cay and Little Jost Van Dyke.

Channel South of Inner Brass Island

3.101

1 **Description.** A channel (18°22′N 64°58′W), with a depth of about 7·3 m, passes between Saint Thomas and Boulder Point (the S extremity of Inner Brass Island (3.88)) which is low with a rounded hill (38 m high) N of it.

Local knowledge is required.

Inner Brass Island

3.102

1 **Description.** Inner Brass Island (18°23′N 64°58′W) (3.88) provides sheltered anchorage off its SW side in depths of 11 to 13 m, with Fish Point (the NW extremity of the island) bearing about 008°, distant about 5 cables. There is a 8·7 m patch close to the anchorage. A fine sand beach with a fringing coral reef extends NW from the S tip of the island; this reef has several breaks through which small boat landings can be made.

VIRGIN PASSAGE

General information

Charts 2452, 130

Description

3.103

1 **Virgin Passage** (18°20′N 65°10′W) is situated between the islets and reefs off the E end of Isla de Culebra and Savana Island, about 8 miles E. It is generally clear of dangers in the fairway with the exception of Sail Rock (18°17′N 65°06′W) (3.107) and a 14·6 m (48 ft) patch (2½ miles N).

Topography

3.104

1 General topography for the major islands is given as follows:

Saint Thomas (3.21).

Isla de Culebra (4.186).

Isla de Vieques (4.190).

2 Fortuna Hill (277 m (910 ft) high) (18°21′N 65°00′W), in Saint Thomas, is flat topped, while the minor hills in the vicinity are mostly rounded. See view A on Chart 130.

Depths

3.105

1 General remarks at 3.7.

There are general depths of 20 to 31 m (11 to 17 fm) in the Virgin Passage but depths are irregular in the fairway with the least depth of 20 m (11 fm) charted in the following positions:

18°18′·7N 65°11′·5W.

18°17′·8N 65°08′·6W.

18°15′·3N 65°09′·5W.

Natural conditions

3.106

1 **Flow.** General remarks at 3.13.

Tidal streams. In the middle of Virgin Passage the S–going stream, on the rising tide, and the N–going stream, on the falling tide, both attain a rate of about ½ kn; but on the E side of the passage, in the vicinity of Savana Island (18°20′N 65°05′W) both streams attain rates of up to 2 kn, as shown on the chart.

2 **Sea state.** Steep, high seas are reported to occur in the Virgin Passage, with a swell of 4·5 m when the wind is from the N and especially when the S–going tidal stream opposes the current.

Swell. General remarks at 3.11.

Local weather. General remarks at 3.9.

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Principal marks

3.107

1 **Landmarks:**

Television tower (18°21′N 64°57′W) (3.311).

2 Sail Rock (18°17′N 65°06′W), so called from its resemblance to a vessel under sail, rises precipitously from the water. It is barren and of a light greyish colour. There is a small rock nearly awash lying close W marked by a light–buoy (port hand.

Directions

(continued from 3.40)

Chart 2452

3.108

1 From the vicinity of 18°35′N 65°15′W the route through Virgin Passage leads SSE for about 30 miles, passing (with positions from Sail Rock (3.107)):

ENE of Cayo Norte (NE Cay) (9 miles WNW) (4.22), thence:

2 WSW of an 8·7 m (28 ft) patch lying close off the W extremity of Cockroach Island (7½ miles NNE) (3.91),

ENE of Cayo Ballena (8½ miles WNW) (4.230), thence:

ENE of Cayos Geniqui (Palada Cays) (8 miles WNW) (4.233), thence:

3 WSW of Dry Rock (6 miles NNE), and a rock awash close to it, lying about ½ cable SW of Dutchcap Cay (Dutchman's Cap) (6 miles NNE), 85 m in height, which rises abruptly with cliffs about 30 m high on its N side; those on its S side being of lesser elevation. There are some bushes and trees on the summit of the island which from a distance appears dome–shaped. And:

4 ENE of Cabo del Pasaje (7 miles WNW), a high bare cliff, forming the NE extremity of Isla Culebrita, which consists of 3 hills with low land between them, covered with a scrubby forest growth. Isla Culebrita Light (round masonry tower on dwelling, 13 m in height) stands on the summit of the island. Thence:

ENE of Arrecife Culebrita (7 miles W) (4.237) extending about 2½ miles SW from Punta del Este the SE extremity of Isla Culebrita, thence:

5 WSW of detached rocks extending about 1 cable S from Virgin Point, the SW extremity of Savana Island (3½ miles NNE), 82 m in height, which is covered with a dense growth of vines, small trees and bushes. The NW coast of the island is bold and precipitous, with rocky cliffs rising abruptly to an elevation of 37 m. The SE coast is, generally speaking, rocky with short stretches of gravel beach in the bights. Just N of Virgin Point the cliffs are of crushed rock and sandstone formation and from offshore appear as red cliffs. Domkirk Rock (½ cable SE of Virgin Point) is a crag with twin steeple–shaped rocks resembling a cathedral. Savana Island Light (white tower, elevation 91 m) is situated 3 cables NE of Virgin Point. Thence:

6 Clear of an isolated patch with a charted depth of 14·6 m (48 ft) (2½ miles N), thence:

ENE of a shoal patch with a depth of 8·2 m (27 ft) over it (5½ miles W), near the NE edge of the bank extending N from Bajos Grampus, thence:

7 ENE of Bajos Grampus (Grampus Shoals) (5¼ miles W), an extensive group of coral heads with least charted depths of 5·9 m (19 ft), marked at its S extremity by No 2 Light–buoy (starboard hand), and:

WSW of Sail Rock (3.107) thence:

ENE of a dangerous wreck (6 miles SW), position approximate.

8 From this position the track continues SSE for about 3¼ miles to a position ENE of Punta Este (East Point) (13 miles SW) (4.198), the E extremity of Isla de Vieques.

Chart 2006

Approach from North East

3.109

(continued from 3.75)

1 From a position NNW of Rough Point (18°24′N 64°59′W) the track leads SW for about 8 miles to a position NW of Savana Island (18°20′N 65°05′W) passing (with positions from Sail Rock (3.107)):

2 NNW of Lizard Rock (8¾ miles NE) (3.91), thence:

NNW of Cricket Rock (8 miles NNE), bold and steep–to, with sharp pinnacle rocks on its summit, thence:

3 NNW of a patch with a depth of 8·7 m over it lying close W of Cockroach Island (7½ miles NNE) (3.108), thence:

NW of Dutchcap Cay (6 miles NNE) (3.108), with Dry Rock lying about ½ cable SW, thence:

NW of Salt Cay (5¼ miles NNE) (3.116), thence:

NW of Din Point (4¼ miles NNE) (3.112).

4 From this position the track leads SSW for about 3 miles passing:

WNW of Virgin Point (3½ miles NNE) (3.108), with detached rocks extending about 1 cable S, thence:

WNW of a patch (2½ miles N), with a depth of 14·6 m over it.

5 From this position the track continues SSW for about 1½ miles to a position NW of Sail Rock (3.107)):

Useful marks

3.110

1 Radio mast (18°20′N 65°18′W) Chart 130.

Towers on Crown Mountain (18°21′N 64°59′W) (3.90)

(Directions continue for Saint Thomas Harbor at 3.312 and 3.324, for Sonda de Vieques at 4.213, and for passage S of Isla de Vieques at 4.198. Directions for passage S of Saint John and Saint Thomas are given at 3.231)

Savana Passage

Charts 2006

General information

3.111

1 **Route.** Savana (Island) Passage (18°21′N 65°04′W) passes between the W extremity of Saint Thomas and Savana Island (2 miles WSW). The passage is about 1½ miles wide with a number of dangers in the middle and close to both shores.

2 **Current** in Savana Passage may attain a rate of 3 kn, as shown on the chart. In the vicinity of the NE corner of Savana Island the flow is very strong and small boats should be kept well clear of the reef.

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Directions

(continued from 3.115)

3.112

1 From the vicinity of 18°22′N 65°05′W the route through Savana Passage leads SE, passing (with positions from Kalkun Cay (18°21′N 65°04′W)):

2 SW of Salt Cay (7 cables NNE) (3.116), thence:

NE of a dangerous rock lying close off Din Point (1 mile WSW), a bold, dark headland, with cliffs 24 to 30 m high, forming the N extremity of Savana Island (3.108) and:

3 Clear of an isolated shoal with a depth of 6·4 m (21 ft) over it (4 cables NW), thence:

SW of a 9·6 m patch (5 cables NE), thence:

Clear of Kalkun Cay (lying in the middle of Savana Passage), a narrow islet, 22 m in height and covered with grass and small bushes; and a bank with a charted depth of 5·4 m extending about 1 cable S, thence:

4 NE of a sunken ledge (9 cables SW), on which lie some rocks up to 3 m high, extending about 3½ cables E from the E extremity of Savana Island, and:

SW of West Cay (8 cables ENE) which consists of 2 hills (37 m and 35 m high), connected by a low neck of land. The coast is generally rocky, with cliffs from 6 to 30 m high. Thence:

5 SW of Little Saint Thomas (1 mile E), the W extremity of Saint Thomas, a grassy peninsula about 15 m high, connected to Saint Thomas by a sandspit. The coast of the peninsula is generally low, with gravel and broken coral rocks in the bights and rock and sandstone bluffs at the points; at the S end is a bluff 6·4 m high. And:

6 NE of an isolated patch with a depth of 14·6 m (48 ft) over it (8 cables SSW), thence;

Clear of Saltwater Money Rock (6 cables SE) which is 2 m high and steep–to, thence:

7 SW of David Point (1¾ miles ESE) which is bold, with rocky cliffs, from 15 to 61 m high, thence:

Clear of a wreck with a depth of 8·2 m (27 ft) over it (2½ miles SSE), position approximate, (1993) and a patch with a depth of 16·5 m (54 ft) over it, lying 5 cables SE of the wreck.

Useful mark

3.113

1 Mermaids Chair (4·6 m high) (9 cables E of Kalkun Cay) is a prominent rock, shaped like a chair, situated at the apex of a triangular coral reef, extending from the SW point of Little Saint Thomas (3.112).

(Directions continue for Southwest Road at 3.300)

Side channels

Dutchcap Passage

3.114

(continued from 3.75)

1 **Route.** Dutchcap Passage (18°24′N 64°59′W), passing between Dutchcap Cay (3.108), to the S, and Cockroach Island (1¼ miles N) (3.108), to the N, is free from dangers in the fairway.

Sula Cay, close SE of Cockroach Island, is separated from it by a very narrow channel.

Tidal streams in the passage may attain a rate of 1 kn.

2 **Directions.** From the vicinity of 18°23′N 65°02′W the passage leads W, passing (with positions from Dutchcap Cay (18°23′N 65°04′W)):

3 S of a bank with a least depth of 4·6 m (1¾ miles NNE) lying close SW of Cricket Rock (3.75), thence:

S of Cockroach Island (1½ miles N) (3.108) and;

N of Dutchcap Cay (3.108).

Salt Cay Passage

(continued from 3.91)

Route

3.115

1 Salt Cay Passage (18°23′N 65°04′W), passing between Salt Cay, to the S, and Dutchcap Cay (9 cables N) (3.108), to the N, is about 1 mile wide, clear of dangers, with deep water in the fairway.

Tidal streams may attain a rate of 1 kn.

Directions

3.116

1 From the vicinity of 18°23′N 65°03′W the passage leads WSW passing (with positions from Dutchcap Cay (18°23′N 65°04′W)):

2 NNW of Salt Cay (1 mile SSE) which is 74 m in height and, for the most part, rocky and rugged, particularly on its N side where the cliffs rise precipitously to between 30 and 45 m. The E end of the cay is of coral, rock and gravel; there are many rocks awash close to its SW, W and E sides. And:

SSE of Dutchcap Cay (3.108).

(Directions continue for Savana Passage at 3.112)

VIRGIN BANK—SOUTH SIDE

GENERAL INFORMATION

Charts 2006, 2452, 130

Area covered

3.117

1 This section describes the coastal passage S of the Virgin Bank (18°35′N 64°45′W), and includes the following channels and harbours:

Sir Francis Drake Channel (18°25′N 64°30′W) (3.137).

Road Harbour (18°25′N 64°36′W) (3.187).

Pillsbury Sound (18°20′N 64°49′W) (3.233).

Saint Thomas Harbour (18°20′N 64°56′W) (3.281).

International boundary

3.118

1 For details see (3.3).

Topography

3.119

1 General topography (3.6)

Virgin Gorda at 3.18.

Tortola at 3.19.

Saint John at 3.20.

Saint Thomas at 3.21.

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Depths
3.120

1 For general depths in the Virgin Islands see (3.7).

S of the island chain, the character of the bottom differs remarkably from that to the N of the chain (3.26). On the S side, the edge of the bank, which is precipitous, lies between 1 and 7 miles from the islands and cays, and general depths of 15 to 60 m (48 ft to 33 fm) are found within this area. Close within the edge of the bank is a narrow ridge of coral, about 1 cable wide, with depths of 18 to 37 m (60 ft to 20 fm) over it. This reef continues almost unbroken from Horse Shoe Reef (18°40′N 64°13′W) (3.34) to the vicinity of Isla de Vieques (70 miles SW), and has depths of 46 to 62 m (25 to 34 fm) immediately NW of it.

2 Shoal patches (3.231) have been reported S of Saint Thomas.

There are areas to the S of the island chain that are inadequately surveyed—see notes on charts 2005 and 2006.

Natural conditions
3.121

1 Weather (3.9). Sea state (3.10). Tide (3.12). Flow (3.13).

Regulations
3.122

1 For regulations within national park areas in the British and United States Virgin Islands see 1.54 and 1.55.

Principal islands
3.123

1 General description of major islands within this section is given as follows:

Virgin Gorda at 3.18.
Tortola at 3.19.
Saint John at 3.20.
Saint Thomas at 3.21.

VIRGIN GORDA TO NORMAN ISLAND

General information

Charts 2019, 2006, 130

Route
3.124

1 The offshore route SSE of Virgin Gorda, and the islands and cays SE of Sir Francis Drake Channel, from a position about 17½ miles E of Pajaros Point (18°30′N 64°19′W), leads generally WSW for about 40 miles, in deep water outside the coastal bank, to a position 5 miles S of the SW extremity of Norman Island (18°18′N 64°38′W).

2 A recommendation to the Masters of deep draught vessels is given at 3.7.

Topography
3.125

1 General topography (3.6).

Virgin Gorda at 3.18.
Tortola at 3.19.

Depths
3.126

1 General information (3.120).

Between the NE end of Virgin Gorda (18°30′N 64°19′W) and Peter Island (17 miles SW), a second coral reef, between 2 and 4 cables wide and with depths over it of 12 to 30 m (42 ft to 16 m), lies approximately half way between the edge of the bank and the islands.

Natural conditions
3.127

1 Weather (3.9). Sea state (3.10). Tide (3.12). Flow (3.13).

Principal marks
3.128

1 **Landmark:**

Virgin Gorda Peak (18°29′N 64°24′W) (3.46).

Major light:

Pajaros Point Light (18°30′N 64°20′W) (3.46).

Directions

Necker Island Passage to Round Rock Passage
3.129

1 From a position E of Pajaros Point Light (18°30′N 64°19′W), the track leads WSW, passing (with positions from Ginger Island Light (18°23′N 64°28′W)):

SSE of Pajaros Point Light (10¾ miles NE) (3.46), and:

2 Clear of Barracuda Bank, (16½ miles ESE) with a least depth of 35 m (19 fm) situated near the centre of a narrow ridge lying NE/SW about 6½ miles in length. A 22 m (12 fm) patch, reported in 1968, the position of which is approximate, lies close E of the bank. Thence:

3 SSE of Fallen Jerusalem (41 m in height) (2 miles NE) which is composed of granite block and resembles a town in ruins, thence:

SSE of Round Rock (9 cables ENE) (3.149).

(Directions continue for Round Rock Passage at 3.149)

Round Rock Passage to Salt Island Passage
3.130

1 From a position SSE of Round Rock (18°24′N 64°27′W, the track continues WSW, passing (with positions from Ginger Island Light):

SSE of Wedgeo Bluff (the SE extremity of Ginger Island) which is steep–to. Ginger Island Light (yellow tower, 4 m in height) stands on the E knoll of the island. Thence:

2 SSE of Carval Rock, 33 m in height, (1½ miles SW) (3.151), thence:

SSE of Markoe Point (2 miles SW) the S extremity of Cooper Island, which is high on its S end, thence:

3 SSE of Salt Island Bluff (3¼ miles SW) the S extremity of Salt Island. Salt Island Light (The Point) (3.146) (elevation 53 m), standing on the NW extremity of the island, is obscured intermittently between the bearings of 227° and 000°.

(Directions continue for Salt Island Passage at 3.152)

Charts 2005, 2006

Salt Island Passage to Flanagan Passage
3.131

1 From a position SSE of Salt Island Bluff (18°22′N 64°30′W, the track continues WSW, passing (with positions from Ginger Island Light):

SSE of Peter Island Bluff (6½ miles SW), the SE extremity of Peter island, thence:

2 SSE of rocks extending 1 cables SSE from Carrot Rock (6¾ miles SW) 25 m in height and lying on the S end of a rocky spit, extending 4 cables S from the SW extremity of Peter Island (3.153), thence:

3 SSE of Norman Island (9 miles SW) which rises to is highest point of 130 m near the middle of the island, thence:

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SSE of Santa Monica Rock (11 miles SW) (3.158); for clearing marks see 3.159.

(Directions continue for coastal passage S of Saint John and Saint Thomas at 3.231. Directions for Flanagan Passage are given at 3.158, and for passage between Peter and Norman Islands at 3.155)

ROAD HARBOUR—APPROACHES

General information

Charts 2019, 2005, 2006

Routes

3.132

1 Road Harbour (18°25′N 64°37′W) is approached through Sir Francis Drake Channel, which can be entered through a number of passages from the N, the W, or along its SE side, as follows.

2 **From north:**

E of Dog Islands (18°29′N 64°28′W) (3.135).

W of Dog Islands (3.136).

From west:

Through The Narrows (18°23′N 64°45′W) (3.140).

3 **From south–east.** A chain of islands, separated from each other by deep passages, lies between Round Rock (18°24′N 64°28′W) and the E end of Saint John (12 miles WSW). Named passages through the islands are as follows (with positions from Round Rock):

Round Rock Passage (3.148)

Salt Island Passage (5 miles WSW) (3.152).

Flanagan Passage (11 miles WSW) (3.157).

Topography

3.133

1 General topography (3.6).

Virgin Gorda at 3.18.

Tortola at 3.19.

Saint John at 3.20.

Saint Thomas at 3.21.

The S coast of Tortola consists of jagged mountain peaks covered with scrub, frangipani and yellow cedar. In addition to Mount Sage (3.19), the following hills are prominent:

Todman Peak, 374 m, (18°26′N 64°38′W).

Sabbath Hill, 385 m (18°26′N 64°36′W).

Principal marks

3.134

1 **Landmarks:**

Virgin Gorda Peak (18°29′N 64°24′W) (3.46)

The Bluff (18°26′N 64°31′W), the S extremity of Beef Island, is a prominent landmark.

Radio towers (18°25′N 64°39′W) (3.74)

2 For landmarks in the vicinity of Road Harbour see 3.210.

Approach to Sir Francis Drake Channel from north

Chart 2019

Passage east of Dog Islands

3.135

1 The passage E of George Dog (18°30′N 64°27′W) is clear of dangers in the fairways E or W of Seal Dogs.

Directions. From the vicinity of 18°32′N 64°27′W, the track leads S then SW, passing (with positions from George Dog):

2 Clear of Seal Dogs (1¼ miles ENE), which consists of 3 islets lying close together in a group. The W islet, the E and W sides of which are steep–to, is the highest, at 35 m, and largest. Thence:

W of Mountain Point (2¼ miles ENE) the NW extremity of Virgin Gorda; Cow Mouth, 5 m in height, lies 1 cable NW. Thence:

3 E of George Dog, 73 m in height, the NE of the island group, with detached rocks extending 2 cables to the N, thence:

E then SE of Great Dog (4 cables S) the SE of the island group, which is easily identified, and is bordered by rocks on its N and S sides, thence:

4 NW of Van Ryan's Rock (2 miles SSE), a rock and coral patch with a least depth of 6·4 m over it lying 4 cables off Colison Point, the NW point of the S peninsula of Virgin Gorda. Thence:

NW of Burrows Rock (3 miles SSE), with a depth of 2·4 m, lying close off Fort Point, at the S end of Saint Thomas Bay.

(Directions continue for Sir Francis Drake Channel at 3.138)

Passage west of Dog Islands

(continued from 3.55)

3.136

1 The passage W of George Dog (18°30′N 64°27′W) is clear of dangers in the fairway except for Tow Rock.

Directions. From the vicinity of 18°32′N 64°29′W, the passage leads generally S, keeping to either side of the channel, passing (with positions from George Dog):

2 W of Cockroach Island (2 cables WNW), and The Visibles, a rock close S, thence:

E of a patch with a depth of 12·5 m over it, (2¾ miles W) lying 1½ miles E of North Bay Bluff (4 miles W) the NE extremity of Great Camanoe (3.56), thence:

E of Tow Rock (2 miles W), steep–to, lying in the fairway; thence:

3 W of West Dog (1 mile WSW), bold and steep–to on its W side and easily identified, thence:

E of South East East End, the E extremity of Scrub Island, (2¾ miles SW) which is bold and steep–to. Scrub Island is separated from Great Camanoe by a narrow channel in which there are many shoals and rocks.

(Directions continue for Sir Francis Drake Channel at 3.138)

SIR FRANCIS DRAKE CHANNEL

General information

3.137

1 **Position.** Sir Francis Drake Channel (18°25′N 64°30′W), passes between Tortola, to the NW, and Virgin Gorda and the island chain stretching SW to Saint John, to the SE.

Depths in the NE part of the channel are generally regular, whereas in the SW part the bottom is irregular, with many shallow patches, particularly in the approaches to Road Harbour (3.187).

2 **Submarine power cables** cross Sir Francis Drake Channel between the SW end of Virgin Gorda and the

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vicinity of Beef Island, as shown on the chart. For precautions see 1.45.

Marine park. The area around The Baths (18°26′N 64°27′W), at the SW extremity of Virgin Gorda, has been designated a marine park. Anchoring and fishing are prohibited in the area; see 1.54.

3 **Tidal streams** are scarcely perceptible in the channel, except close inshore; but there is a NE current along the coast of Tortola.

Directions from north–east

(continued from 3.135 and 3.136)

3.138

1 From the vicinity of 18°27′N 64°29′W, the passage leads generally SW, passing (with positions from Ginger Island Light (18°23′N 64°28′W)):

NW of Fallen Jerusalem (2 miles NE) (3.129), thence:

2 NW of Round Rock (1 mile NE) (3.149), thence:

NW of Ginger Island (3.130), thence:

SE of a light–buoy (S cardinal) (3½ miles NW) marking a rock, 1 m in height, lying ½ cable S of the Bluff (3.134), thence:

3 NW of Quart–a–Nancy Point (2½ miles W), the N extremity of Cooper Island (3.130), thence:

NW of Man Head (3¼ miles WSW) the N extremity of Salt Island (3.130), and:

SE of Buck Island (5 miles WNW).

3.139

1 **Useful marks:**

Red Rock Light (5¾ miles NW) (elevation 8 m) situated on the S and highest of three small islets in Fat Hog's Bay.

Salt Island Light (3½ miles WSW) (3.130).

(Directions continue for entering Road Harbour at 3.212.

Directions for Round Rock Passage are given at 3.149, and for Salt Island Passage at 3.152)

Sir Francis Drake Channel — west approach

Chart 2005

The Narrows

3.140

1 **Description.** A channel between Saint John (18°23′N 64°45′W) and Great Thatch (3.80), gives access to the channel between Tortola and Saint John, leading to Sir Francis Drake Channel (3.137) and thence to Road Harbour (3.187), or to Flanagan Passage (3.157).

2 **Tidal streams** drastically affect both the strength and direction of the current in The Narrows. When the tide is flooding (from N to S) the tidal stream funnels through Thatch Island Cut (3.143) and runs across The Narrows, then along the N coast of Saint John at a rate of 3 kn, as shown on the chart. At this time the minimum flow exists along the coast of Tortola.

3 It is reported that the most effective use of the flow is to keep to the Saint John side when E–bound and to the Tortola side when W–bound.

Directions

(continued from 3.81 and 3.85)

3.141

1 From the vicinity of 18°23′N 64°46′W, the channel leads SE then E, passing (with positions from West Point (18°23′N 64°45′W)):

2 N of Whistling Cay (62 m high) (8 cables SSW) which is covered with trees and faced on its N side by precipitous cliffs (40 m high), and separated from Mary Point, 2 cables E, by Fungi Passage (3.264), thence:

SW then S of West Point, the W extremity of Great Thatch (3.80), thence:

3 N of Mary Point (8 cables SE), a prominent headland, 176 m in height, which is connected to Saint John by a low, narrow isthmus. The W part of the N side of the peninsula is formed of high, weather beaten cliffs, at the foot of which are large boulders. The E part is composed of a beach of sand and gravel, fringed with coral reefs. Thence:

4 S of Callwood's Point (9 cables E) the SE extremity of Great Thatch.

3.142

1 **Useful mark:**

White statue (2¼ miles SW) (3.81).

(Directions continue for W approach to Sir Francis Drake Channel at 3.144)

Thatch Island Cut

3.143

1 **Description.** The deep channel between Great Thatch (18°23′N 64°43′W) and Steele Point (the W extremity of Tortola) leads into The Narrows from the NNE, passing (with positions from West Point (3.141)):

WNW of Steele Point (2 miles ENE), thence:

2 WNW of the W end of Little Thatch Island (1¾ miles E) (3.144).

Tidal streams in the channel are very strong and eddies are formed.

Charts 2005, 2006

Channel between Tortola and Saint John

3.144

(continued from 3.142)

1 From the vicinity of 18°23′N 64°44′W, the W approach to Sir Francis Drake Channel continues ESE, passing (with positions from Flanagan Island (18°20′N 64°39′W)):

NNE of Leinster Point (15 m high) (4¾ miles WNW) situated 1¼ cables E of Waterlemon Cay (9 m high) which is bold. A school stands about 2 cables S of the point. And:

2 SSW of Little Thatch Island (86 m high at the E end) (4¾ miles NW), thence:

NNE of Threadneedle Point (4¼ miles NW), which is faced by precipitous cliffs rising to an elevation of 21 m, thence:

SSW of Frenchman's Cay (4½ miles NW), 197 m in height, thence:

3 SSW of an isolated shoal patch, with a depth of 9·4 m over it (3¼ miles NNW), thence:

NNE of Gowed Point (2¼ miles NW) the bluff end of a spur from a hill 95 m in height which projects prominently between Mennebeck Bay (18°21′N 64°41′W) and Haulover Bay (18°20′N 64°56′W) thence:

NNE of Flanagan Island (3.158).

3.145

1 **Useful marks:**

Anaberg Point (29 m high) (5 miles WNW), situated 3 cables SW of Waterlemon Cay, may be identified by a distinctive landslide.

Salt Island Light (7 miles ENE) (3.130).

Ginger Island Light (11 miles ENE) (3.130).

(Directions for Flanagan Passage are given at 3.158)

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Sir Francis Drake Channel—South–west part

Charts 2005, 2019

Directions

(continued from 3.156 and 3.160)

3.146

1 From the vicinity of 18°21′N 64°38′W, the channel leads ENE, passing (with positions from Dead Chest (18°22′N 64°34′W)):

SSE of an isolated shoal patch with a depth of 8·5 m over it (3½ miles W), thence:

NNW of Rock Hole (2¾ miles WSW), the W point of Peter Island; a rock, 1 m in height, lies about ¼ cable NW of the point. Thence:

2 NNW of a bank (2½ to 1½ miles W) with charted depths between 8·8 and 13·1 m, situated 4 to 7 cables off the NW coast of Peter Island (3.153), and:

SSE of a bank, with a depth of 7·6 m over it (2½ miles WNW) extending 1¾ miles SSE from Slaney Point, thence:

3 NNW of a 8·8 m patch (1½ miles W) situated off the entrance to Great Harbour (3.182), thence:

NNW of Great Harbour Point (1¼ miles W), the N point of Peter Island; thence:

SSE of an isolated coral patch with a depth of 10·4 m over it (1¾ miles NW), thence:

NNW of a 8·8 m patch (8 cables NW), with a 7·9 m patch close S, thence:

4 SSE of an isolated patch with a depth of 9·8 m (2 miles NNW), and:

NNW of Dead Chest, 62 m in height, thence:

NNW of the Point (1½ miles ENE), the NW extremity of Salt Island on which stands Salt Island Light (3.130).

3.147

1 **Useful marks:**

Ginger Island Light (5½ miles ENE) (3.130)

Salt Island Light (1¾ miles ENE) (3.130).

(Directions continue for entering Road Harbour at 3.212.

Directions continue for Salt Island Passage at 3.152)

Sir Francis Drake Channel — South–east approach

Charts 2019, 2006

Round Rock Passage

3.148

1 **Description**. Round Rock Passage (18°24′N 64°28′W), between Round Rock and Ginger Island (6 cables SW) is clear of dangers in the fairway and is the best passage for entering Sir Francis Drake Channel from the SE. This passage is easily identified from its position in relation to Fallen Jerusalem (1½ miles NE) (3.129).

2 **Depths.** There are general depths of 27 m in the fairway. For details of the coral ridges in the approach see 3.126.

Tidal streams, SE–going and NW–going, attain rates of about 1 kn in the passage, as shown on the chart.

3 **Caution.** In 1979 uncharted submerged rocks were reported to exist between Round Rock and Fallen Jerusalem (1 mile NE).

3.149

1 **Directions** (*continued from 3.129*). From the vicinity of 18°20′N 64°25′W, Round Rock Passage leads NW, passing (with positions from Ginger Island Light (18°23′N 64°28′W)):

SW of an isolated 16·5 m isolated patch (1 mile E), the existence of which is doubtful, thence:

2 SW of Round Rock (9 cables ENE), which is 50 m in height, composed of granite blocks and is steep–to on its S side, situated at the SW end of a chain of islets and rocks extending 2 miles SSW from the SW end of Virgin Gorda, thence:

NE of White Horse (the NE point of Ginger Island) which is steep–to.

3.150

1 **Useful mark:**

Ginger Island Light (3.130).

(Directions for Sir Francis Drake Channel from NE are given at 3.138)

Passage between Ginger Island and Cooper Island

3.151

1 The passage (18°23′N 64°30′W) between Ginger Island and Cooper Island may be used for entry to Sir Francis Drake Channel, however the following should be noted:

It is unlit.

2 Carval Rock, 33 m in height, bold and steep–to, lies near the centre of the SE approach.

Rocks lie up to 2 cables off the NE side of Cooper Island (3.130).

Rocks lie off the W end of Ginger Island (3.130).

Salt Island Passage

Description

3.152

1 Salt Island Passage (18°22′N 64°33′W), in which the sea is usually calm, passes between Salt Island, to the E; and Peter Island and Dead Chest Island, to the W.

Depths. For details of the coral ridge in the SE approach, see 3.126.

Directions

(continued from 3.130)

3.153

1 From the vicinity of 18°17′N 64°31′W, Salt Island Passage leads NNW, passing (with positions from Salt Island Light (18°22′N 64°32′W) (3.130)):

ENE of Peter Island (2½ miles SW), elbow–shaped with heights over 100 m on both main parts. Thence:

2 Within 5 cables WSW of a dangerous wreck, lying close off the SW extremity of Salt Island. The wreck is that of RMS *Rhone*, which sank in 1867. A marine park, in which anchoring and fishing are prohibited, associated with the wreck extends across the width of the passage to Dead Chest, 1.54. Salt Island is the site of the territory's two salt evaporation ponds, with a small settlement on the N shore. Thence:

3 ENE of rocks and small islet (1½ miles WSW) extending 2 cables S from the E extremity of Dead Chest, thence:

ENE of Blonde Rock (1 mile WSW) a rocky patch with a least depth of 2·7 m.

(Directions continue for entering Road Harbour at 3.212)

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Side channels

Between Dead Chest and Peter Island

3.154

1 **Description.** The channel (18°22′N 64°34′W) may be used, keeping clear of the 7·9 and 8·8 m shoal patches (7 and 8 cables NW of Dead Chest) (3.146) in the N approach.

Charts 2005, 2006

Passage between Peter Island and Norman Island

3.155

1 **Description.** The passage (18°20′N 64°35′W) between Peter Island and Norman Island is crooked but navigable. It is unlit.

Directions. From the vicinity of 18°15′N 64°35′W, the passage leads generally N then W or WNW, passing (with positions from Carrot Rock (18°20′N 64°34′W)):

E of the SE extremity of Norman Island, which has foul ground extending 1 cable offshore, thence

2 W of rocks extending 1½ cables SSE from Carrot Rock (3.131) see view (3.156), thence:

Clear of Carrot Shoal (5 cables W), with a depth of 2·9 m, thence:

SSW of a shoal, with a depth of 7·6 m over it (7 cables NW), thence:

3 Between 2 and 5 cables NNE of the NE extremity of Norman Island, which has foul ground close offshore,:

SSW of Key Point (1¾ miles NW) and the small island and rocks extending 1½ cables SSW, thence:

Clear of a shoal patch, with a least depth of 11 m over it (2½ miles WNW), thence:

4 N of Ringdove Rock (3 miles W) (3.158), and:

Clear of Pelican Island (3 miles W), thence:

Clear of a shoal coral patch (3½ miles WNW) with a least depth of 11·6 m (3.158).

3.156

1 **Clearing bearing.** The line of bearing, 091°, of the S extremity of Carrot Rock, well open N of the N extremity of Norman Island, passes N of Ringdove Rock.

(Directions continue for Sir Francis Drake Channel SW approach at 3.146)

Flanagan Passage

3.157

1 **Description**. Flanagan Passage (18°20′N 64°38′W) leads between Flanagan Island, to the W, and Norman Island and The Indians, to the E.

3.158

1 **Directions.** From the vicinity of 18°16′N 64°40′W, Flanagan Passage leads generally NNE, passing (with positions from Flanagan Island (18°20′N 64°39′W)):

Clear of an isolated patch, with a depth of 14·6 m over it (3½ miles S), thence:

2 Clear of Santa Monica Rock (1¾ miles SSE), with a depth of 3·4 m, on which it is reported the sea breaks in heavy weather, thence:

SW and W of the SW extremity of Norman Island (1½ miles SE). The Carval, a rock lies 1 cable offshore, thence:

3 W of Ringdove Rock (1½ miles E), with a depth of 4·3 m and lying about 1½ cables W of the NW extremity of Norman Island, thence:

ESE of Flanagan Island, 39 m in height, thence:

WNW of The Indians (1¼ miles ENE), four small distinctive pinnacles lying close together about 1 cable W of Pelican Island (3.155), which has an elevation of 50 m. Thence:

4 ESE of a shoal patch, with a least depth of 14·6 m over it, (1 mile NNE), thence:

WNW of a shoal patch with a least depth of 11·6 m over it (1½ miles NE).

3.159

1 **Clearing marks and bearings:**

The alignment (017°) of The Indians (18°20′N 64°38′W) with Sabbath Hill (6½ miles NNE) passes close W of Santa Monica Rock and of the isolated patch (3½ miles S).

The alignment (004°) of The Indians with Fort Hill (290 m high) (5½ miles N) passes close E of Santa Monica Rock.

2 The line of bearing, 056°, of the S peak of Cooper Island (155 m high) (18°22′N 64°30′W), just open SE of Peter Island, passes about 6 cables SE of Santa Monica Rock.

The alignment (158°) of Treasure Point (18°19′N 64°37′W) with West Hill (4 cables SSE), passes close WSW of Ringdove Rock and The Indians.

Between Flanagan Island and Saint John

3.160

1 **Description.** The channel (18°20′N 64°39′W) is usable though tidal stream run at rates up to 1½ kn.

Directions From the vicinity of 18°19′N 64°40′W, the channel leads generally NE, passing (with positions from Flanagan Island):

SW of Privateer Point (8 cables NW) a narrow projecting point, thence:

NW of a rock (14 m high) standing close off the W extremity of Flanagan Island.

(Directions continue for Sir Francis Drake Channel SW approach at 3.146)

Anchorages and harbours

Charts 2005, 2019

General information

3.161

1 Anchorage can be obtained anywhere in the NE part of Sir Francis Drake Channel, clear of the many submarine power cables (3.137) shown on the chart. However, the bottom is hard, being a thin coating of sand over coral, making a good scope of cable necessary.

2 In the SW part of the channel (W of 64°33′W) there are numerous knolls. There are two unlit mooring buoys for tankers within 2 cables of the coast 1¼ miles WSW of Nanny Cay (18°24′N 64°38′W).

Between Virgin Gorda and Great Dog

3.162

1 **Good anchorage** is available in the vicinity of 18°29′N 64°26′W in the bay to the W of Virgin Gorda, between Mountain Point and Colison Point, to the E, and Great Dog, to the W, in general depths of 20 to 23 m, partly protected from the NW by Dog Islands, from which direction the wind seldom blows hard. The holding ground is good and the sea is nearly always smooth, but the area is subject to rollers (3.11) during the winter months.

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2 During this season the best anchorage is in a depth of 23 m midway between Great Dog and Virgin Gorda. In this position, with a good anchor and long scope of cable, the anchorage should be secure, as the rollers are seldom accompanied by much wind.

South–west of Spanish Town

3.163

1 **Good anchorage** is available in the vicinity of 18°26′N 64°28′W, as shown on the chart, in a depth of about 24 m anywhere, but keeping clear of the submarine power cables, (see 1.45) and clear of the marine park in the area around The Baths (3.137). The holding ground is good and the sea is nearly always smooth.

South of Beef Island

3.164

1 **Good anchorage**, during strong NE winds, may be found in the vicinity of 18°26′N 64°32′W, in a depth of 20 m off the SW side of Beef Island, under the lee of The Bluff, as shown on the chart, and clear as necessary of the 8·5 and 9·8 m patches lying respectively 3 and 7 cables WSW of The Bluff.

Saint Thomas Bay

3.165

1 A mooring buoy, situated 3 cables SE of Colison Point (3.135), is connected to the shore by a floating hose.

Chart 2005

Sopers Hole

3.166

1 **Description.** Sopers Hole (18°23′N 64°43′W), a protected harbour at the W end of Tortola, between West End, to the N, and Little Thatch Island and Frenchman's Cay, to the S, affords good shelter and excellent anchorage. Sopers Hole is a terminal for ferry services to the US Virgin Islands, and a port of entry.

2 The harbour is reported to have deep water close in to the shore and to contain a wharf.

Seaplane operations are reported to take place in an area near the N side of the W entrance to the harbour. The seaplane ramp is to the W of Government Wharf (3.169).

3.167

1 **Directions for entering harbour**:

From SW, between Great Thatch (3.80) and Little Thatch Island (3.144), then S of West End, 188 m in height, passing at least 1 cable off the W end of Little Thatch Island.

From N through Thatch Island Cut (3.143)

2 From S, between Little Thatch Island and Frenchman's Cay (3.144).

The narrow passage between Frenchman's Cay and Sandy Point on Tortola, which is crossed by a low bridge, is encumbered by shoals and has strong tidal streams but is reportedly usable by dinghies.

3 **Useful mark:**

A light (elevation 5 m), standing on the SW end of the Government Wharf (18°23′N 64°42′W), is reported to be useful as a daymark but also unreliable as a light.

3.168

1 **Anchorage** is to be found near the head of the bight between West End and Frenchman's Cay, with good holding in mud, on a small shelf in depths of 6 to 10 m.

It is reported that the bottom is uneven off the Government Wharf, requiring additional scope of cable.

Anchorage is also reported to be available just W of Callwood's Point (18°23′N 64°44′W) the S extremity of Great Thatch (3.80), sheltered from the ground swell.

3.169

1 **Berths:**

Government Wharf, situated along the N shore of the harbour, about 3 cables from the head, is reported to have a depth alongside of 3·0 m, and to be subject to constant ferry traffic which makes berthing inadvisable.

3.170

1 **Port services:**

Repairs. A 200 tonne patent slip, situated off the N coast of Frenchman's Cay, is able to accommodate craft with a length of 33 m and a draught of 4·2 m.

Supplies: fresh water (when available); fuel.

Chart 2019

Saint Thomas Bay

3.171

1 Saint Thomas Bay, extending S from Colison Point (18°27′N 64°27′W) (3.135), on the SW coast of Virgin Gorda, contains the following berths, in addition to Virgin Gorda Yacht Harbour (given from N to S, with positions from Colison Point):

Little Dix Jetty (5 cables SE), with depths of 0·5 to 2·2 m alongside, which is used by the ferry to Road Harbour and small cargo vessels, is reported to be prominent.

2 Government Jetty (8 cables S), with depths of 1·7 to 2·4 m alongside, which serves Spanish Town, the original capital of the British Virgin Islands. The approach lies either through an unmarked gap in the reef, with a depth of 3 m, situated 1½ cables N of the jetty; or from the N, keeping inside the reef.

Local knowledge is required.

3 **Traffic.** In 2001, 14 vessels with a total dwt of 16 382 used the port.

4 **Anchorage** may be obtained 1 cable S of Colison Point as shown on the chart.

Channel between Little Camanoe and Beef Island

3.172

1 **Description.** The channel (18°27′N 64°32′W) between Little Camanoe and Beef Island is strewn with reefs which extend well offshore from both sides, as well as one which lies in the middle of the passage, the majority of which are unmarked.

2 **Local knowledge** is essential.

Submarine power cables (1.45) cross the channel as shown on the chart.

For entry into Trellis Bay see 3.173; for the channels S of Guana Island and W of Great Camanoe see 3.66 and 3.67.

Trellis Bay

3.173

1 **Description.** Trellis Bay (18°27′N 64°32′W) situated on the N side of Beef Island, is shallow. Bellamy Cay, in the middle of the entrance, has a light (white mast) that is privately maintained and reported to be unreliable.

Local knowledge is required.

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2 **Restricted area.** It is reported (2000) that the area between Bellamy Cay and Conch Shell Point, 1½ cables W, is closed to navigation because of the extension of the airport on Beef Island. A submarine cable (marked by orange buoys) extends between the cay and the point, see 1.45.

3.174

1 **Directions.** From the vicinity of 18°27′N 64°32′W, the track leads SSE, passing (with positions from Bellamy Cay Light (18°27′N 64°32′W)):

2 ENE of a rock awash (1½ cables NW), marked by a buoy (starboard hand), lying at the extremity of a reef extending 1½ cables NNE from Conch Shell Point, the W entrance point of the bay, thence:

3 WSW of rocks (2¼ cables NE), marked by a buoy (N cardinal), position approximate, lying 1¼ cables NNE of Sprat Point, the E entrance point of the bay, thence:

ENE of Bellamy Cay, thence:

To the anchorage (1 cable ESE).

4 **Anchorage** exists in a depth of about 5 m, with good holding in sand and mud, E and S of the cay, clear of a sand bar extending S from the cay and shallow water with obstructions in the S and E of the bay.

Bluff Bay

3.175

1 **Description.** Bluff Bay (18°26′N 64°32′W), situated on the S coast of Beef Island, is reported to provide good anchorage in a depth of 4 m inside the reef.

Local knowledge is required.

Chart 2019

Cooper Island

3.176

1 **Manchioneel Bay** (18°23′N 64°31′W) situated on the NW side of Cooper Island is reported to afford safe anchorage when the wind is S of E; however, the bottom is sand, covered with grass, which spoils the holding. There are a number of moorings available in the bay.

2 Comments on the manchineel tree are given at 1.70.

Channel between Cooper Island and Salt Island

3.177

1 The channel (18°23′N 64°31′W), between Cooper Island and Salt Island, is constricted to a width of about 1¾ cables and a minimum charted depth of 12·8 m, between a rock awash, 0·6 m in height, (reported as being not always visible) off the NE end of Salt Island, to the W, and some rocks and an islet, 1 m in height, extending from the W side of Cistern Point, Cooper Island, to the E.

2 Transit of this passage is recommended only under power.

Salt Island

3.178

1 **Description.** Salt Island Bay (18°23′N 64°32′W), situated on the NW side of the island, is reported to afford temporary anchorage off the settlement, in the SW corner of the bay, in a depth of 5 m; however the bay is exposed and the water is rough.

3.179

1 Lee Bay (18°22′N 64°32′W) on the W side of the island, contains ten moorings, reportedly for craft under 15 m in length, for use when visiting the "Wreck of RMS *Rhone* Marine Park". This park extends from Lee Bay to the W end of Dead Chest (2 miles WSW). Anchorage and fishing are not permitted in the "Wreck of RMS *Rhone* Marine Park". See also 1.54.

Charts 2005, 2019

Peter Island

3.180

1 **Description.** Sprat Bay (18°22′N 64°35′W), situated on the N coast of Peter Island, between Deadman Bay and Great Harbour, affords anchorage in the middle of the bay.

2 The entrance to the bay is reported to have depths of 4·5 m in the fairway.

A regular ferry service runs to Road Harbour (3.187).

3.181

1 **Deadman Bay** (18°21′N 64°34′W) situated ½ mile E of Sprat Bay, has an anchorage on the E side but is exposed to the swell which sets round Cabey Point, the NE point, and holding may be spoilt by the grassy bottom.

3.182

1 **Great Harbour** (18°22′N 64°35′W) is the largest bight on the N side of Peter Island, with shores that are fairly steep–to. It is easy to enter.

Great Harbour is the venue for a daily fishing operation from the shore which visiting mariners are recommended to avoid. This harbour is also a protected area and it is reported that outboard motors should not be used.

3.183

1 **Little Harbour** (18°21′N 64°36′W), a small bight on the N side of Peter Island, is situated 1 mile W of Great Harbour.

Anchorage is available in the SE corner of the bay, on hard sand. The holding ground is good. The bay is open to the NW, but, being protected from the direction of Tortola, the anchorage is not affected by rollers (3.11) and is safe except in a NW wind.

2 It is reported that this harbour may be identified by the white roof of a house on the NE spit of land overlooking the bay.

Chart 2005

Norman Island

3.184

1 **Description.** Benures Bay (18°19′N 64°36′W) situated on the N side of Norman Island, affords safe anchorage with good holding on sand, when the wind is from the S.

3.185

1 **The Bight** (18°19′N 64°37′W), the largest inlet on the NW side of Norman Island, affords good anchorage for small craft.

The Bight is entered between a shallow reef off Treasure Point, to the S, and Ringdove Rock, to the N. Clearing marks for Ringdove Rock are given at 3.156 and 3.159.

2 The shores of the bay are steep–to and, although this inlet is open to the W, the island of Saint John prevents any sea from entering the bay. The holding ground is good, on sand, with depths of over 15 m up to 1 cable off the S and N shores and 2 cables from the head of the bay.

This is reported to be a popular anchorage, which occasionally accommodates up to 90 craft at anchor, and there are many moorings.

3.186

1 **Privateer Bay** (18°19′N 64°37′W), on the SW side of Norman Island, affords safe anchorage at its S end, during the prevailing trade winds, but is not recommended if there is a swell running.

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ROAD HARBOUR

General information

Charts 2020, 2005, 2019

Position
3.187

1 Road Harbour (18°25′N 64°36′W) is situated in a bay on the S coast of Tortola, at the S end of Sir Francis Drake Channel.

Function
3.188

1 Road Harbour contains Port Purcell, which handles the principal commercial trade of the island, the Cruise Ship Jetty at Wickhams Cay 1 and a number of other berths and marinas. Road Town, situated on the W shore of the bay, with an estimated population of 7852 (1999), is the capital of the British Virgin Islands and contains the residence of the Governor.

2 Road Harbour is the only port of entry for non–yachting vessels to the British Virgin Islands.

Topography
3.189

1 General topography 3.133.

Road Harbour, which is shielded by a range of hills from all except S and SE winds, affords fair protection.

2 **Depths** in the approach to Road Harbour are very irregular; within 2½ miles of Shirley Point (18°25′N 64°36′W) there are many patches of rock and coral with depths of 3 to 19 m over them. In the entrance to the harbour the bottom is uneven and depths decrease rapidly towards the shore which is fringed by rock and coral.

Port limits
3.190

1 The harbour consists of all the area of water N of the line from Burt Point (6 cables SW of Shirley Point) to Hogs Valley Point (1·1 mile E).

Approach and entry
3.191

1 Road Harbour is approached through Sir Francis Drake Channel (3.137), and entered through East Channel (3.212), passing close S of Hogs Valley Point, to avoid the shoal patches lying in the entrance to the harbour: however vessels with a suitable draught may approach directly from the SE, and small craft from the SW (3.224).

Traffic
3.192

1 In 2004, 749 vessels with a total dwt of 5 447 982 tonnes used the port.

Port Authority
3.193

1 British Virgin Islands Port Authority, PO Box 4, Road Town, Tortola. Local rules, regulations and port control are enforced by the Managing Director and the Operations Manager.

Limiting conditions

Controlling depth
3.194

1 The controlling depth in the approach to the harbour anchorage 11·1 m as shown on the chart in position (18°25′N 64°35′W).

Deepest and longest berth
3.195

1 The longest berth is Port Purcell Wharf (3.218) and the deepest is at Cruise Ship Jetty (3.219).

Mean tidal levels
3.196

1 MHHW 0·6 m.
MLLW 0·3 m.

Abnormal levels
3.197

1 It is reported that, during April and May, the mean level is 0·3 m lower than at other times. It is also reported that, during October and November, the mean level is 0·2 m higher than at other times.

Density of water
3.198

1 1·025 g/cm^3

Maximum size of vessel handled
3.199

1 Largest vessel handled at Port Purcell had a nrt of 6000 tonnes. The deepest draught of a vessel permitted to berth at Port Purcell is reportedly 6·7 m. It is reported that large cruise vessels may berth at Cruise Ship Jetty (3.219), and the largest handled was 49 400 grt and 240 m long.

Local weather
3.200

1 The bay is exposed to the S and SE. When the wind blows from this sector, sudden strong squalls, which are often accompanied by rain, may cause vessels to drag.

After sunrise the prevailing E winds make it difficult to berth on Port Purcell Wharf (3.218).

Arrival information

Coast and port radios
3.201

1 There is a coast radio station in Tortola and a port radio at Port Purcell. See *Admiralty List of Radio Signals Volume 1(2)* or *Admiralty Maritime Communications (Caribbean)*.

Notice of ETA
3.202

1 Vessels are required to give 72, 48 and 24 hours notice of ETA. See *Admiralty List of Radio Signals Volume 6(5)*.

Outer anchorages
3.203

1 A suitable anchorage in Sir Francis Drake Channel is given at 3.161.

A recommended anchorage is positioned 6 cables SSE of Shirley Point (18°25′N 64°36′W) (3.210), in a depth of about 22 m in the vicinity of the pilot embarkation point.

Pilots
3.204

1 Pilotage, which is compulsory for vessels greater than 200 nrt, is available for entry by day or at night by prior arrangement.

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2 Embarkation is as follows (with positions from Shirley Point):

5 cables SSE, as shown on the chart.

3 miles ESE, as shown on the chart, for vessels exceeding 6 m in draught.

2 miles S of Buck Island (18°25′N 64°33′), on request, for vessels W–bound in Sir Francis Drake Channel.

3 2 miles S of Hogs Valley Point (18°25′N 64°36′W), on request, for vessels E–bound in Sir Francis Drake Channel.

6 cables W of The Point (18°22′N 64°32′W), on request, for vessels entering via Salt Island Passage (3.152).

See *Admiralty List of Radio Signals Volume 6(5).*

Tugs

3.205

1 No tugs are available. The pilot boat will assist with berthing lines if required.

Prohibited anchorage

3.206

1 Anchoring is prohibited within the port limits (3.190) unless authorised by the Managing Director.

Quarantine

3.207

1 Customs Officers issue Pratique for ships with a clear bill of health; otherwise the Port Medical Officer should be requested to board on arrival alongside or at anchor.

Harbour

General layout

3.208

1 Road Harbour is an open roadstead, entered between Slaney Point (3.146) (1·1 mile SW of Shirley Point) and Hogs Valley Point (8 cables ESE of Shirley Point), sheltered only by the island chain 4 miles S. The main berthing areas are Port Purcell (3.218), at the NE head of the harbour, and Cruise Ship Jetty (3.219) to the W of the harbour at Wickhams Cay 1. Smaller vessels, with draught less than 2 m, may berth at Road Town jetties (3.218) on the W side of the bay.

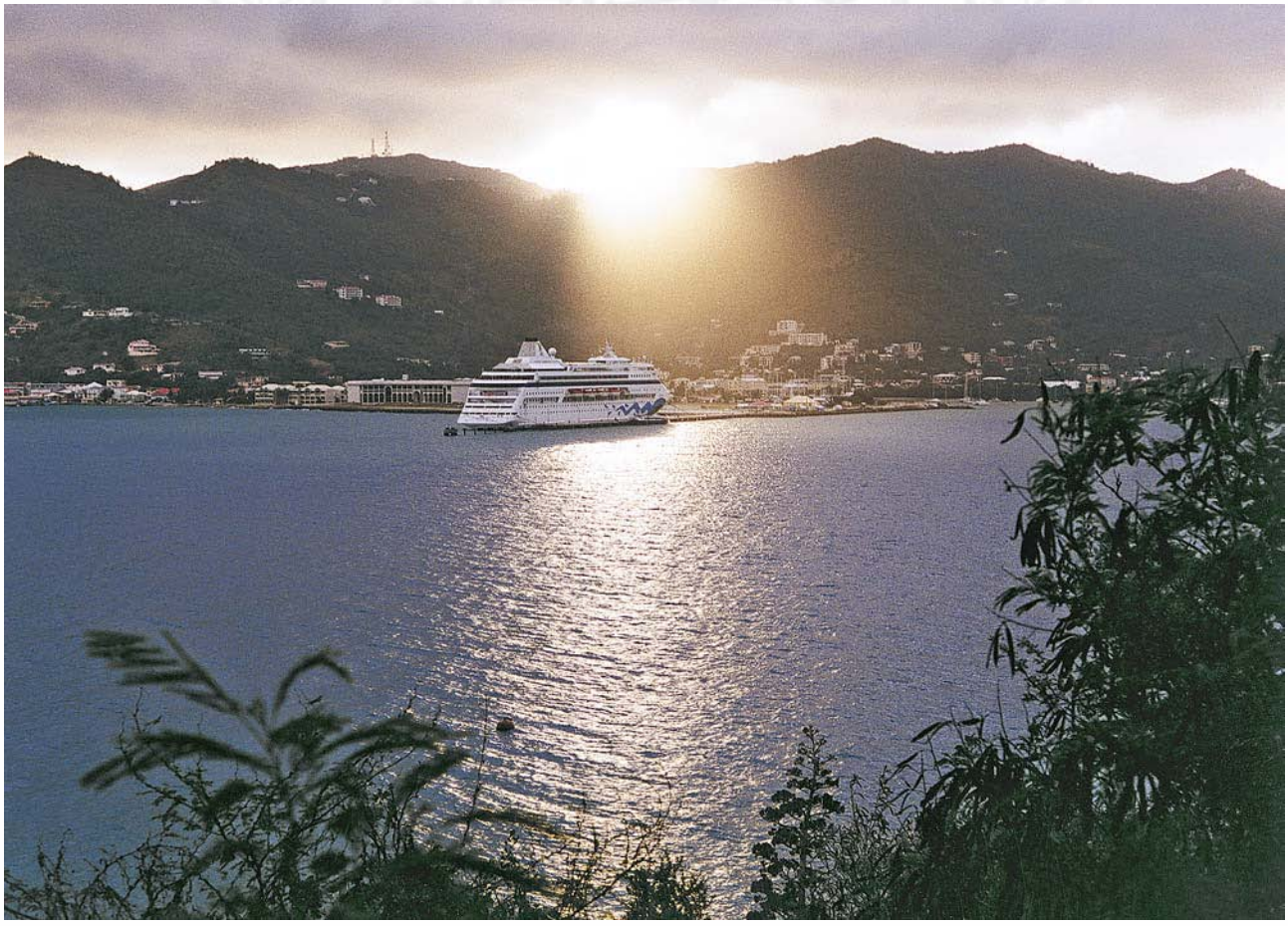
Natural conditions

3.209

1 **Current** in the harbour is negligible.

Sea state. There is usually a scend of approximately 0·5 m alongside Port Purcell Wharf.

Wind direction is influenced by the surrounding hills and may change swiftly to affect berthing operations.



Tortola Road Harbour (3.208)

(Original dated 2000)

(Photograph – Stephen Brookes)

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Principal marks

3.210

1 **Landmarks** (with positions from Shirley Point (18°25′N 64°36′W)):

White house with pink roof (1¾ miles E) standing on Whelk Point.

White house (1¼ miles ESE) being the S of several houses on Half Moon Point.

2 Several white oil tanks on Shirley Point. At night lights burn in their vicinity.

Red and white radio mast (4 cables NNW) which is tall and narrow with an elevation of 92 m, standing close E of a shorter mast situated on a building.

3 Government Administration Building (8 cables WNW), a large white building with conspicuous arches.

Road Harbour, Government Building (3.210)

(Original dated 1999)

(Photograph – H.M.S. Marlborough)

Road Town Terminal building (3.218) (9 cables W); a two storey building with a red roof.

4 Fort Burt Hotel (8 cables WSW), a group of 4 white buildings with red roofs, surmounted by a dome standing high (20 m) on a hill near the W side of the harbour entrance.

5 Radio towers (2½ miles WNW) (3.74) (chart 2005).

Caution

3.211

1 **Buoys.** It is reported that the position of some buoys in Road Harbour may be unreliable owing to the poor holding ground and occasional strong winds. Vessels should exercise caution in the vicinity of Shirley Point and Baughers Bay (3 cables NNW) at night owing to the presence of a large number of unlit mooring buoys.

2 **Navigation lights** have been reported to be unreliable.

Directions for entering harbour

(continued from 3.139, 3.147 and 3.154)

Approach from east

3.212

1 From the vicinity of 18°24′N 64°33′W, the alignment (278°) of the S extremity of Fort Burt Hotel (8 cables WSW of Shirley Point) (3.210), which is difficult to distinguish, with the summit of Fort Hill (5 cables W), which will probably be identified first, leads towards the harbour, (the vertical separation of the two marks reduces the sensitivity of the transit), passing (with positions from Shirley Point):

2 S of Buck Island (2½ miles E) (3.138), thence:

S of an isolated coral patch with a least depth of 8·5 m over it (2¼ miles E), thence:

N of an isolated patch with a least depth of 8·5 m over it (1¾ miles ESE), thence:

S of Half Moon Point (1¼ miles ESE) (3.210), and:

3 N of a light–buoy (port hand) (1¼ miles ESE) moored close N of a shoal area with a least depth of 4·9 m over it, thence:

S of a light–buoy (starboard hand) (8½ cables SE), marking the coastal bank with depths less than 10 m extending ¾ cable S of Hogs Valley Point. Thence:

4 N of a shoal area with a least depth of 7·6 m over it (8 cables SSE), thence:

S of Scotch Bank (3 cables SSE) (3.213), with a least depth of 2·4 m.

Chart 2020

Entrance channel

3.213

1 From a position 4½ cables S of Shirley Point, the line of bearing, 319°, of either the extremity of the breakwater extending SW from Wickhams Cay 2 (8 cables NW), or the dolphin ½ cable SE of Cruise Ship Jetty (6 cables WNW), leads into Road Harbour, passing (with positions from Shirley Point) (3.210):

2 NE of Denmark Banks, (6 cables SW), on which there are 2 rocky patches with depths of 3·7 and 4·3 m, thence:

SW of Scotch Bank, (3 cables SSE) marked on its NW side by a light–buoy (starboard hand) close NW of a 2·4 m patch. Depths of 5·6 m extend ½ cable SSE of the buoy. Thence:

3 NE of Lark Bank, (4 cables SW), marked on its E side by a light–buoy (port hand), with a 4·4 m patch close WNW, thence:

NE of Burt Point (5½ cables WSW) which is fronted by a mangrove–covered reef, thence:

SW of an isolated patch, with a least depth of 5·5 m (2 cables WNW), which extends 1 cable NW towards Port Purcell, thence:

4 NE of Harbour Rock (5 cables W), with a least depth of 5·8 m, marked by a light–buoy (preferred channel to starboard), lying near the SE end of Harbour Spit, which extends 4 cables SE from Wickhams Cay 1.

(Directions for Road Town jetties are given at 3.216)

Approach to Port Purcell

3.214

1 From a position 4 cables WNW of Shirley Point, the line of bearing, 003°, of the right hand edge of a long, low, turquoise–coloured building on Port Purcell Wharf leads towards Port Purcell, in a least depth of 6·8 m, through a swinging basin, SW of the wharf, passing (with positions from Shirley Point):

2 W of a shoal area, with a least depth of 6·1 m (3¼ cables WNW), marked by a light–buoy (starboard hand), and:

E of a lighted dolphin (5½ cables WNW) at the seaward end of Cruise Ship Jetty (3.219), thence:

3 W of the coastal bank, with a depth of 1·2 m (4 cables NW), which extends 2¾ cables SE from the wharf, thence:

E of a buoy (port hand) (6 cables NW), situated ½ cable SE of the coastal bank. This buoy marks the SW limit of the swinging basin.

Berthing at Port Purcell

3.215

1 It is usual to berth bows SE, having first turned off the wharf using the starboard anchor.

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Approach to Road Town jetties

3.216

1 From a position 3 cables SW of Shirley Point, the alignment (290°) of the leading lights (elevation 11 m) situated on the Post Office building (9 cables W of Shirley Point), leads towards the town jetties, passing (with positions from Shirley Point):

NNE of Lark Bank (4 cables SW) (3.213), thence:

2 NNE of the coastal bank, with depths less than 2·2 m (5 cables WSW) lying ¼ cable offshore from the intertidal coral reef which extends ¾ cable ENE from Road Reef, and:

Over the SE extremity of a spit, with a depth of less than 15 m over it (4½ cables WSW), which extends SE from Harbour Spit (3.213), thence:

3 SSW of the light–buoy (preferred channel to starboard) (4½ cables W) marking Harbour Rock (3.213).

It is reported that the small size of the leading marks makes them difficult to see in daylight.

Tanker moorings

3.217

1 Two offshore mooring points, with associated submarine pipelines (see also 1.44), are situated on the E side of the bay, and reportedly (1998) both terminals can accept vessels with a maximum draught of 8·83 m.

Oil: (½ cable S of Shirley Point), 3 mooring buoys and a marker buoy (red) are situated at the end of a submarine oil pipeline.

2 **Gas**: in Baughers Bay (2¼ cables NNW of Shirley Point), 2 mooring buoys and 2 marker buoys (red) are situated at the end of a submarine gas pipeline.

Alongside berths

3.218

1 **Port Purcell Wharf** (6 cables NW of Shirley Point), 244 m in length and 1·2 m high, with a least charted depth of 4·9 m alongside, is reported able to accommodate vessels with a maximum draught of 6·7 m. Ro–Ro vessels can be berthed at this wharf.

2 **Road Town Jetty** (9 cables W) has two jetties, 60·9 and 39·6 m in length, with a reported depth alongside of 3·65 m, providing berths for ferries and small cruise vessels. The passenger terminal lies between the jetties.

There is one other jetty off Road Town.

Baughers Bay contains an apron with berthing facilities on three sides and a pier for tankers.

3.219

1 **Cruise Ship Jetty** (6 cables WNW of Shirley Point) extends 230 m SE from the E corner of Wickhams Cay 1, with a width of 9·8 m, and a catwalk extension of 79 m with a lighted dolphin at the seaward end. It is reported that the depths alongside range from 6 m at the landward end to 11·5 m to seaward, and that vessels up to 70 000 grt and 260 m in length have used the jetty. There is a 3·4 m patch charted off the N side of the landward end.

Port services

Repairs

3.220

1 Minor repairs only.

Other facilities

3.221

1 Hospital; oily waste facilities are not available.

Supplies

3.222

1 Diesel oil can be obtained through offshore pipelines SE of Port Purcell. Bunkering alongside is only available in small quantities by road tanker, on 2 hours notice.

Fresh water is available at Port Purcell Wharf and Cruise Ship Jetty.

Provisions can be obtained in small quantities.

Communications

3.223

1 International airport. at Beef Island, 11 km E.

Side channel

3.224

1 **Approach from south–west.** From the vicinity of Nanny Cay (2 miles SW of Road Harbour) (3.161), the line of bearing, 073°, of The Bluff (4½ miles E) (3.134) (Chart 2019), open S of Nora Hazel Point (1½ miles ESE) leads towards the harbour entrance, and clears to the S of Denmark Banks, passing (with positions from Shirley Point):

2 SSE of an isolated rock, with a charted depth of 5·2 m (1¾ miles SW), thence:

SSE of Denmark Banks (8 cables SSW) (3.213), thence:

Over isolated patches with a least charted depth of 7·6 m (8 cables SSE).

SAINT JOHN AND SAINT THOMAS — SOUTH SIDES

General information

Charts 2006, 130

Route

3.225

1 From a position SE of Ram Head (18°18′N 64°42′W), the route leads W for about 14 miles to a position S of St. Thomas Harbour (18°20′N 64°56′W) (3.281). From this position the route leads W for about 13 miles to a position SW of Sail Rock.

2 A recommendation for the masters of deep draught vessels is given at 3.7.

Topography

3.226

Saint John at 3.20.

Saint Thomas at 3.21.

The S coast of Saint John is indented by numerous small bays, many of which are separated by prominent headlands terminating in cliffs over 30 m high.

1 The S coast of Saint Thomas is very irregular with projecting rocky cliffs between coves and bays that are obstructed by rocks and shoals. Dangerous rocks extend up to a mile from shore.

Depths

3.227

1 The coastal bank (3.26) extends between 5 and 7 miles S of the main islands, with a rim on the seaward edge of the bank having a least depth as given at 3.231, and other charted depths less than the general depths on the bank.

An isolated patch (18°10′N 64°44′W) lies off the bank, with a depth of 106 m (58 fm) over it.

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Rescue

3.228

1 In Saint Thomas Harbor (18°20′N 64°56′W) (3.281), the US Coast Guard maintain a patrol boat for the primary purpose of search and rescue work.

Natural conditions

3.229

1 **Flow.** General remarks (3.13).

It is reported that the current is reduced S of Saint Thomas, close to the coast.

Swell. General remarks (3.11).

Local weather. General remarks (3.9).

Principal mark

3.230

1 **Landmark:**

Television tower (18°21′N 64°57′W) (3.311).

Directions

(continued from 3.131)

Charts 2005, 2452, 2006

3.231

1 From the vicinity of 18°13′N 64°42′W, the track leads W passing (with positions from Frenchcap Cay (Frenchman's Cap) (18°14′N 64°51′W)):

2 S of Red Point (12 miles ENE), a prominent headland forming the S extremity of a lofty and indented promontory on the E side of Coral Bay, thence:

S of Eagle Shoal (10¼ miles ENE), consisting of three coral pinnacles with a least depth of 0·9 m over them, which are reported to cause no break in the swell, thence:

3 S of Ram Head (9½ miles ENE) the SW extremity of Saint John, a bold headland rising to 2 conspicuous hills; Ram Hill (88 m high) is the N and higher. The E side of this headland is faced with rocky cliffs from 30 to 46 m high and there is usually a heavy sea off the point. Thence:

4 S of an isolated patch with a depth of 18·3 m over it (10¾ miles E) being the least depth on the rim of the bank (3.227), thence:

S of remarkable white cliffs (about 46 m high) (8½ miles NE) and terminating to the SE in White Point situated on the E side of Reef Bay, thence:

5 S of Dittlif Point (6¾ miles NE) which is the extremity of a bold promontory (46 m high) terminating in rocky cliffs 30 m high, and:

N of an isolated shoal with a depth of 18·3 m over it (6½ miles ESE) thence:

N of an isolated shoal, with depths of 13·7 m over it (1¾ miles NE), thence:

6 N of Frenchcap Cay (Frenchman's Cap), 56 m in height, which is steep–to with high rocky cliffs. The surface is covered with grass. Thence:

7 S of Capella (Buck) Islands (3½ miles NW) which are two islands steep–to on the S side and partly covered by scrub. Buck Island, to the W, is separated from the E island (37 m high) by a narrow channel which is almost closed by drying rocks. Buck Island Light (framework tower, elevation 42 m) stands on the summit of Buck Island.

8 From this position the track continues W for about 2 miles to a position S of St. Thomas Harbour (18°20′N 64°56′W) (3.281)

Useful mark

3.232

1 Towers on Crown Mountain (18°21′N 64°59′W) (3.90)

(Directions continue for Saint Thomas Harbor at 3.301 and 3.314, for Sonda de Vieques at 4.213, and for Passage S of Isla de Vieques at 4.198. Directions for Virgin Passage are given at 3.108, and for Pillsbury Sound at 3.239)

Pillsbury Sound—General information

Chart 2005

Position

3.233

1 Pillsbury Sound (18°20′N 64°50′W) lying between Saint John and Saint Thomas is bounded N by a chain of cays and to the SW by a series of islands extending SE from Saint Thomas.

Function

3.234

1 **Passage.** The sound provides a passage through the island chain, that is clear of dangers in the fairway.

Roadstead. The sound also forms an excellent roadstead secure against rollers (3.11) and all except S winds, which are infrequent and likely to blow only in the hurricane season. However, heavy seas can rise particularly when the tidal stream sets against the wind.

Depths

3.235

1 The depths in the sound are somewhat irregular, varying from 7 to 34 m. However, all the main passages leading into the sound are deeper than the mean depth of the sound itself, and the fairway through the centre has been swept clear to a depth of 12·8 m.

Tidal stream

3.236

1 Tidal streams in the sound attain a rate of about 2 kn, as shown on the chart. Rates up to 4 kn have been reported in the vicinity of Dog Island (18°18′N 64°49′W).

Prohibited anchorage

3.237

1 Anchoring is prohibited in a submarine cable area, shown on the chart, lying across the Sound between Redhook Bay (3.260) and Cruz Bay (3.259).

Approach and entry

3.238

1 Pillsbury Sound can be approached from N or S and entered through a number of passages, which are presented as follows:

Main channel from S at 3.239.

Entrance channels from N at 3.241.

Minor entrance channels for small craft at 3.249.

Pillsbury Sound — south entrance channel

Directions

3.239

1 The fairway of the main channel from S, entered between Dog Island (18°18′N 64°49′W) and Bovocoap Point (2 miles ENE) leads NW through the sound, passing (with positions from Two Brothers Light (18°20′·6N 64°49′·0W)):

NE of Dog Rocks (3 m high) (3 miles S) situated at the end of a rocky ledge extending 1½ cables ESE from the SE extremity of Dog Island (3.252), and:

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2 SW of Bovocoap Point (82 m high) (2¾ miles SE), thence:
SW of Maria Bluff (2¼ miles SE) the SW extremity of Saint John which is 86 m in height and faced with cliffs 30 m high, thence:
Clear of a shoal patch in the middle of the fairway, with a least depth 14·6 m, (2 miles SSE), thence:
3 NE of Welk Rocks (2¼ miles S) (3.251), thence:
SW of a dangerous wreck (1½ miles SE), the position of which is approximate. It is situated 2¾ cables SW of Moravian Point, the extremity of a narrow headland from which a rocky spit with Mingo Rock, on which the sea breaks, on it, extends 2 cables SW. No 2 Light–buoy (starboard hand) is moored between the wreck and the spit. Thence:
4 NE of a coral patch, with a depth of 7·3 m over it (1¼ miles SSW) and:
SW of Steven Cay (1 mile SSE), 8 m in height. Steven Cay Light (black and white chequered diamond on framework tower, elevation 4 m) is situated ½ cable NNW of Steven Cay; and May Rock (9·4 m high) is situated close S. Thence:
5 NE of the foul ground, with No 1 buoy (port hand) ½ cable SE, extending about 1 cable E from Cabrita Point (1½ miles SW), the E extremity of Saint Thomas, which is 64 m in height and connected to the mainland by a low narrow peninsula, thence:
6 SW of Two Brothers, two small, bare rocks with a elevation of 4 m on a ledge extending 1½ cables NE/SW; on the larger of which stands Two Brothers Light (framework tower with a black and white chequered diamond daymark, elevation 7 m), thence:
7 NE of Shark Islet (1½ miles WSW), 10 m in height, which is fringed by foul ground and several rocks close N and NE, the highest of which is 3 m in height, thence:
Clear of a rocky shoal patch with a depth of 10·7 m (1¼ miles WNW).

Useful marks

3.240

1 Current Rock Light (18°19′N 64°50′W) (3.250).
Cruz Rock Light (18°20′N 64°48′W).
Mount Pleasant (72 m high) (18°21′N 64°52′W), a prominent conical hill, situated a short distance within the S shore of Water Bay.

(Directions for Windward Passage are given at 3.243, for Middle Passage at 3.246,and for Leeward Passage at 3.248)

Pillsbury Sound — north entrance channels

General information

3.241

1 From the N, Pillsbury Sound may be entered through one of the following three main passages:
Windward Passage (18°22′N 64°48′W) (3.242) at the E end.
Middle Passage (18°21′N 64°51′W) (3.245).
Leeward Passage (18°22′N 64°53′W) (3.247) at the W end.

Windward Passage

(continued from 3.81 and 3.85)

3.242

1 **Channel.** Windward Passage (18°22′N 64°48′W), between Lovango Cay and Durloe Cays (3½ cables SE) has been swept clear to a depth of 11 m.

Tidal streams in this passage are reported to attain a rate of 4 kn. The NE–going stream, setting against the wind, causes a race which appears as broken water.

3.243

1 **Directions.** From the vicinity of 18°23′N 64°46′W, Windward Passage leads generally SW passing, (with positions from Carval Rock (18°22′N 64°48′W)):
NW of Whistling Cay (2 miles E) (3.141), thence:
NW of "D" Light–buoy (special) (1 mile E), and:
2 NW of No 1 JR Light–buoy (port hand) (1¼ miles ESE) close to the N edge of a bank with depths between 3 and 10 m extending 2 cables N of Johnson Reef, which is formed of coral and on which the sea breaks except in very fine weather. A dangerous wreck, position approximate, lies 2 cables S of No 1 JR Light–buoy. A sunken ledge, with a least depth of 1·8 m over it, extends 1½ cables SSW from the reef. Thence:
3 SE of Carval Rock, 20 m in height, the E of several rocks on a bank extending 1½ cables W, thence:
SE of Blunder Rocks (about 1·2 m high) (3 cables SSW), thence:
NW of an isolated patch, with a depth of 4·3 m (7 cables SSE), thence:
4 NW of Rata Cay (4·5 m high) (8 cables SSW), the W of Durloe Cays, which are easy to identify as Henley Cay (1 mile S), the largest of the 3 cays, is 21 m high, and:
SE of Murder Rock (8 cables SW) situated close off the SE extremity of Lovango Cay (3.82), on the S side of which are several houses, thence:
5 SE of a dangerous wreck (9 cables SW), the position of which is approximate, with a depth of 4·6 m, and marked close NE by "C" buoy (special).

3.244

1 **Useful mark:**
White statue of Christ (1½ miles SE) (3.81).

(Directions for Channel S of Johnson Reef are given at 3.255, and for Durloe Channel at 3.257)

Middle Passage

(continued from 3.83 and 3.87)

3.245

1 **Description.** Middle Passage (18°22′N 64°51′W), passing between Grass Cay and Thatch Cay (4 cables W) is about 2½ cables wide between the 20 m depth contour on either side. The fairway through the passage has been swept clear to a depth of 12·8 m.
2 This passage presents no difficulties to vessels under power; it is more generally used by vessels under sail when leaving, rather than entering, Pillsbury Sound.

Tidal streams in the passage attain a rate of 4 kn.

3.246

1 **Directions.** From the vicinity of 18°23′N 64°51′W, Middle Passage leads S towards Shark Islet (3.239), passing (with positions from Coki Point (18°21′N 64°52′W):
W of Bull Rock (1¼ miles ENE) which is awash and can be easily seen, lying ¾ cable W of the W extremity of Grass Cay (3.82), and:
2 E of Grouper Point (1 mile ENE) the E extremity of Thatch Cay (3.84), thence:

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W of a patch with a depth of 2·4 m over it, (nearly 1½ miles ENE) lying just under 1 cable S of the W extremity of Grass Cay, thence:
Clear of a rocky shoal patch with a depth of 10·7 m (1½ miles E).

Leeward Passage

(continued from 3.84, 3.87 and 3.90)

3.247

1 **Description.** Leeward Passage (18°22′N 64°53′W), passing between Saint Thomas and Thatch Cay, is about 4 cables wide, has depths of 16 to 23 m in it and has been swept clear to a depth of 11 m.

2 **Tidal streams** in the passage usually attain a rate of 2 kn, as shown on the chart, though a rate of 4 kn has been reported. The tidal streams are usually weaker than those in either Windward Passage or Leeward Passage.

3.248

1 **Directions.** From a position SW of Hans Lollik Rock (18°23′N 64°54′W) the track leads SE then ESE passing (with positions from Coki Point (18°21′N 64°52′W):
NE of Mandal Point (1¾ miles WNW) (3.84), thence:

2 NE of an isolated patch, with a depth of 7 m over it (1½ miles WNW), which lies about 2 cables E of Mandal Point, thence:
SW and SSW of Lee Point (1 mile NW) the W end of Thatch Cay (3.84), thence:

3 NNE of an isolated coral patch, with a depth of 7 m over it (4 cables NW), which lies about 1¾ cables offshore, thence:
NNE of Coki Point (14 m high), a small peninsula which is foul on its N and E sides, forming the N side of Water Bay, thence:

4 SSW of a fish haven, with a least depth of 18·3 m over it, (centred 4½ cables ENE) extending 2¾ cables WNW and ESE, and:
NNE of Turtleback Rock (3 cables SE), 0·6 m in height, lying off the entrance to Water Bay, thence
NNE of Shark Islet (3.239) (1¼ miles SE).

Pillsbury Sound—side channels

Chart 2005

Current Hole

3.249

1 **Description.** Current Hole (18°19′N 64°50′W), passing between Water Point, the E extremity of a peninsula on Saint Thomas, and Great Saint James Island (2 cables ESE), leads into Pillsbury Sound from Saint James Bay (3.266). A least depth of 7·3 m exists in the channel, which is nearly ½ cable wide. This channel is reported to provide a popular route for small craft proceeding from the S coast of Saint Thomas to Saint John and other islands E.

2 **Tidal streams** in Current Hole set S during the rising tide and N during the falling tide. Both streams attain a rate of 3 kn, creating a race. This does not render the passage unsafe for power driven craft but is reported to be difficult under sail.

3 **Local knowledge** is required.

3.250

1 **Directions.** From the E side of Saint James Bay the route leads generally NNE, passing (with positions from Current Rock Light (18°19′N 64°50′W)):
WNW of Fish Cay (6 m high) (3¼ cables S) a small islet with two adjacent boulders, thence:

2 ESE of Current Rock (4 m high) situated in the centre of the passage, on which stands Current Rock Light (red and white diamond on framework tower, elevation 6 m), thence:
ESE of No 1 Buoy (port hand) (5 cables NNE).

Saint James Cut

3.251

1 **Description.** Saint James Cut (18°18′N 64°50′W), the channel which separates Great Saint James Island from Little Saint James Island, has a least charted depth of 5·8 m in the fairway. It is narrow and tortuous owing to Welk Rocks, lying in the NE approach to the channel; a stranded wreck lies on the rocks. Great Saint James Island has peaks to the N and S ends of 52 and 53 m, and Little Saint James Island is 43 m in height in the middle.

2 **Directions.** The N side of the channel is to be preferred, to avoid a rock awash at the extremity of a reef extending ½ cable NW from Little Saint James Island.

Local knowledge is essential.

Dog Island Cut

3.252

1 **Description**. Dog Island Cut (18°18′N 64°49′W) separates Little Saint James Island from Dog Island, with a least charted depth of 10 m in the fairway.

Use of this channel is dangerous for all craft except boats.

Local knowledge is essential.

Channel east of Steven Cay

3.253

1 **Description.** This channel E of Steven Cay (18°20′N 64°48′W) (3.239) has a least charted depth of 12·8 m in the fairway. It may be useful in the approach to an anchorage in the NE part of Pillsbury Sound and to Cruz Bay (3.259).

Tidal streams attain a rate of about 2 kn in the channel.

2 **Local knowledge** is essential.

Caution. Owing to the presence of coral heads vessels should keep to the deep water in the middle of the fairway.

3.254

1 **Directions.** From a position 7 cables SSE from Steven Cay Light, the channel leads NNE then N, passing (with positions from Steven Cay Light (18°20′N 64°49′W)):
WNW of a dangerous wreck (6 cables SSE) (3.239), thence:

2 ESE and E of Skipper Jacob Rock (3 cables SE) the outer of 2 above–water rocks situated on a spit which extends about 1½ cables E from May Point, the S extremity of Steven Cay, thence:
W of a dangerous rock (5 cables E) lying on the edge of a bank extending about 1 cable NW from Galge Point.

3 **Useful marks:**
Steven Cay Light (3.239).
Cruz Rock Light (18°20′N 64°48′W).

(Directions continue for Cruz Bay at 3.259)

Channel east and south of Johnson Reef

3.255

1 **Description.** The channel (18°22′N 64°46′W) between Johnson Reef and the N side of Saint John has a least charted depth of 6·1 m in the fairway and a width of 2 cables. It is reported that this channel is foul and that heavy rollers from the N break across the whole channel. During heavy seas vessels should pass outside the reef.

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2 **Directions.** From the vicinity of 18°22′N 64°46′W the track leads SSW then W, passing (with positions from Trunk Cay (18°21′N 64°46′W)):

WNW of a bank with charted depths between 5·2 and 7·9 m (6 cables NE), on which lies a dangerous rock (5½ cables NE), thence:

3 ESE of JA Buoy (special) (4¾ cables N) moored off the NE edge of Johnson reef, thence:

WNW of a 3·7 m patch (3 cables NE) thence:

4 ESE of JB Light–buoy (special) (2¾ cables NNW), moored close E of Johnson Reef (4 cables NW) (3.243) which is connected to the mainland SE by a plateau over which there is a least depth of 6 m, thence:

WNW of the reef (1 cable NE) extending about 1 cable NW from Windswept Point (1½ cables E), thence:

5 ESE then S of JC Buoy (special) (charted as No 2 Buoy (orange and white can)) (2½ cables NW) marking the S extremity of a ledge, with a least depth of 2·7 m over it, extending 1¾ cables SSE from Johnson Reef, and:

6 WNW of Trunk Cay (15 m high) a grass covered islet, thence:

N of Perkins Cay (4½ cables W), a small islet, nearly connected to the main island by reefs which dry, and:

S of JD Light–buoy (special) (4¾ cables WNW), marking the SW edge of Johnson Reef.

Durloe Channel

3.256

1 **Description**. Durloe Channel (18°21′N 64°47′W), passing between Durloe Cays and Saint John, has a least depth of 10 m in the channel; but it is narrow and may be choppy owing to the wind changing around the headland; it is reported however that only small craft use this channel.

3.257

1 **Directions.** From the vicinity of (18°21′N 64°47′W) the channel leads SW, passing (with positions from Hawksnest Point (18°21′N 64°47′W)):

2 NW of Hawksnest Rock (8 m high) a bare rock situated close off Hawksnest Point, which is low, wooded and salient and rises close within its extremity to a circular hill, 32 m in height, thence:

SE of Ramgoat Cay (9 m high) (2 cables NW) the E of Durloe Cays (3.243), and:

3 NW of a dangerous wreck, the position of which is approximate, on the N edge of rocks awash, close W of Hawksnest Point, thence:

SE of Henley Cay (4 cables W) (3.243).

Pillsbury Sound—anchorages and harbours

Anchorages

3.258

1 **Anchorage** in the NE part of Pilsbury Sound is confined to an area NE of Two Brothers (18°21′N 64°49′W) (3.239) in depths of 14 to 19 m, sand and mud.

Submarine cables. Mariners are advised that a number of uncharted disused cables lie through the centre of the Sound, from the S entrance to Middle Passage. see also 1.45.

Cruz Bay

3.259

1 **Description**. Cruz Bay (18°20′N 64°48′W), entered between Galge Point, to the S, and Lind Point (3½ cables N), affords shelter in depths of 3 m in the middle of the bay. It is the principal port, first port of entry, and largest town in Saint John; also the terminal for the inter–island ferry and seaplane services bringing supplies and tourists to the island.

2 The N part of the harbour is within the boundary of the National Park 1.55.

Useful mark:

Government House, in the shape of an old fort, stands on the peninsula at the head of the bay.

Redhook Bay

3.260

1 **Description**. Redhook Bay (18°20′N 64°51′W), entered between Redhook Point and Cabrita Point (8½ cables ESE) (3.239) leads into Muller Bay (S arm), and into Vessup Bay (W arm), which forms the head of the bay.

2 **Function.** This is the second largest port in Saint Thomas; it is a ferry port with facilities for fishing vessels and small craft. Marinas lie further in towards the head of the bay.

Sea state. Open to the E the is exposed to a ground swell which usually runs into the harbour.

3.261

1 **Directions for entering Vessup Bay.** From the vicinity of 18°20′N 64°50′W, the channel into Vessup Bay leads SE, keeping close to the N shore. It is marked on both sides by buoys privately maintained.

Anchorage is available in Muller Bay, clear of the crowded moorings in Muller and Vessup Bays.

2 **Berths in Vessup Bay:**

A concrete pier, with a depth of about 4·3 m alongside its head, is situated on the N side of the bay, near the entrance.

An L–shaped jetty, about ½ cable SW of the pier, is used by the local ferry to Saint John. A maximum draught alongside of 3·6 m is reported (2002).

3 **Repairs:** minor repairs to engines and electronic equipment.

Supplies: fuel; fresh water; provisions; chandlery.

Francis Bay

3.262

1 **Description.** Francis Bay (18°22′N 64°45′W), entered between America Point, to the S, and Mary Point (7½ cables N) which is the W extremity of Mary Peninsula, is partially protected by Whistling Cay (3.141). This bay contains a research area for the Virgin Islands National Park Authority, which is marked by buoys. Access to the beach is through a buoyed channel. The buoys are privately maintained.

3.263

1 **Directions.** From the vicinity of 18°22′N 64°46′W a channel, with a depth of more than 18 m in it, leads E to the anchorage, passing (with positions from Mary Point):

N of the N edge of a bank, with depths of less than 7·9 m (3.255) over it (6 cables SW), which extends about 7 cables NNE from the W entrance point to Cinnamon Bay, and:

2 S of Whistling Cay (2 cables W) (3.141), thence:

N of a dangerous wreck (3½ cables SSE), position approximate.

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Fungi Passage

3.264

1 **Description.** Between Whistling Cay and Mary Point, the navigable channel, 1 cable wide and with a least depth of 6·4 m, provides an approach to Francis Bay from the N. A dangerous rock lies 1 cable S of W extremity of Mary Point.

Local knowledge is required.

Anchorages

3.265

Francis Bay is within the National Park area (see 1.55 for regulations) and provides the only anchorage within the Park for craft over 38 m and less than 64 m in length. Moorings are available.

Good anchorage, in all weathers, is available clear of the dangerous wreck (3.263), in a depth of about 17 m, sand.

Saint James Bay

3.266

1 **Description.** Saint James Bay (18°19′N 64°50′W), between Deck Point (18°19′N 64°51′W) and Great Saint James Island (7 cables ESE) (3.251) lies in the approach to Current Hole (3.249) and affords a safe anchorage.

Directions

3.267

1 From the vicinity of 18°18′N 64°51′W the approach leads NNE, passing (with positions from Current Rock Light (18°19′N 64°50′W)):

ESE of Calf Rock (1·5 m high) (9½ cables SW) the E of a group of rocks, of which Cow Rock (18°18′N 64°52′W) is the W, in the S approach to the bay, and:

2 WNW of The Stragglers (8 cables S) a group of rocks extending 1¾ cables SW from the SW extremity of Great Saint James Island, thence:

ESE of a shallow patch (8 cables WSW), with a least depth of 7 m over it.

3 **Current Hole.** Entry from Pillsbury Sound is also possible using Current Hole (3.249).

Anchorages

3.268

1 **Christmas Cove,** on the W side of Great Saint James Island, affords secure, all–weather anchorage, protected from E winds, either N or S of Fish Cay (3.250), situated 1½ cables offshore, clear of the reef extending NE from the cay. The holding is good, in sand. Anchorage N of the cay should be close to shore to avoid the main flow of water through Current Hole.

3.269

1 **Cowpet Bay,** on the N side of Saint James Bay, entered E of Deck Point, has depths of 2 to 6 m in the bay. The Saint Thomas Yacht Club has a pier and other private facilities at the head of the bay, including moorings. The bottom is sand and the holding is good; but this bay is not recommended as a long term anchorage owing to its position on a lee shore, protected only by Great Saint James Island.

Coral Bay

Chart 2005

General information

3.270

1 **Position.** Coral Bay (18°20′N 64°41′W) in Saint John is entered between Red Point, on the E side, (3.231) and Ram Head (2½ miles SW) (3.231). It contains three inner bays as follows, from E to W:

Round Bay (3.275).

Hurricane Hole (3.276).

Coral Harbor (18°20′N 64°43′W).

2 **Function.** Coral Harbor is a customs port of entry to Saint John but has no town, as the community is scattered among several points along the shore of the bay.

Caution. The area is incompletely surveyed, see Note on the chart.

3 **Tidal streams** set across the entrance to Coral Bay at a rate of about ¾ kn, as shown on the chart, but do not enter the bay. They set SW during the rising tide and NE during the falling tide.

Tide. The range of the tide is about 0·3 m.

3.271

1 **Landmark:**

Fortberg Hill (18°21′N 64°42′W) a prominent peninsula nearly circular in shape and covered with trees. It separates Coral Harbor from Hurricane Hole.

Directions

3.272

1 **The main channel,** between Red Point (18°20′N 64°40′W) (3.231) and Leduck Island (1¼ miles SW), is about 1 mile wide with general depths of 15 to 27 m in the centre of the fairway.

2 From a position 9 cables S of Ram Head, the line of bearing, 070°, of the summit of Norman Island (3¼ miles ESE of Red Point) leads across the entrance, passing (with positions from Red Point):

SSE of Eagle Shoal (1¾ miles SSW) (3.231).

3 When Turner Point (1¼ miles WNW), the knob at the end of the peninsula separating Round Bay from Hurricane Hole, bears 346° and is open E of the E end of Leduck Island, the track leads 000° on Moor Point (2 cables WNW), the thin rocky SE entrance point of Round Bay, passing:

4 E of Eagle Shoal (1¾ miles SSW), thence:

E of Leduck Island (1¼ miles SW) which is 26 m in height and situated midway between the entrance points.

5 When Leduck Island bears W the track is as required for an anchorage position, passing:

Clear of a coral patch with a depth of 9·1 m over it (8 cables SW), and:

Clear of a patch with a least depth of 13·7 m over it (5 cables SW), thence:

6 SW of the rock which lies about ¾ cable WSW of Moor Point, and:

Clear of the shoal, with depths between 5 and 6 m extending up to 4 cables S from Turner Point.

3.273

1 **Sabbat Channel** (18°19′N 64°42′W), between Leduck Island and Sabbat Point, has a depth of 18 m in the fairway. From a position 5 cables SSE of Ram Head, the track leads NNE, passing (with positions from Sabbat Point (18°19′N 64°42′W)):

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ESE of Ram Head (1½ miles S) (3.231), thence:
WNW of Eagle Shoal (1 mile SSE) (3.231), thence:
2 ESE of Nanny Point (12 m high) (5 cables S), a steep, jagged cliff, thence:
WNW of Leduck Island (4½ cables SE), thence:
ESE of Sabbat Point, the termination of a long high rock forming the buttress of Sabbat Hill (31 m high) thence:
ESE of a coral reef which dries (5 cables NNW) extending 1 cable off Lagoon Point.

3.274

1 **Clearing marks and bearing:**

The alignment (052°) of the following marks is reported to clear to the SE of Eagle Shoal:

SE end of Flanagan Island (18°20′N 64°39′W) (3.158) and:
W extremity of Peter Island (2¾ miles NE) (3.153).

2 The line of bearing, 359°, of the E edge of Leduck Island (3.272) is reported to clear close to the E of Eagle Shoal.

Anchorages

3.275

1 **Round Bay** (18°20′N 64°41′W) contains several shoal patches in the approach, as shown on the chart; and the head of the bay is encumbered by rocks, the largest of which is Pelican Rock (2·1 m high) (4½ cables N of Moor Point).

2 The best anchorage is reported to be in a depth of 24 m with Moor Point (3.272) bearing 115°, 3 cables, close to the position shown on the chart. However, a 3·9 m patch lies close N of this position and there is a rock WSW of Moor Point; it may also be necessary to shift berth should the wind blow from the SE.

3 Good anchorage for smaller vessels is reported to be available farther into the bay, off any of the beaches on the E side, with excellent holding in sand and good protection under most conditions.

3.276

1 **Hurricane Hole** (18°21′N 64°42′W) is indented by several small creeks, which afford excellent shelter with the wind from almost any direction.

Landmark:

Mardenboro Point, at the head of the bay, between Princess Bay and Borck Creek, is composed of reddish–yellow rocks which extend from a grassy headland, 13 m high.

2 **Good anchorage** may be obtained in a depth of 20 m with Turner Point bearing 126°, and Harbor Point (the S extremity of Fortberg Hill (3.271)) bearing 256°, as shown on the chart. Hurricane Hole is reported to be a major haven for small craft during the hurricane season.

Caution. School of Fish, a shoal awash (6 cables W of Turner Point) extends about ½ cable from the shore.

Landing

3.277

1 **John Folly Bay** (18°19′N 64°42′W), situated between Nanny Point and Sabbat Point (3.273), is encumbered with reefs, between which there is a narrow boat channel leading to the beach.

3.278

1 **Drunk Bay** (18°19′N 64°42′W) is open to the E and the heavy swell makes landing on its beach difficult.

Saint John – south coast — Anchorages and harbours

National Park

3.279

1 The Virgin Islands National Park area on the S of Saint John extends from Drunk Bay (3.278) to the SE part of Fish Bay (3.280). The Park maintains moorings, white buoys with a blue stripe, for craft under 16·8 m in length, in the bays, and anchoring is either restricted or prohibited, see 1.55 for regulations.

Fish Bay

3.280

1 Fish Bay (18°19′N 64°46′W) provides good anchorage in sand and mud for smaller vessels of shallow draught under normal conditions.

Entry is in mid–channel, to avoid the reefs which extend a short distance from both sides, proceeding well into the bay where it is generally calm.

SAINT THOMAS HARBOR

General information

Charts 2183 2006

Position

3.281

1 Saint Thomas Harbor (18°20′N 64°56′W) is situated near the middle of the S coast of Saint Thomas.

Horizontal datums

3.282

1 The horizontal datums used for charts 2183 and 2006 differ from that used for chart 2452. See notes on charts 2183 and 2452; see also 1.24.

Function

3.283

1 Saint Thomas Harbor is the most important harbour in the Virgin Islands; although small in extent it is well protected and perfectly safe, except during a hurricane. It is reported to be the finest natural harbour in the Caribbean and the only sheltered harbour in the Virgin Islands that can be entered by medium sized vessels.

2 This harbour serves Charlotte Amalie, which is the most important city and main population centre in Saint Thomas and the capital of the US Virgin Islands. In 1999 the estimated population of Charlotte Amalie was 12 000.

3 It is the main port of entry for Saint Thomas and provides facilities for the many cruise liners which visit the island, helping to support tourism which forms the mainstay of the economy.

Saint Thomas Harbor has long been popular with sailors. Originally used by pirates of various nationalities for rest and repair, it became a key market for the disposal of booty. It is a free port.

Topography

3.284

1 General topography (3.21).

Charlotte Amalie is terraced on the hillsides that rise sharply from the harbour to buttress the three mountain spurs which approach the town from the main ridge, less than 5 cables behind them.

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Water Island (3.285)

(Original dated 2003)

(Photograph – H.M.S. Endurance)

3.285

1 Water Island (18°19′N 64°57′W) is composed of hills which are covered with small trees and dense undergrowth; its shores are indented with several small bays. It was reported in 1990 that a conspicuous dish aerial was positioned on the 90 m peak at the NE end of the island.

Prohibited anchorage

3.286

1 An area, shown on the chart, within which anchoring and fishing are prohibited, lies about 10 miles SW of the harbour centred on 18°12′N 65°03′W.

Fish havens

3.287

1 Fish havens are situated in the approaches to Saint Thomas Harbour:

18°17′N 64°59′W, with a least depth of 16·5 m, in the approaches to West Gregerie Channel (3.323), South West Road (3.299) and SW approach to Charlotte Amalie (3.312);

2 18°18′N 64°58′W, S of Porpoise Rocks (3.324), with a least depth of 18·3 m;

18°20′N 65°00′W, in South West Road, with a least depth of 16·1 m.

Approach and entry

3.288

1 **Approach.** Saint Thomas Harbor can be approached from three directions as follows:

From the W (3.300 or 3.312) from the vicinity of the Virgin Passage (3.103).

From the S (3.314) which is the main approach from seaward.

2 From the E (3.313) along the S coast of Saint Thomas.

Entry. The harbour can be entered as follows:

To Charlotte Amalie through the channel E of Hassel Island (3.316).

To Crown Bay, through West Gregerie Channel (3.323) or East Gregerie Channel (3.320).

St Thomas – White Tower, Providence Hill, Water Island (3.285)

(Original dated 2003)

(Photograph – H.M.S. Endurance)

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Traffic
3.289

1 In 2004, 1863 vessels, with a total dwt of 10 137 181 tonnes used the port.

Port Authority
3.290

1 The Virgin Islands Port Authority, PO Box 301707, Charlotte Amilie, Saint Thomas, 00803–1707, US Virgin Islands, is responsible for the operation of all the port facilities in Saint Thomas Harbor, including some of the wharves.

2 Local rules and regulations are enforced by a Harbour Master, whose office is on the point near King's Wharf (3.329). Port Control is contactable 24 hours a day on VHF. See *Admiralty List of Radio Signals 6(5)* or *Admiralty Maritime Communications (Caribbean)*.

Limiting conditions

Controlling depths
3.291

1 West Gregerie Channel (3.323) has depths of over 11 m as far as the berths in Little Krum Bay (3.330).

The entrance channel (3.316) to Charlotte Amalie has a least charted depth of 9 m in the fairway. It was reported (2000) that the channel depth was about 8·2 m.

Deepest and longest berth
3.292

1 **Deepest berth** is at the Cruise Ship Terminal (3.330) in Little Krum Bay.

Longest berth is West Indian Dock wharf (3.329) in Charlotte Amalie.

Mean tidal levels
3.293

1 MHHW 0·2 m.
MLLW 0·0 m.
Tides are chiefly diurnal.

Abnormal levels
3.294

1 It is reported that, during April and May, the mean level is 0·3 m lower than at other times.

Water depths are known to have decreased several feet after severe storms.

Density of water
3.295

1 1·025 g/cm^3.

Maximum size of vessel handled
3.296

1 Dwt of 42 000 tonnes, draught of 9·14 m.

Arrival information

Port radio
3.297

1 There is a coast radio station in Saint Thomas and a port radio station at Saint Thomas Harbor. See *Admiralty List of Radio Signals Volume 1(2)* or *Admiralty Maritime Communications (Caribbean)*.

Notice of ETA
3.298

1 Notice of ETA is required as follows:
Cargo vessels, 5 days prior to arrival.
Vessels berthing at West Indian Dock Wharf, 36 hours notice.
All vessels, at least 24 hours notice to Port Control and to the Captain of the Port, US Coast Guard, San Juan, Puerto Rico.

Outer anchorage in Southwest Road
3.299

1 Southwest Road (18°20′N 65°00′W), between Flat Cays (3.324), to the S, and Perseverance Bay, to the N, affords excellent anchorage with the wind as far S as ESE, clear of an abandoned submarine cable and fish haven (see 3.303). For designated anchorage areas see 3.328.

2 **Topography:**
Perseverance Bay is fringed by a coral reef. The W side of the bay is rocky, with cliffs 18 to 21 m high.

3 Brewers Bay to the E, has a sandy beach. An extension to Cyril E King Airport runway extends about 5 cables into the bay, is surrounded by a rock dyke, and reported to be marked by lights at its seaward end.

Directions — W approach.
3.300

(continued from 3.113).

1 From a position S of Savana Island (18°20′N 65°05′W), the track leads ENE, passing (with positions from Turtledove Cay (18°18′N 65°00′W)):
Clear of a wreck with a depth of 8·2 m over it (2¼ miles W); a 6·5 m (54 ft) patch lies 5 cables SE of the wreck. Thence:

2 NNW of Turtledove Cay, which is 15 m in height and is covered with long grass and is connected to Saba Islet (3.324) by a reef that nearly dries. There is a group of rocks awash about 1½ cables W of the cay. Thence:
SSE of Lucas Point (2 miles NNW), thence:
NNW of Flat Cays (7½ cables NE) (3.324).

Directions — S approach
3.301

(continued from 3.307).

1 From the vicinity of 18°10′N 64°53′W the track leads NW then N passing, with positions from Turtledove Cay (18°18′N 65°00′W) (3.300):

2 SW of Capella Islands (6¼ miles ESE) (3.231), thence:
SW of Flamingo Point (2½ miles E) (3.312), thence:
Through a fish haven area (1¼ miles SE), with a least depth of 16·5 m, thence:

3 SW of No 2 Light–buoy (starboard hand) (1¼ miles E) marking the SE extremity of Porpoise Rocks (3.324), thence:
NE or E of the reef extending 1 cable E from Saba Island (3 cables SE) (3.324), and:

4 Clear of a dangerous wreck (8 cables ENE), thence:
Clear of Flat Cays (7 cables NE) (3.324) and foul ground extending 2 cables E, thence:
W of an isolated rocky patch with a least depth of 7·6 m over it (1½ miles NE).

5 **Leading line.** The line of bearing, about 126° astern, of Frenchcap Cay (18°14′N 64°51′W) (3.231), just open SW of the SW extremity of Water Island (7½ miles NW), leads about midway between Red Point Shoal and Flat Cays.

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3.302

1 **Useful marks:**

Black Point (21 m high) (2½ miles NNE) which is prominent and terminates in rocky cliffs from 12 to 15 m high.

Tower and flagstaffs (18°21′N 65°01′W) (3.91).

Round stone tower at Fortuna Mill (18°21′N 65°01′W).

Anchorages

3.303

1 Anchorages exist in Southwest Road, clear of the abandoned submarine cable (see 1.45) laid on the line of 095°/275°, passing about 4 cables N of Flat Cays (3.324), and the fish haven, diameter 800 m, 5 cables NNW of Flat Cays. For designated anchorages see 3.328 and chart 2183.

Prohibited anchorage

3.304

1 Anchoring is prohibited with an area contained between two submarine cables, as shown on the chart, laid across West Gregorie Channel.

The first area crosses the channel between Mosquito Point (18°19′N 64°58′W) and Providence Point (3½ cables SE); the second area lies 5 cables farther in.

Pilotage

3.305

1 Pilotage is compulsory for all vessels over 100 grt, and should be arranged 24 hours before arrival via the ship's agents, and updated 2 hours before arrival. For additional regulations and information see 1.34 and 1.36.

Pilots, available day and night, board vessels in the following boarding grounds as shown on the chart:

2 For the main harbour channel for Charlotte Amalie (3.316), 1½ miles SSE of Cowell Point (18°19′N 64°56′W);

For the East Gregerie Channel (3.320) 1 mile SSW of Cowell Point;

For the West Gregerie Channel (3.323), 6 cables W of Porpoise Rocks (18°18′N 64°59′) (3.324);

3 Alternative position for the West Gregerie Channel, 4 cables SSW of Flamingo Point (18°18′N 64°57′).

See *Admiralty List of Radio Signals Volume 6(5)*.

Tugs

3.306

1 Tugs up to 2500 bhp are available with 24 hours notice to the West Indies Transport Company.

Regulations

3.307

1 **United States navigation safety and other regulations, including danger, safety and security zones,** are given in the Appendices, see also 1.46 to 1.48. A security zone has been established at Saint Thomas Harbor.

2 **Quarantine** is under the control of the US Quarantine Station, San Juan, Puerto Rico. Contagious diseases must be reported prior to arrival.

Vessels subject to quarantine are boarded at West Indian Dock wharf (3.329) or at the waterfront at Charlotte Amalie.

Quarantine anchorage is in area B (6 cables S of Cowell Point) (3.328).

Harbour

General layout

3.308

1 **Saint Thomas Harbor** is a small, natural, harbour open to the S and divided into two parts by Hassel Island (18°20′N 64°56′W).

2 The main port of Charlotte Amalie, fronting the town at the E end of the harbour, has the West Indian Dock Wharf along its SE side and anchorage areas A, C, and E (3.328) within the port area.

3 Crown Bay, at the head of West Gregerie Channel and of East Gregerie Channel, is sheltered by Water Island to the S and SE. Two deep water jetties project from the coast of Little Krum Bay, at the W end of Crown Bay.

Seaplane areas

3.309

1 A seaplane service is based in Cay Bay, situated at the W end of Charlotte Amalie. Operating areas, shown on the chart, are as follows (with positions from Cowell Point) (3.316):

2 Take–off is generally on a SE heading, from Cay Bay towards Rupert Rock (4 cables NE). Occasionally planes depart from Crown Bay (1 miles NW), through East Gregerie Channel, also on a SE heading.

3 Landing is normally on a E heading, between No 6 Light–beacon (starboard hand) in West Gregerie Channel (1 mile NW) and Haulover Cut (18°20′N 64°56′W). Planes then proceed into Cay Bay at high speed.

Natural conditions

3.310

1 **Tidal streams** are scarcely perceptible close inshore but between Saba Island and Flat Cays (3.324) at Spring Tides, the stream sets ESE at 1 kn during the rising tide and WNW at the same rate, during the falling tide.

The tidal stream in the entrance to Charlotte Amalie is slight but noticeable.

2 The tidal stream in East Gregerie Channel and West Gregerie Channel is about ½ kn, setting E during the rising tide and W during the falling tide. A stronger rate has been reported in the vicinity of Little Krum Bay where caution is necessary to avoid being set onto the berth (3.323), particularly with a strong E wind. It is reported that after 2 days of SE winds then up to 3 knots of current may be experienced.

3 **Local weather** is usually mild, with little wind; squalls, when they do occur, usually come from the NE.

4 **Sea state.** The harbour is completely sheltered from all winds but at times, particularly when the wind is from the S, a surge can build–up in the harbour, making it uncomfortable for small craft and possibly difficult for them to remain alongside. This may also occur with the passage of a hurricane through the area.

Principal marks

3.311

1 **Landmarks** (with positions from Cowell Point (18°19′N 64°56′W)):

Frenchcap Cay (7 miles SE) (3.231).

Capella Islands (3½ miles SE) (3.231) also in the approaches to Saint Thomas Harbor.

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St Thomas – Frenchman's Reef Hotel, Muhlenfels Point (3.311)

(Original dated 2003)

(Photograph – H.M.S. Endurance)

2 Frenchman's Reef Hotel (white), standing on Muhlenfels Point (6 cables E), is high and steep at the shoreline. This hotel needs to be distinguished from other buildings about 1 mile ESE.

Television tower (61 m in height) (3.74) on Signal Hill (2 miles NNW).

3 White silo (2½ miles WNW), 3 cables NNW of Red Point (2¼ miles WNW).

Directions for entering harbour

Approach from west

(continued from 3.110)

3.312

1 From a position on the Virgin Passage route WSW of Sail Rock (18°17′N 65°06′W) (3.107) the track leads E for about 13 miles to a position (18°15′N 64°56′W) S of St. Thomas Harbour, passing (with positions from Saba Island (18°18′N 65°00′W)):

2 S of Sail Rock (6 miles WSW) (3.107), thence:

S of a reported wreck (2 miles SW), with a depth of 24 m over it, thence:

3 S of wreck (1½ miles S), with a depth of 14·6 m over it, position approximate, thence:

S of Saba Island (3.324), thence:

S of a fish haven area (1¼ miles SE), with a least depth of 16·5 m in it, thence:

S of Porpoise Rocks (1½ miles E) (3.324), thence:

4 S of Flamingo Point (2½ miles E), the S extremity of Water Island, consisting of brown rocky cliffs, about 30 m high, against which the sea continually breaks, thence:

5 From this position the track continues E for about 1½ miles to a position (18°15′N 64°56′W) S of St. Thomas Harbour.

(Directions continue for Charlotte Amalie at 3.316, and for East Gregerie Channel at 3.321. Directions for West Gregerie Channel are given at 3.326)

Inshore route — East approach

3.313

1 **Route.** From a position on the S coastal route in the vicinity of 18°15′N 64°52′W, the inshore route passes N of Capella Islands.

Leading marks. The alignment (087°), astern, of the S extremity of Dog Island (18°18′N 64°49′W) (3.252), with Ram Head (6½ miles E) (3.231) leads between Capella Islands and Packet Rock, passing (with positions from Buck Island Light (18°17′N 64°54′W)):

2 S of Long Point (1¾ miles NNE) the SE extremity of a high prominent ridge with rocky cliffs (15 m high), thence:

N of a dangerous wreck (2 cables ENE) the position of which is approximate, thence:

3 S of Packet Rock (1¼ miles N), a coral shoal, with a depth of 1·5 m over it, ½ cable in extent, over which the sea only breaks in heavy weather. It is known locally as the "Ring of Gold", the bottom being dark yellow in colour. It cannot be seen until close–to but is marked by No 2 Buoy (starboard hand) 1½ cables SSE of the rock. And:

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St Thomas – View Charlotte Amalie (3.316)

(Original dated 2003)

(Photograph – H.M.S. Endurance)

St Thomas – Havensight Point with Charlotte Amalie behind (3.316)

(Original dated 2003)

(Photograph – H.M.S. Endurance)

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4 N of a bank, with depths of less than 9 m over it, extending about ½ cable N from Buck Island (3.231), thence:
S of an isolated rock, with a least depth of 2·1 m over it, (1¾ miles NNW), thence:
S of Green Cay (2 miles NNW). A bank, on which lie a number of rocks awash, extends ¾ cable S from Green Cay which is covered with low bushes and is connected by a coral reef to Saint Thomas.

5 From this position the track continues WNW for about 1 mile to the inner pilot boarding ground for the East Gregerie Channel (3.320) 1 mile SSE of Cowell Point.

Approach from south

(continued from 3.232 and 3.312)

3.314

1 From the vicinity of 18°15′N 64°56′W, the track leads N towards Saint Thomas Harbor with Cowell Point (18°19′N 64°56′W) ahead, passing, (with positions from Buck Island Light (18°17′N 64°54′W)):

2 W of a shallow ledge extending about ½ cable off the W end of Buck Island (3.231), thence:
Between two coral patches, with depths of 16·5 m and 18·7 m over them (1¼ miles and 2½ miles WNW respectively).

3 From this position the track continues N for about 3 cables to the S–most pilot boarding ground (1½ miles SSE of Cowell Point (18°19′N 64°56′W).

3.315

1 **Clearing line.** The line of bearing, 315°, on Cowell Point, passes SW of the dangers off Green Cay, then close SW of a detached coral rock (5 cables W of Green Cay), marked by close S by No 2 Light–buoy (starboard hand) (3.317).

(Directions continue for East Gregerie Channel at 3.321. Directions for West Gregerie Channel are given at 3.326)

Chart 2183

Entrance to Charlotte Amalie

(continued from 3.312 and 3.315)

3.316

1 **Channel.** The main harbour at Charlotte Amalie is entered between Cowell Point (18°19′N 64°56′W) and Muhlenfels Point (about 6 cables E), through a channel with a least width of 1 cable and a depth in the fairway, as given at 3.291, which can be carried through the channel to West Indian Dock Wharf (3.329).

3.317

1 **Berg Hill Leading Lights:**
Front light (red column with a white vertical stripe, elevation 60 m), situated on Berg Hill (about 1¼ miles N of Cowell Point).
Rear light (red column with a white vertical stripe, elevation 92 m) (¾ cable NNW of the front light).

2 These lights are not very sensitive outside the harbour. The prominent catchment area on the W side of Berg Hill helps to identify the lights by day. It is reported that the town lights make identification difficult at night.

The alignment (344°) of these lights leads into the harbour, passing (with positions from Cowell Point):

3 WSW of a detached coral rock, with a depth of 5·5 m over it, (1¼ miles SE), marked on its S side by No 2 Light–buoy (starboard hand), thence:
WSW of a wreck with a depth of 11·3 m over it (1 mile SE), thence:

4 WSW of the SW group of Triangle rocks (1 mile SE) which dries in places. Barrel of Beef is the foul ground 2 cables E. Thence:
WSW of the N group of Triangle rocks (9 cables SE) which is awash and on which the sea breaks frequently, and:

5 ENE of a wreck (7 cables SSW) with a depth of 14·6 m over it. WR1 Light–buoy (port hand) is moored SE of the wreck. Thence:
WSW of 7·9 m shoal (5 cables ESE), lying 1¼ cable W of Point Knoll, a coral spit extending about ¾ cable SSW from Muhlenfels Point, thence:

6 About ½ cable ENE of Scorpion Rock (3 cables E) a small coral rock, situated on a bank, with a least depth of 8·8 m, in the middle of the entrance, which is marked on its E side by No 3 Light–buoy (port hand), and:
WSW of Rohde Bank (4½ cables E) which is marked on its SW side by No 4 Buoy (starboard hand), thence:

7 ENE of a bank extending about ½ cable S from Cowell Point, the S Point of Hassel Island (3.319); two above–water rocks lie on the bank, which is marked by No 2 Light–buoy (starboard hand) ¾ cable S. Thence:
ENE of Frederik Point (2½ cables NE) on which stands an old fort, thence:

8 WSW of a drying reef and foul ground, with depths of less than 1·8 m over it, extending about ½ cable W from Rupert Rock (5 cables NE), which is 4 m in height and white on top and situated near the SW end of a spit extending 2½ cables SW from Havensight Point. A beacon (grey post) is situated close W of Rupert Rock, and No 6 Light–buoy (starboard hand) marks the NW side of the danger. And:

9 ENE of the coastal bank which extends, with depths of less than 10 m, up to ¾ cable from the coast (3½ cables NNE) on which there is foul ground and a wreck with a depth of 1·5 m of water over it, thence:

10 WSW of the end of the jetty extension to West Indian Dock (6 cables NE) (3.329). Two mooring buoys are positioned close SW of the jetty, and a light is exhibited from the jetty.

3.318

1 **Clearing bearings:**
The line of bearing, 339°, of Rupert Rock Beacon (3.317) open W of Muhlenfels Point (5 cables SSE) passes close W of Triangle rocks and the dangers up to 2 cables S.

2 The line of bearing, about 351°, of Blackbeard Castle (1¼ mile N) (a remarkable stone tower 14·3 m in height) standing on Government Hill, open W of Rupert Rock Beacon, leads W of the 10 m depth contour off Point Knoll, and close W of Rohde Bank.

3 The line of bearing, 009°, of the summit of Rupert Rock, passes about ½ cable E of Scorpion Rock.

3.319

1 **Useful marks:**
Cowell Battery (2 cables N) situated on the summit of Cowell Hill, 81 m in height, the S and highest of the 3 hills on Hassel Island.
White square building (1¼ miles N) standing on the S slope of Berg Hill, near the summit.

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East Gregerie Channel

3.320

1 **Position.** East Gregerie Channel (18°19′N 64°56′W), leads between Water Island and Hassel Island (3 cables NE).

2 **Depths**. The least depth in the fairway is 11·6 m as far N as Banana Point, then 8·8 min to Little Krum Bay. The coastal bank, with depths of less than 10 m over it, extends up to 1¼ cables offshore in places, on both sides of the channel. On the W side there are depths of 5·5 m and less, out to 1 cable from the coast of Water Island.

3 **Seaplanes** operate in the channel as indicated on the chart; for details see 3.309.

3.321

1 **Directions** (*continued from 3.312 and 3.315*). From the vicinity of 18°19′N 64°56′W, the channel leads NNW for about 10 cables then WNW, passing (with positions from Cowell Point (18°19′N 64°56′W)):

ENE of Sprat Point (5 cables SW) (3.312) and:

WSW of No 2 Light–buoy (starboard hand) (1 cable S), thence:

WSW of Cowell Point (3.317), thence:

2 Clear of the coastal bank on both sides of the channel.

Clear of an obstruction with a depth of 11·6 m over it (6½ cables NW), thence:

ENE then NNE of No 3 Light–buoy (port hand) (7½ cables NW) marking the edge of the coastal bank off Banana Point (the N extremity of Water Island) which is low and rocky. Thence:

3 NNE of No 6 Light–beacon (1 mile WNW), on a dolphin 5 m in height with a red triangle, marking a 1·5 m patch at the edge of a shoal extending 1¼ cables NNW from Sandy Point. Sandy Point Rock, with a depth of 0·9 m over it lies ½ cable NW of Sandy Point and a stranded wreck lies ½ cable E of the rock. Depths of less than 10 m extend into the fairway for 1 cable NE of the beacon.

3.322

1 **Useful mark:**

Cowell Battery (2 cables N) (3.319).

West Gregerie Channel

3.323

1 **Position** West Gregerie Channel (18°19′N 64°57′W) is situated between Water Island and the island of Saint Thomas.

Depths:

On the NW side of the channel there are depths, as given at 3.291, as far as the S pier in Little Krum Bay (3.330).

2 On the SE side of the channel, the coastal bank, with depths of less than 11 m over it, extends up to 1¾ cables offshore along the NW side of Water Island and thence across the channel into Crown Bay. The least charted depth in this part of the fairway is 7·9 m. In 1995 shoaling was reported W of No 6 light–beacon (3.321).

3 **Submarine cables.** Care should be taken not to anchor in the vicinity of the submarine cable areas, shown on the chart, in the approaches to West Gregerie Channel and in the channel itself.

Numerous mooring buoys exist on the SE coastal bank.

Seaplane operating areas are shown on the chart and given at 3.309.

Charts 2183, 2006

Directions — SW approach

3.324

(continued from 3.110).

1 From the vicinity of 18°15′N 65°03′W the approach leads NE, passing (with positions from Mosquito Point (18°20′N 64°58′W)):

2 NW of a wreck, with a depth of 14·6 m over it, (3¾ miles SW), position approximate, thence:

Clear of a wreck (3¾ miles SW), with a depth of 14·6 m over it, position approximate, thence:

NW of a fish haven area (2¼ miles SW), with a least depth of 16·5 m in it, and:

3 SE of Saba Island (2¼ miles SW). A reef on which there is a rock (1·5 m high) and numerous others (awash), extends about 1 cable E from the E extremity of Saba Island. The island is low–lying on the N side but its S part is faced with precipitous red cliffs (46 m high). The highest part of the island is near its W end rising almost to a point (61 m in height). A rocky shoal, on which stands Dry Rock, extends 5 cables WSW from Saba Island.

4 SE of a dangerous wreck (1½ miles SW) lying 3 cables SE of Big Flat Cay, the larger of Flat Cays covered with brush, the other is barren. A second dangerous wreck, position approximate, lies 2 cables E of Big Flat Cay. Flat cays are surrounded by breaking reefs and foul ground extending 2 cables E. Thence:

5 NW of Porpoise Rocks (1 mile SSW) consisting of three reefs up to 0·9 m high, and a number of sibmerged rocks, 2 cables apart connected by a ledge with depths of 2·4 to 3·3 m over them. The SW extremity is marked by West Gregorie Channel No 2 Light–buoy (starboard hand). The pilot boarding ground lies 6 cables W as shown on the chart. Thence:

6 SE of Red Point Shoal, (6 cables W) with a least depth of 1·5 m over it, lying at the extremity of a spit on which lie some drying rocks extending 3¼ cables SW from Red Point, a rugged, red cliff from 12 to 24 m in height, forming the S extremity of a peninsula. West Gregorie Channel No 3 Buoy (port hand) is moored 2 cables SE of Red Point Shoal.

3.325

1 **Directions for approach from south.** From the vicinity of 18°17′N 64°58′W the approach leads N passing (with positions from Mosquito Point (18°19′N 64°58′W)):

E of a fish haven (2¼ miles SW), with a least depth of 16·5 m in it, thence:

E of an unmarked fish haven (1¼ miles SSW), lying close S of porpoise Rocks, as shown on the chart, thence:

Clear of a patch (1 mile S) with a least depth of 6·7 m over it, thence:

W of a salient point (1¼ miles SSE) (3.312) and:

E of Porpoise Rocks (1 mile SSW) (3.324), thence:

W of Druif Point (7 cables S) and foul ground extending about ¼ cable offshore, thence:

W of foul ground (5¾ cables S), extending ¾ cable W from a point 1 cable NNE of Druif Point.

3.326

1 **Directions for West Gregorie Channel.** (*continued from 3.324*). From the vicinity of 18°19′N 64°58′W, the channel

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leads generally NE, passing (with positions from Mosquito Point (18°20′N 64°58′W)):

2 SE of Mosquito Point, the rocky S extremity of a thickly wooded peninsula, which rises to Grambokola Hill, 84 m in height, upon which there is an aero light, thence:

3 NW of No 4 Light–buoy (starboard hand) (3½ cables SE) marking a rocky ledge and foul ground extending about ½ cable NW from Providence Point, thence:

SE of Regis Point (4 cables NE) the rocky S extremity of a peninsula which rises to Haypiece Hill, 102 m in height. A wreck, with a depth of 7 m over it, lies ½ cable S of the point. Thence:

4 SE of No 5 Light–buoy (port hand) (5 cables NE) marking the edge of the coastal bank, thence:

NW of Caroline Point (8 cables ENE); a wreck, with a depth of 9·8 m over it, lies 1¼ cables N. Thence:

NW of wrecks with 1·5 m of water over them, (7½ cables ENE), and stranded wreck close S, thence:

NW of No 6 Light–beacon (1 mile ENE) (3.321) a shoal patch with a depth of 9·1 m over it lies 1¼ cables WSW.

3.327

1 **Useful marks:**

A square concrete and framework tower (13·7 m in height) (18°19′N 64°57′W) standing on the summit of Providence Hill, on Water Island (3.285).

A tower (24 m in height) (18°19′N 64°57′W) standing on a hill 62 m high.

Basins and berths

Anchorages

3.328

1 Permission is required from the Harbour Master before anchoring in any of the Saint Thomas Harbor Anchorages.

Designated areas, the limits of which are shown on the chart, may be used as follows (with positions from Cowell Point (18°19′N 64°56′W)):

2 **Area A**. Inner Harbour Anchorage (8 cables NNE), with charted depths of 4·9 to 10·4 m, clear of:

An obstruction (8½ cables NNE), reported in 1995, in anchorage A3, probably an old anchor cable, the position of which is approximate.

A wreck with a depth of 9·7 m over it (7 cables N).

Numerous mooring buoys.

3 **Area B**. Outer Harbour Anchorage (3½ cables S) affords good holding in depths of 12 to 18 m, sand, clear of a wreck with a depth of 14·6 m over it (3.312). This area is for use by vessels undergoing examination by Quarantine, Immigration, Customs and Coast Guard, authorities and for vessels too deep for Anchorage A. It is reported that permission is required from the Harbour Master to remain in this anchorage more than 48 hours.

4 **Area C**. Small Craft Anchorage (1 mile NE). Small craft are only permitted to anchor in anchorages C and E.

Area D. General Anchorage (4 cables NW), situated in East Gregerie Channel, has depths from 7 to 14 m. This is also the Explosives Anchorage.

5 **Area E**. Small Craft Anchorage (1 mile N).

Area F. Deep Draught Anchorage (2¾ miles W), with charted depths of 20 m, for which US Naval Vessels have priority. Other vessels may apply to use this area.

Alongside berths

3.329

1 **Charlotte Amalie** has a number of berths around the harbour, of which the major wharves are as follows (with positions from Cowell Point):

West Indian Dock wharf (8 cables NE), situated on the S side of Long Bay, is 681 m in length with depths of 5·2 to 9·1 m alongside; there is a jetty extending 200 m SW from the SW end of the wharf. A ramp for Ro–Ro traffic exists at the W end of the wharf and also near the middle.

2 King's Wharf, lying on the W side of a small peninsula at the head of the harbour, consists of a pier 91 m in length, with depths of 2·7 m alongside the N side and a reported 3·9 m on the S side. It is used by the Coast Guard Station. Foul ground extends up to ½ cable S from the peninsula E of the wharf.

3.330

1 **Little Krum Bay:**

A Cruise Ship Terminal (18°20′N 64°57′W) projects 240 m E from the SW corner of the bay. This terminal provides three berths, of which the largest, on the S side, has a length of 152 m and a depth of 10 m alongside, for use by vessels up to 25 000 grt. A dolphin, from which a light is exhibited, lies ½ cable E.

2 There is one other pier and there are container and Ro–Ro facilities.

Crown Bay

3.331

1 **Description.** A curved concrete wharf (1¼ miles NW of Cowell Point), approximately 275 m in length, follows the waterfront of Crown Bay, with a charted depth of 7·6 m alongside. Ro–Ro facilities are available.

Krum Bay

3.332

1 **Description.** A narrow inlet (18°20′N 64°58′W), between two high peninsulas, with depths of 11 m in the entrance, shoaling to 3 m near its head. Near the head of the bay here is a narrow strip of mangroves, backed by a large tank farm.

2 A pier, with two dolphins, on the W side of the bay (1½ cables NE of Mosquito Point), is marked by a group of lights (with an elevation of 5 m) which are privately maintained by the oil company operating the pier. A similar light marks an outfall nearby.

Port services

Repairs

3.333

1 Minor repairs (above–water only) can be carried out at the West Indian Dock wharf (3.329).

Other facilities

3.334

1 **Deratting** inspections, certificates and exemptions.

Hospital. Saint Thomas.

Oily waste disposal facilities are not available.

Supplies

3.335

1 **Fuel** is available by barge.

Fresh water, when available, is laid on to the West Indian Dock wharf or is supplied by water lighter.

2 **Fresh provisions:** limited.

Marine supplies: limited, no regular ship chandler.

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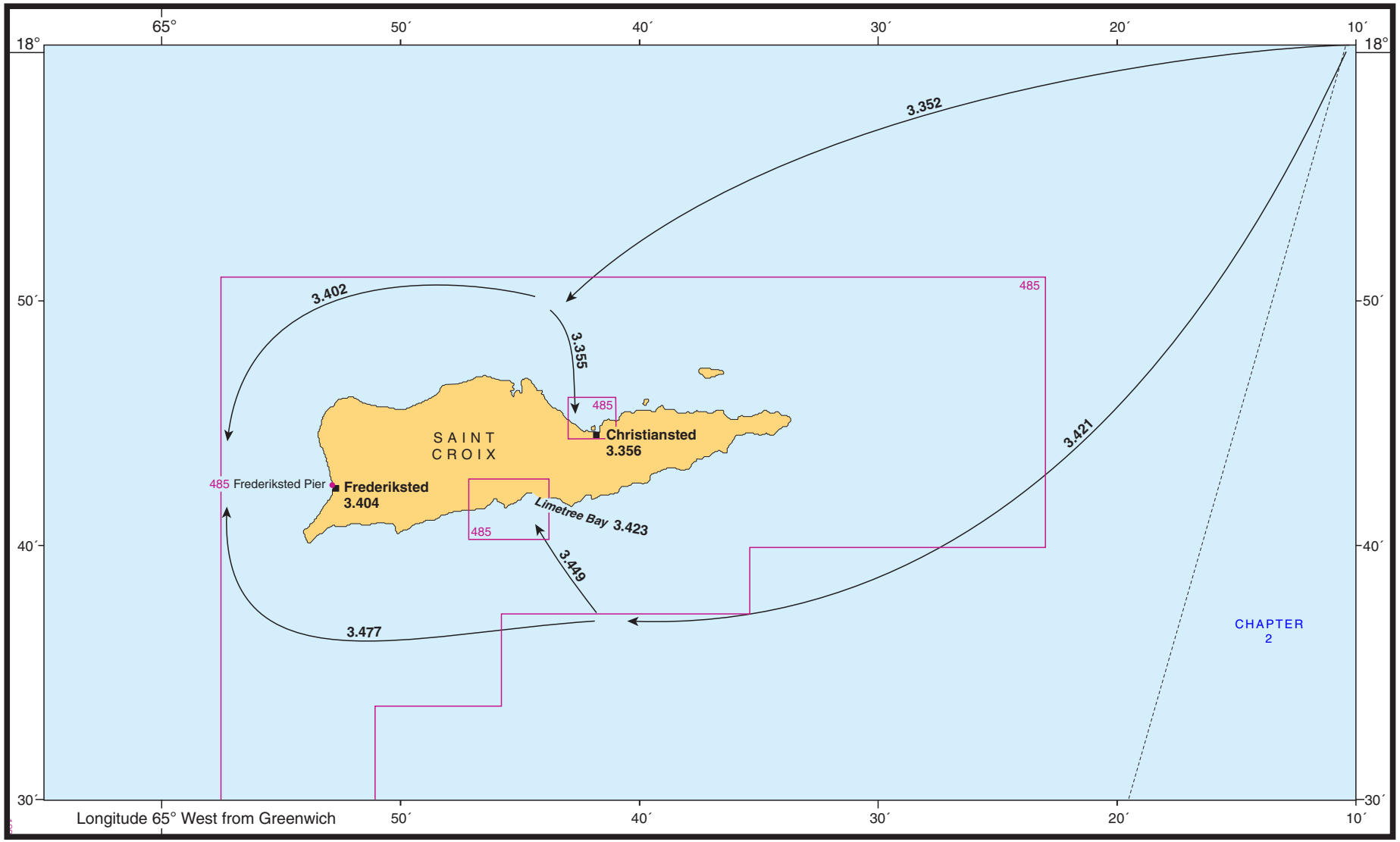
Chapter 3b - Virgin Islands (Saint Croix)



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Communications
3.336

Cyril E King International airport close W of the city.

Harbour regulations
3.337

1 **Radio.** While vessels are in Saint Thomas Harbor the use of ship's radio transmitters is not permitted.

Pollution. The US Coast Guard strictly enforces the Harbor Pollution Act, prohibiting the discharge of refuse and oil in the navigable waters of the US Virgin Islands.

SAINT CROIX

GENERAL INFORMATION

Charts 485

Area covered.
3.338

1 This section describes the routes on both sides of Saint Croix (17°45′N 64°45′W), as shown on the chapter index diagram on page 114, and presents the following ports:
Christiansted at 3.356.
Frederiksted at 3.404.
Limetree Bay at 3.423.

2 A general description of the island is given at 3.22.

Topography
3.339

1 Saint Croix is the largest of the Virgin Islands, being 19 miles in length with an average width of 3½ miles. The island is highest on its N side, being somewhat mountainous in the NW part, rising to its peak in Mount Eagle (17°46′N 64°49′W) about 3½ miles E of Hams Bluff, the NW extremity of the island. Between these mountains, which rise abruptly along the NW shore, and the low lying coast on the S side, are rolling upland pastures, dotted with the ruins of former sugar estates.

2 The terrain is also varied, with the E end being arid and rocky and the W end being lush and tropical. In general terms the island is scantily wooded.

Depths
3.340

1 A bank, with general depths of 10 to 55 m over it, extends, with depths of less than 200 m, about 9½ miles ENE from East Point (17°46′N 64°34′W), the E extremity of the island. Close within its edge is a crescent shaped, steep–to coral ledge, the N part of which is known as Lang Bank (3.352), which curves around the N and NE end of the main bank, as shown on the chart.

2 Elsewhere the 200 m contour lies between 2 cables and 3½ miles of the coast.

Fishing
3.341

1 Details of fishing operations off the S coast are given at 3.474.

Natural conditions
3.342

1 **Weather.** General information (3.9).

Local winds. There is no regular land breeze, but when the prevailing wind is light during the day, a calm usually follows at night. From June to September, when the North East Trade Wind is usually light, strong winds occasionally blow from the SW across the island bringing much rain.

Rainfall is irregular, causing drought at times.

2 **Sea state.** General information for the Virgin Islands is given at 3.10.

Rollers (3.11) do not appear to reach the island but the ground swell, which is associated with them, is especially heavy in the vicinity of Whitehorse Rock (17°47′N 64°45′W) (3.402).

3 **Tide.** General information (3.12).

Flow. General information (3.13).

Current. For details of the current S of Saint Croix see 3.419.

Regulations
3.343

1 For regulations within national park areas in the United States Virgin Islands see 1.55.

Offshore mooring buoy
3.344

1 A lighted mooring buoy is located in deep water 10 miles WSW of Southwest Cape (3.477) as shown on chart 130.

LANG BANK TO CHRISTIANSTED

General information

Charts 485, 130

Route
3.345

1 From a position 28 miles ENE of Buck Island Light (17°47′N 64°37′W) the route leads WSW for about 33 miles to a position at the entrance to Christiansted Harbour (17°45′N 64°42′W) (3.356).

2 **Inshore route.** Buck Island Channel (3.354), passing between Buck Island and the N coast of Saint Croix, provides limited passage for coasters and small craft.

Topography
3.346

1 General topography (3.339).

Depths
3.347

1 For details of the bank extending 9½ miles ENE from East Point see 3.340.

Between East Point (17°46′N 64°34′W) and Christiansted the coastal bank extends as much as 3½ miles offshore; and between East Point and Pull Point (5 miles W) the coast is bordered by a coral reef.

A depth of 350 m (192 fm) (17°53′N 64°44′W), the position of which is approximate, was reported in 1975.

Traffic regulations
3.348

1 Buck Island Reef National Monument is a protected area surrounding Buck Island (3.352), extending as much as 8 cables NNW of the island. The limits of the area are marked by buoys (white and orange cans marked A to G) which are privately maintained. The monument is administered by the National Parks Department which controls movement and anchorage in the area (see 1.55).

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Restricted area

3.349

1 A submarine cables area exists in the NE approach to Christiansted between Scotch Bank (3.381) and the N coast of Saint Croix as shown on chart 485.

Natural conditions

3.350

1 **Tidal streams** off East Point, have been reported as setting NW and SE at 1 kn; with stronger streams, setting N and S, close into the point.

Currents. It is reported that, when the East Trade Wind is blowing, a strong W current has been observed setting round East Point and through Buck Island Channel (3.354).

2 **Flow.** The prevailing winds increase the NW flow and decrease the SE flow.

Local weather is given at 3.342.

Principal mark

3.351

1 **Major light:**

Hams Bluff Light (17°46′N 64°52′W) (3.401).

Directions

(continued from 2.20)

3.352

1 From the vicinity of 18°00′N 64°10′W, the coastal passage leads WSW for about 33 miles, passing (with positions from Buck Island Light (17°47′N 64°37′W)):

NNW of Lang Bank (6½miles E), over which there is a least depth of 7·3 m (24 ft), over which seas break in heavy weather, thence:

2 NNW of East Point (3½ miles SE), the bluff E extremity of Saint Croix. A hill (69 m high) lies ½ cable WNW of East Point and Morne Rond is a prominent round hill near East Point, thence:

3 NNW of Buck Island Bar, with a charted depth of 5 m over it, the N part of a crescent–shaped coral bank extending N and E from Buck Island, as shown on the chart. Buck Island Light (red pyramidal framework tower, elevation 104 m) is situated on the summit near the centre of the island. Thence:

4 NNW of Pull Point (2½ miles SW), a salient point terminating in cliffs about 11 m high and rising a short distance inland to a hill 37 m high, topped by the ruin of a stone house.

5 From this position the track continues SW for about 1 mile to a position NNW of Green Cay (17°46′N 64°40′W) on which there are two hillocks. This is the pilot boarding ground.

Clearing bearing

3.353

1 The line of bearing, less than 256°, of Hams Bluff (17°46′N 64°52′W) (3.401), well open of Baron (Barons) Bluff (5½ miles ENE) (3.402) clears to the N of Buck Island Bar.

(Directions continue for Christiansted at 3.378, and for passage N of Saint Croix at 3.402)

Side channel

Chart 485

Buck Island Channel

3.354

1 **Description.** Lying ¾ mile S of Buck Island Light (17°47′N 64°37′W), with general depths of 10 m in the fairway, the channel is reduced to less than 9 m across a coral bank extending W and SW from Buck Island to Saint Croix, passes between the reefs and shoals fringing Buck Island, to the N, and the reefs and shoals which border the N side of the E part of Saint Croix, about 1 mile to the S. It can be used by coasters and may be approached from the E or from the N. In the Directions which follow, positions are given from Buck Island Light.

2 **Caution.** Mariners may expect to encounter small craft in this channel.

Clearing bearing. The line of bearing, 271°, of Baron Bluff (5¼ miles WNW) (3.402), just open N of Salt River Point (3½ miles WNW) (3.402), clears to the N of Scotch Bank.

Directions

3.355

1 From a position 5 miles ESE of Buck Island Light, the alignment (about 267°) of the N extremity of Green Cay (3 miles WSW) (3.352) with Mount Eagle (11 miles WSW) (3.339), leads generally W into the channel from the E, passing:

2 N of East Point (3½ miles SE) (3.352), thence:

N of Cottongarden Point (2½ miles SE) a prominent rocky point with a knoll (17 m high). The fairway between the 10 m contours is only 3 cables wide at this point. Thence:

3 S of detached patches, some of which dry and others with a depth of 5 m over them (1¾ miles ESE), which extend up to 2 miles ESE from Buck Island, thence:

N of Channel Rock (awash) (1¾ miles SE), which is situated about 2½ cables off the reef which borders the E end of the N side of Saint Croix, thence:

4 S of Diedrichs Point (2½ cables SW), the S extremity of Buck Island, which is a low point but reported to be prominent. A buoy, marking the limits of the national monument area (3.348), is situated 2 cables SE of the point, thence:

5 N of Coakley Bay No 1 Light–beacon (port hand, elevation 5 m) (1¾ miles SW), situated inside the fringing reef, thence:

N of a bank, with a depth of 4·9 m, (1¾ miles WSW), which extends 4 cables NW from an islet, with a fringing reef, 5 cables E of Pull Point (3.352), thence:

6 N of Green Cay (3 miles WSW) (3.352), with a depth of 3·7 m 2 cables E and close N of drying coral heads.

CHRISTIANSTED HARBOR

General information

Chart 485 with plan of Christiansted Harbor

Position

3.356

1 Christiansted Harbor (17°45′N 64°42′W) is situated near the middle of the N coast of Saint Croix.

Function

3.357

1 Christiansted is the main harbour in Saint Croix, though not as commercially important as Frederiksted (3.404) or Limetree Bay (3.423), serving the town of Christiansted, which is the largest town in Saint Croix with a population of 2555 in 1990. The harbour is protected from the sea by

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a reef and shoal bank extending across the harbour entrance.

2 Christiansted is a free port and customs port of entry for the US Virgin Islands.

Topography
3.358

1 The high hills behind the town are prominent from seaward. To the W of the town, for 3½ miles to Salt River Point, the coast is low and grassy, bordered by a narrow sand beach and backed by hills, covered with grass and low bushes, about 5 cables inland.

Approach and entry
3.359

1 Christiansted Harbor is approached from a the N and entered through a tortuous channel between the reef and the banks fronting the harbour entrance. At night navigation lights are difficult to distinguish against the shore lights.

Traffic
3.360

1 In 2004 578 vessels, with a total dwt of 2 959 432 tonnes used the port.

Port Authority
3.361

1 The Virgin Islands Port Authority, PO Box 1707, St. Thomas 00803–1707 USVI. No radio watch is maintained by the Port Authority but contact may be made through ship's agents.

2 Local rules and regulations for Christiansted are enforced by the Harbour Master from an office near the commercial harbour, to the NE of Gallows Bay (3.387).

Limiting conditions

Controlling depth
3.362

1 The controlling depth in the main entrance channel was 4·3 m in 1991. For details of shoaling see 3.380.

The turning basin (3.385) was dredged (1991) to a depth of 4·3 m.

Deepest and longest berths
3.363

1 The deepest and longest berth is on the NW side of Gallows Bay Dock (3.387).

Mean tidal levels
3.364

1 MHHW 0·2 m.
MLLW 0·0 m.
Tides are usually diurnal.

Abnormal levels
3.365

1 It is reported that, during April and May, mean water level is 0·3 m lower than at other times.

Density of water
3.366

1 1·025 g/cm^3.

Maximum size of vessel handled
3.367

1 Length of 91·4 m and a draught of 4·5 m.

Local weather
3.368

1 It is dangerous to enter harbour in squally weather owing to the very limited manoeuvring space; see 3.380 for channel limitations.

During a hurricane or gale, vessels anchor in Gallows Bay (3.385) and small craft sometimes anchor in Salt River Bay (4 miles WNW of the harbour).

Arrival information

Notice of ETA
3.369

1 Twenty four hours' notice is required in order to obtain a Pilot.

Outer anchorages
3.370

1 Anchorage is available outside the entrance (5 cables NNW of Fort Louise Augusta).

Cable area, as shown on the chart, extends 2½ miles NE from Fort Louise Augusta (17°45′N 64°42′W), see also 1.45.

Pilotage
3.371

1 Pilotage is compulsory for vessels of 100 grt and above. For regulations and information see 1.34 and 1.36.

Tugs
3.372

1 Not compulsory for berthing and unberthing but they may be required to assist passage along the channel.

Quarantine
3.373

1 Quarantine is under the control of the US Quarantine Station, San Juan, Puerto Rico. Contagious diseases must be reported prior to arrival.

Harbour

General layout
3.374

1 An open bay, protected from the sea by Long Reef (1 mile WNW), a narrow coral reef, with numerous drying heads extending for about 2 miles across the entrance to the bay; and by Scotch Bank, a sand bank which extends N then NE from Fort Louise Augusta, across the E end of the reef. The greater part of the harbour is shoal and the entrance channel continues its tortuous route through the harbour to the anchorage and berthing areas, located in the SE part of the bay.

Seaplane area
3.375

1 A seaplane landing area (9 cables WSW) is reported to extend across the shallow bank to the W of Protestant Cay, with the flight path extending NE towards the harbour entrance.

Natural conditions
3.376

1 **Flow.** Neither perceptible current nor tidal stream have been experienced inside the harbour, but see 3.350

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regarding an E current during heavy weather. A moderate W flow has been reported to run outside the point on which stands Fort Louise Augusta.

Wind. The prevailing wind blows from between NE and SE at 15 to 20 kn.

Principal marks

3.377

1 **Landmarks** (with positions from the light on Fort Louise Augusta (17°45′N 64°42′W)):

Fort Louise Augusta, a prominent old battery standing on a narrow tongue of land, projecting from the N side of Altona Lagoon.

House (5 cables S) standing on the summit of Mount Welcome 38 m in height, the sides of which are heavily wooded.

2 Clock tower (7 cables SW), situated on the plaza near the waterfront.

Brick chimney at the hospital (1¼ miles WSW).

Directions for entering harbour

(continued from 3.353)

Charts 485, 130

3.378

1 From the vicinity of 17°52′N 64°44′W, the line of bearing 165° of the distinctive V shaped saddle on the skyline S of the town, formed between Langs Peak (1½ miles SSE) and Recovery Hill (1¼ miles SSW), the track leads towards the entrance channel passing (with positions from Fort Louise Augusta):

Leading lights:

Front light (red rectangular daymark with a white stripe, on a framework tower, elevation 14 m) situated on Fort Louise Augusta (3.377).

2 Rear light (red rectangular daymark with a white stripe, on a white pole, elevation 28 m) situated 3½ cables SSE of the front light.

The alignment (164°) of these lights, as shown on the chart, leads into the entrance channel and along the SW edge of the channel, passing (with positions from the light on Fort Louise Augusta):

3 ENE of Whitehorse Rock (3¾ miles NW) (3.402), thence:

WSW of Scotch Bank (1 mile NNE) (3.381)

3.379

1 **Clearing bearing.** The line of bearing, 271°, of Baron Bluff (5¼ miles WNW) (3.402), just open N of Salt River Point (3½ miles WNW) (3.402), clears to the N of Scotch Bank.

Chart 485 plan of Christiansted Harbor

Entrance channels

3.380

1 **Secondary entrance channel**, passing E of Scotch Bank, thence SE of Round Reef (3.382) and Little Middle Ground (3.383) is only suitable for vessels with draughts of 3 m or less.

2 **Principal entrance channel** (5 cables NNW), through which there is a controlling depth as given at 3.362, leads between Scotch Bank (3.381), which forms the E side of the entrance, and the E extremity of Long Reef (3.374), which forms the W side of the entrance. This channel into the harbour is marked on both sides by light–buoys, buoys, light–beacons and beacons (lateral), but is crooked, with very sharp turns. The channel has been dredged but shoaling has occurred close to the edges of the marked channel so that extreme caution is advised and local knowledge is essential.

Directions

3.381

1 From a position about 1 mile NNW of the light on Fort Louise Augusta.

Leading lights:

Front light (red rectangular daymark with a white stripe, on a framework tower, elevation 14 m) situated on Fort Louise Augusta (3.377).

2 Rear light (red rectangular daymark with a white stripe, on a white pole, elevation 28 m) situated 3½ cables SSE of the front light.

The alignment (164°) of these lights, as shown on the chart, leads into the entrance channel and along the SW edge of the channel, passing (with positions from the light on Fort Louise Augusta):

3 WSW of Scotch Bank, with a charted depth of 1·8 m (4¾ cables N), marked along its SW side by Entrance Channel No 1 Light–buoy (port hand) and by No 3 light–buoy (port hand). Scotch Bank is a sand spit, with a least depth of 0·6 m over it (7 cables NNE), which extends N then NE for 2 miles from Fort Louise Augusta. It is easily seen, except when nearly in line with the sun; and the sea breaks along its full length in heavy weather, especially when a ground swell is running from the N. And:

4 ENE of a spit, extending 1½ cables NNE from Barracuda Ground (4 cables NW) which forms the NE extremity of Long Reef, (3.374), marked on its NE side by No 4 Buoy (starboard hand), thence:

NW of a light–buoy (preferred channel to starboard) (1¼ cables NW), marking the NE extremity of Round Reef and indicating the junction of the principal channel with Schooner Channel.

3.382

1 From a position 1½ cables NNW of the light on Fort Louise Augusta the track leads 268°, with No 7 Light–beacon (port hand) astern, passing:

N of Round Reef, which dries near its centre (2 cables WNW), the NW edge of which is marked by No 9 Light–beacon (port hand, on a dolphin, elevation 5 m), and:

S of Great Middle Ground (3.381).

3.383

1 From a position just over 3 cables WNW of the light on Fort Louise Augusta, the track leads generally S passing:

E of No 10 Light–beacon (starboard hand, on a pile, elevation 5 m) (3½ cables WNW), thence

W of Round Reef (3.382) the SW extremity of which is marked by No 11 Light–beacon (port hand, on a dolphin, elevation 3 m), thence:

2 E of a shoal with a charted depth of 1·8 m (3½ cables W), extending E from Sorensen Ground, (2½ cables W), the SE extremity of which is marked by No 12 Light–buoy (starboard hand), thence:

W of Little Middle Ground (3 cables WSW) lying 1 cable NW of the extremity of Lagoon Bank. Thence:

3 E of the bank (4½ cables SW) extending 1½ cables N and ½ cable E from Protestant Cay, thence:

W of Welcome Bank (4 cables SW) extending 1½ cables NW from the E side of the harbour, the NW extremity of which is marked by No 13

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Light–beacon (port hand, on a pile, elevation 5 m), thence:

4 E of No 14 Light–buoy (starboard hand) (5 cables SW), ¼ cable E of the NE point of Protestant Cay, thence:

W of No 15 Buoy (port hand) (4¾ cables SW), marking the E side of the approaches to Gallows Bay (3.385), thence:

5 E of No 16 Beacon, (starboard hand) (6 cables SW), situated close to the shore and marking the W side of the approach to Gallows Bay.

Channel to west end of harbour

3.384

1 From a position 3¼ cables WSW of the light on Fort Louise Augusta, and close SE of No 12 light–buoy (3.383), a channel with a reported depth in 1981 of 5·2 m, and a least charted depth of 4·9 m, and marked on both sides by buoys which are privately maintained, leads WSW, SW then generally W for about 9 cables to a berthing area (1¼ miles WSW) (3.389), passing (with positions from the light on Fort Louise Augusta):

2 NNW then NW of No 1 Buoy (port hand) (5¼ cables WSW) which marks a 1·8 m patch at the NW extremity of a bank extending about 1½ cables N from Protestant Cay, and:

3 SE of No 2 buoy (starboard hand) (5½ cables WSW), marking the SW edge of Sorensen Ground (3.383), thence:

Between the buoys marking the channel, as shown on the chart, and:

4 NNE of piles (marked by 4 lights, elevation 4 m) (1·1 miles WSW), the positions of which are approximate, at the end of a water intake, situated 1 cable SE of a pier, thence:

Clear of an obstruction (1·1 miles WSW) charted in the turning basin, ½ cable N of a pier.

Basins and berths

Turning basin

3.385

1 The turning basin in Gallows Bay, at the head of the harbour, has a controlling depth as given at 3.362.

Anchorage

3.386

1 Confined anchorage is available for coasters inside the harbour to the W of Little Middle Ground (3 cables WSW Fort Louise Augusta), in depths of 3 to 8 m. The holding ground is reported to be hard and caution is advised to ensure against dragging.

Alongside berths

3.387

1 The following berths are positioned from the light on Fort Louise Augusta.

Gallows Bay:

2 Gallows Bay Dock (5½ cables SSW) has two alongside berths. The largest, on the NW side, has a length of 122 m and is reported to have a depth of 4·8 m alongside; it is marked at its head by a light.

A Ro–Ro ramp, with a depth of 4·8 m alongside, lies E of Gallows Bay Dock.

3.388

1 **Kings Wharf** (6¾ cables SW), a stone quay fronting the N side of the town, close NNW of a fort, has a length of 76 m and is reported to have a depth of 2·4 m alongside.

3.389

1 **West side of harbour.** A pier (1¼ miles WSW), with a length of 115 m and a reported depth of 5·2 m alongside, is operated by the Virgin Islands Cement Company. This pier has a pipeline fitted for handling raw cement. Close NW is a pier, 60 m in length, with a reported depth alongside of 5·2 m, which also has a pipeline to handle raw cement.

Port services

Repairs

3.390

1 Machine shops in Christiansted can assist with minor repairs above the waterline, and there is reported to be a patent slip for vessels up to 500 tonnes.

The nearest facility for major repairs is at San Juan (4.69).

Other facilities

3.391

1 **Deratting** and exemption certificates are issued.
Hospital: municipal hospital in Christiansted.
Oily waste disposal facilities are not available.
Airport. International airport 12 km distant.

Supplies

3.392

1 **Fuel** supplied by road tanker.
Water small quantities by road tanker.
Provisions in small quantities.
Marine supplies available.

Harbour regulations

3.393

1 **Pollution.** The US Coast Guard strictly enforces the Harbor Pollution Act, prohibiting the discharge of refuse and oil in the navigable waters of the US Virgin Islands.

CHRISTIANSTED TO FREDERIKSTED

General information

Charts 485, 130

Route

3.394

1 The coastal route passing N then W of Saint Croix, from a position N of Christiansted (17°45′N 64°42′W) (3.356), continues WSW for about 12 miles, then S, in deep water outside the coastal bank to a position off Frederiksted (17°43′N 64°53′W) (3.404).

Topography

3.395

1 General topography (3.339).

North coast. From Salt River Point (17°47′N 64°45′W), to Baron Bluff (2 miles W), the coast consists of low, rocky cliffs, at the E end of which are situated hills near the coast, covered with grass and low bushes. From Baron Bluff to Hams Bluff (5 miles W), the N coast is composed of sandy beaches separated by rocky, slightly salient points.

2 **West coast.** South of Butler Bay (17°45′N 64°54′W), the hills recede from the coast, forming an open bay with sandy beaches, backed by gently sloping land covered with grass and bushes; at the head of which stands Frederiksted (17°43′N 64°53′W) (3.404).

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Depths

3.396

1 **The north coast** is fringed with reefs and a narrow coastal bank with the 100 m (50 fm) contour between 2 and 7 cables offshore.

2 **West coast.** Between Butler Bay (3.395) and Southwest Cape (4½ miles S) (3.477), the coast is bordered by a bank, with depths of less than 10 m (33 ft) over it, which extends as much as 5 cables offshore with the 100 m contour between 2 and 7 cables offshore.

Tanker movements

3.397

1 Lightening of large tankers by the transfer of cargo into barges (3.445) takes place occasionally about 3 miles WNW of Frederiksted. Vessels engaged in these operations will be underway but stopped and restricted in their ability to manoeuvre. Other vessels should keep well clear.

Traffic regulations

3.398

1 **Restricted area.** A submarine cable area exists to the W of Saint Croix, extending 5¼ miles W from the meridian of 64°54′W, as shown on the chart, in which mariners are cautioned against anchoring, dredging or trawling. See also Appendix VI, United States—Danger Zones and Restricted Area Regulations.

2 **US Navy Weapons Tracking Station,** sited on St. George's Hill at Frederiksted, prominent and illuminated at night, visible for a distance of 20 miles or more. Vessels passing W of St Croix should monitor VHF radio and be prepared to alter course on request. See *Admiralty List of Radio Signals Volume 6(5).*

3.399

1 **Prohibited anchorages:**

Anchoring is prohibited in an area in which pipelines are laid, in the vicinity of (17°47′N 64°48′W) as shown on the chart, see also 1.44.

2 Anchoring is prohibited without special permission in an area extending W and SSW from Sprat Hole (17°44′N 64°54′W). A beacon stands in the area (4 cables SW of Sprat Hole) which is maintained by the US Navy.

Natural conditions

3.400

1 General information is given at 3.342.

Principal marks

3.401

1 **Landmarks:**

Hams Bluff (17°46′N 64°52′W), the NW extremity of Saint Croix, a conspicuous cliff, 30 m high rising inland to hills with elevations of 200 to 270 m.

2 **Major light:**

Hams Bluff Light (white round tower, elevation 120 m) on Hams Bluff—above.

Directions

(continued from 3.353)

3.402

1 From the vicinity of 17°50′N 64°43′W, the coastal passage leads WSW for about 12 miles, passing (with positions from Hams Bluff Light (3.401)):

NNW of Whitehorse Rock (7 miles ENE), over which seas constantly break, is situated 2 cables N of Salt River Point, which rises close within to a hill 37 m high, thence:

2 NNW of an ODAS light–buoy (6¾ miles ENE) moored off the mouth of Salt River, thence:

NNW of Baron (Barons) Bluff (5½ miles ENE), the extremity of a triple spur extending from a hill 120 m high, thence:

NNW of Hams Bluff (3.401).

3 From a position about 4½ miles NW of Hams Bluff the passage leads S passing:

W of a fish haven (extending NNE from position 17°45′N 64°54′W), with an authorised minimum depth of 21 m over it, situated about 2 cables W of Butler Bay, thence:

4 W of a beacon (2½ miles SW) (3.398), and:

Clear of 2 submerged buoys, with least depths of 29 m (16 fm) and 41 m over them, (3½ miles SW).

Useful marks

3.403

1 Radio tower (2 miles SSW) situated near the coast.

Old sugar mill (1¾ miles SW) situated on the point just S of Butler Bay, consisting of white buildings and a stone chimney.

Prominent features in the vicinity of Frederiksted (3.408).

(Directions continue for approach to Frederiksted at 3.409.

Directions for passage S of Saint Croix are given at 3.477,

and for passage S of Puerto Rico at 4.198)

Frederiksted

Chart 485 with plan of Frederiksted Pier

General information

3.404

1 **Position and function.** Frederiksted (17°43′N 64°53′W), which lies at the head of an open roadsted on the W coast of Saint Croix, some 23 km from Christiansted, is a first port of entry, a free port, and a port of call for cruise ships and occasionally for small cargo vessels.

2 **Topography.** Behind Frederiksted the hills recede from the coast a distance of about 1 km.

Traffic In 2004, 18 vessels, with a total dwt of 180 062 tonnes used the port. In addition the pier is frequently used by US Government vessels which have priority for berthing over all other users. Cruise ships are given berthing priority.

3 **Port Authority** is as for Christiansted (3.361). Local rules and regulations for Frederiksted Harbour are enforced by the Harbour Officer, whose office is on the pier, near its root.

Limiting conditions

3.405

1 **Controlling depths** are as required for berthing.

Deepest and longest berth is on the N side of the pier (3.413).

2 **Mean tidal levels:**

MHHW 0·2 m.

MLLW 0·0 m.

Abnormal levels are reported to occur during April and May when mean level is 0·3 m lower than at other times.

3 **Density of water.** 1·025 g/cm^3.

Maximum size of vessel handled. MV *Sensation* length 274 m draught 8·2 m.

4 **Local weather.** The local Pilot advises that, with strong winds from the W, and especially from the NW, the pier is not a safe berth because of the unusual rise and fall of the

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water at the berth. Under these conditions a strong, wind–driven current, with an E set can be expected.

Arrival information

3.406

1 **Port radio.** VHF is monitored in the harbour office during working hours.

2 **Notice of ETA:**

Seven days notice is required for vessels arriving from non US ports outside the Caribbean, and 4 days notice for vessels from US ports in Caribbean Islands, verifying at 48 hours in advance.

At least 24 hours before arrival, to the Captain of the Port, US Coast Guard, San Juan, Puerto Rico.

See *Admiralty List of Radio Signals Volume 6(5).*

3 **Pilotage** is compulsory for commercial vessels 100 grt or above and payment is mandatory whether a pilot is used or not. For regulations and information see 1.34 and 1.36. Pilots, available 24 hours, board vessels 2 miles W of the pier.

Tugs are not available locally but, with 48 hours notice, can be obtained from Limetree Bay (3.434).

4 **Quarantine.** All vessels are subject to inspection by representatives from Christiansted who board after vessels are berthed.

Harbour

3.407

1 Frederiksted Harbour consists of a pier at the N end of the town, extending W for a distance of 516 m from the coast, with berths on both sides of its outer end, and on the S side only near its root (3.413).

Mooring buoys are positioned around the pier, as shown on the chart.

2 **Current.** The local Pilot reports that a W current, between 225° and 315°, with a rate of not more than 1 kn (2 kn in extreme cases), may be expected when approaching the pier. In addition the Pilot reports that there seems to be an almost ever–present circular current beginning about 2½ cables off the pier, with an initial set to the S and a final set to the N when abeam the head of the pier.

3.408

1 **Landmarks** (with positions from Frederiksted Harbor Light, at the root of the pier):

Frederiksted Harbor Light–tower (red and white chequered diamond on a framework tower, elevation 13 m) which is prominent.

2 Fort Frederik (1 cable N), situated in the N part of the town, which is a conspicuous red brick structure.

Prominent radar station on Saint George Hill (1½ miles E), which is illuminated at night, making it visible for over 20 miles.

Approach to berth

(continued from 3.402 and 3.480)

3.409

1 Being an open roadstead, Frederiksted provides an easy approach to the berths on either side of the pier, keeping clear of the following which lie within 1 cable S of the pier:

The ruins of the old pier, close S (3.413);

An obstruction with a depth of 9·8 m over it;

A mooring buoy;

Two stranded wrecks, the positions of which are approximate.

2 **Caution.** Following the passage of a hurricane in 1989, considerable shoaling was reported, inside the 200 m depth contour, along the line: 17°43′N 64°53′W to 17°42′N 64°54′W to 17°40′N 64°55′W.

At night the white sector of Frederiksted Harbor Light (3.408) provides a recommended approach to the head of the pier but not closer inshore. However, a brilliantly lit promenade to the S of the pier, makes it difficult to distinguish the pier when approaching from the N.

Berthing

3.410

1 When berthing at the main pier care is necessary to avoid damaging propellers on the underwater piling of the pier.

In strong winds it has been found useful to use the outboard anchor to assist in berthing, however for berthing limitations in strong winds from the W or NW see 3.405.

Anchorages

3.411

1 Exist about 5 cables NNW and 2 cables SSW of the head of the pier, in depths of about 18 m, coral and sand. Depths shoal rapidly inshore of these anchorages. The N anchorage is situated only 1½ cables N of a mooring buoy (3.412). The S anchorage is 1 cable S of the wreck, with a depth of 27 m over it, which exists 1 cable SW of the pierhead.

2 HMS *Achilles* (2350 tonnes) anchored in position 190°, 3 cables from the pierhead, in 16 m, having found that the recommended anchorage, 2 cables SSW of the pierhead, impeded the berthing of cruise liners.

An anchorage for small craft exists near the waterfront.

Moorings

3.412

1 A mooring buoy, positioned 3½ cables NW of the pierhead, was used by a visiting ship in 1993.

Warping buoys are positioned to the N and to the S of the pier, as shown on the plan. For the dangers S of the pier, see 3.409.

Alongside berths

3.413

1 The municipal pier, concrete on piles, extends 516 m from the shore with a lighted mooring dolphin, 6 m in height, a further 62 m offshore. On each side of the pierhead are well fendered berths 122 m in length, with depths between 10·6 m at E end to 14·6 m at the head.

Close S of the pier are the ruined remains on the old pier destroyed in a hurricane.

2 A Ro–Ro ramp, with a depth of 4·2 m in the berth, is situated on the S side of the root of the pier, close S of the ruins of a finger pier (mostly below water and charted as obstructions) which projects 91 m SW and is flanked by dolphins along its SE side.

3 **Landing** is possible at a platform, 38 m in length, with a reported depth of 3 m alongside, situated on the S side of the pier, 50 m inshore of the Ro–Ro ramp.

Boats can land on both sides of the root of the main pier.

Port services

3.414

1 **Repairs.** Machine shops able to assist in minor repairs above the waterline.

Other facilities:

Hospital; international airport 10 km distant.

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2 **Supplies:**
Fuel is available by barge or road tanker; fresh water at the berth; fresh provisions.

Harbour regulations

3.415

1 **Local port regulations** are similar to those applying in US mainland ports.

Pollution. The US Coast Guard strictly enforce the Harbor Pollution Act, prohibiting the discharge of refuse and oil in the navigable waters of the US Virgin Islands.

LANG BANK TO LIMETREE BAY

General information

Charts 485, 130

Route

3.416

1 The coastal route passing SE then S of Saint Croix, from a position 26 miles ENE of East Point (17°45′N 64°34′W), the E extremity of the island, leads SW then WSW for about 39 miles, in deep water outside the coastal bank to a position SSE of Limetree Bay (17°42′N 64°45′W). Continuation of the coastal route is given at 3.471.

Topography

3.417

1 General topography for Saint Croix is given at 3.339.

The S coast is indented with several small bights and bays.

Depths

3.418

1 For details of the bank extending 9½ miles ENE from East Point see 3.340.

The S coast is bordered by a bank extending up to 2¼ miles offshore to the 100 m (55 fm) contour, within which there is a dangerous reef of broken coral.

Natural conditions

3.419

1 **Tidal stream** off East Point is given at 3.350.

Currents around East Point are also given at 3.350. A weak W current, with a rate of 1 to 1½ kn, was reported on the S side of Saint Croix in 1982, with a counter–current inside the reef along the S shore.

Local weather is given at 3.342.

Principal mark

3.420

1 **Landmark:**
Mount Fancy (17°43′N 64°38′W)

Directions

(continued from 2.20)

3.421

1 From the vicinity of 18°00′N 64°10′W the coastal passage leads SW for about 25 miles then WSW for about 14 miles outside the 100 m (55 fm) contour, passing (with positions from Milord Point (17°43′N 64°40′W)):

2 SE of the SE extremity of Lang Bank (13 miles ENE) which is situated near the E edge of the main bank (3.340), thence:
SE of the coral ridge, with a least depth of 12 m (39 ft) (7¾ miles ENE) which extends SW from Lang Bank (3.352), thence:

3 SE then SSE of East Point (6¼ miles ENE) (3.352), thence:
SSE of bank (4 miles E) with least charted depth of 14·6 m, thence:
SSE of Grass Point (3¼ miles ENE) a long narrow point marked by a knob 13 m high, thence:

4 SSE of Mount Fancy (1½ miles ENE) (3.420), thence:
SSE of Milord Point, which is a promontory of Fareham Hill (59 m high) (2 cables NNW), and is prominent, and the fringing reef, extending as much as 5 cables SE, thence:
SSE of Vagthus Point (3¼ miles WSW), which is rocky and has foul ground extending 5 cables SE.

Useful marks

3.422

1 Three silos at the head of Krause Lagoon, Port Alucroix (17°42′N 64°46′W) (3.440).

(Directions continue for Limetree Bay at 3.449 and 3.458, and for passage S of Saint Croix at 3.477)

LIMETREE BAY

General information

Chart 485 with plan of Krause Lagoon Channel and Limetree Bay

Description

3.423

1 **Position.** Limetree Bay (17°42′N 64°45′W), located on the S side of Saint Croix, is the site of a private, deep draught oil–handling facility operated by Hess Oil Virgin Islands Corporation (HOVIC) and a container terminal owned by Virgin Islands Port Authority.

Function. Large tankers call here to deliver crude oil and to load petroleum and petrochemical products.

Presentation

3.424

1 These three port facilities are subject to similar natural conditions, share certain facilities such as pilotage, and are subject to some of the same regulations. Such common factors are presented first, under the general heading of Limetree Bay; this is followed by the details specific to each port facility, including entering harbour, as follows:

2 HOVIC Terminal at 3.444.
Port Alucroix at 3.453.
Container port at 3.463.

Approach and entry

3.425

1 Limetree Bay is approached from the S in clear water outside the 200 m depth contour. It is entered through one of two channels cut through Long Reef (17°41′N 64°45′W), which consists of coral heads that dry. The edge of the reef is marked by breakers on the seaward side. These channels are used as follows:

2 Limetree Bay Channel (3.449) for the HOVIC Terminal.
Krause Lagoon Channel (3.458) for Port Alucroix and for the container port.

Port Authority

3.426

1 The general port authority for Limetree Bay is The Virgin Islands Port Authority, PO Box 1707, St. Thomas 00803–1707 USVI.

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Limiting conditions

Mean tidal levels

3.427

1 MHHW 0·2 m.
MLLW 0·0 m.
Tides are usually diurnal.

Abnormal levels

3.428

1 It is reported that, during April and May, mean level is 0·3 m lower than at other times.

Density of water

3.429

1 1·025 g/cm^3.

Arrival information

Port radio

3.430

1 There is a port radio station at Limetree Bay See *Admiralty List of Radio Signals. 6(5).*

Notice of ETA

3.431

1 To be sent to the Hess Oil Company (HOVIC) as follows:
Seven and 5 days before arrival for vessels with a draught that is greater than 16·7 m. For lightening operations see 3.445.
At 72, 48, 24, 3 and 1 hour before arrival.

Outer anchorage

3.432

1 There is no suitable anchorage off Limetree Bay, and it is reported that the normal practice is to stop engines up to 8 miles off the entrance to wait for instructions. This sometimes causes a congestion of vessels in the vicinity of the pilot boarding area.

2 It is recommended that the anchorage off Frederiksted (3.411) should be used in case of necessity.

Pilots

3.433

1 Compulsory for all vessels using the HOVIC facility and for all vessels of 100 grt or over using any berth. For regulations and information see 1.34. Pilots are available day and night, by request 3 hours and 1 hour in advance of arrival, see also 3.431; for vessels over 100 000 dwt pilotage and Port Alucroix only during daylight. See *Admiralty List of Radio Signals Volume 6(5).*

2 Pilots for the HOVIC Terminal (3.444) board from a tug in position 17°38′N 64°42′W as shown on the chart. This tug can be contacted on VHF Radio.

3 Pilots for vessels entering Krause Lagoon Channel (3.458) for Port Alucroix (3.453) board 2½ miles SSE of Krause Lagoon Channel No 1 Light–buoy (17°40′·6N 64°44′·2W), and for the Container Port (3.463) board 1¾ miles SE of the buoy, as shown on the chart.

Tugs

3.434

1 Available, capable of handling vessels of 300 000 dwt, and their use is mandatory.

Regulations

3.435

1 **US Navy Weapons Tracking Station** at Frederiksted – for vessels passing W of St Croix bound to or from Limetree Bay see 3.398.

2 **United States navigation safety and other regulations, including danger, safety and security zones,** are given in the Appendices, see also 1.46 to 1.48. A safety zone has been established at Limetree Bay.
Vessels are also recommended to contact their agents concerning these matters.

3 **Anchors** are to be ready for letting go prior to entering Limetree Bay.

Quarantine

3.436

1 All vessels are subject to inspection, by representatives from Christiansted who board after vessels are berthed.

Harbour

3.437

1 HOVIC Terminal consists of a basins bounded on the E side by a natural spit of land and on the W by shoal ground separating it from Krause Lagoon Channel. The basin is subdivided in a NNW/SSE direction by a jetty 1000 m in length providing seven berths for tankers using both side of the jetty. On the W side of the w basin there is a container pier, extending 800 m from the shore and lying parallel to the oil jetty. Reported depths alongside are from 11·6 m to 16·76 m at the oil dock and 3·66 m at the container wharf. Through the shoals bounding the W side of HOVIC Terminal is a channel dredged to 10·7 m (1982) giving access to Krause Lagoon Channel.

Caution

3.438

1 Owing to the extensive modification and dredging taking place in Limetree Bay and vicinity Mariners are advised to exercise caution while navigating in the area.

Natural conditions

3.439

1 **Current.** Details of the current S of Saint Croix are given at 3.419 and of the current in Krause Lagoon at 3.457.
Local weather is given at 3.342.
Local winds, between NE and SE, increase during the day to between 12 and 18 kn and decrease again by evening.

Principal mark

3.440

1 **Landmark:**
Three silos (65 m in height) at the head of Krause Lagoon, situated 2 cables NW of the turning basin (17°42′N 64°46′W), which exhibit three high–intensity, quick flashing lights, displayed horizontally.

Navigation aids

3.441

1 All aids to navigation are privately maintained.

Port services

3.442

1 **Repairs.** Machine shops in Frederiksted and Christiansted assist with minor repairs.
The nearest facility for major repairs is at San Juan (4.69).

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Medical: public hospital.

International airport close W of the port.

2 **Fresh water** in Limited quantities, expensive, and 72 hours notice is required.

Fuel is available.

Provisions in limited quantities.

Stores. Limited supplies of marine hardware.

Harbour regulations

3.443

1 The dumping of waste oil, oily water or other refuse in the harbour is strictly prohibited to avoid damage to the shore plant cooling water intakes.

HOVIC Terminal

General information

3.444

1 **Function.** See 3.423 and (3.438)

Traffic. In 2004 900 vessels with a total dwt of 49 279 743 tonnes used the port.

2 **Port Authority.**

The local authority is Hess Oil Virgin Islands Corporation, 1 Estate Hope, Christiansted, 00825–5652, Saint Croix, US Virgin Islands. There is a Marine Manager and a Harbour Master.

Limiting conditions

3.445

1 **Controlling depth** in the entrance channel (3.449) and in the E turning basin (3.447) was reported in 1986 to be 18·3 m. This depth is privately maintained.

Vessels with a draught exceeding 16·7 m are required to lighten into barges (3.452) before entry. This is carried out off Frederiksted while underway, as described at 3.397.

2 **Deepest and longest berths** are No 3 and No 4 (3.451).

Maximum size of vessel handled is 300 000 tonnes dwt, with a draught of 16·76 m.

Arrival information

3.446

1 **Regulations concerning entry.** Vessels over 100 000 dwt may be brought in during daylight only, vessels of lesser tonnage can be berthed at night.

On approaching the sea buoy, Mariners are advised to stay S of the 180 m depth contour to avoid fish traps and shoal areas which have not been thoroughly surveyed.

Oil terminal

3.447

1 **General layout.** See 3.437.

Terminal regulations

3.448

1 The loading or discharge of all crude petroleum will be stopped during any electrical storm.

Loading of low flash point products will be stopped during periods of calm when noxious gases may collect in pockets.

In the event of abnormal weather conditions, such as hurricanes, vessels will be notified that additional moorings are required. If the situation so demands, Masters may be told to suspend operations and proceed to sea until conditions moderate.

Directions for entering harbour

(continued from 3.422)

3.449

1 **Limetree Bay Channel** (17°41′N 64°44′W) which has a width of 152 m, with a clay and coral bottom, reported to be dredged as at 3.445, extends from the 18 m depth contour, through the fringing reef towards the oil terminal. It is marked on both sides by light–beacons and light–buoys (lateral).

2 **Leading lights.** From the channel entrance the alignment (334°) of the main leading lights, (red rectangular daymarks with a white stripe on framework towers, elevation 50 and 59 m), the W of the 2 pairs of leading lights, situated close to a row of oil tanks extending from the NW corner of the turning basin, leads through the channel, close to the centre–line.

3 The auxiliary (E) pair of leading lights (black masts with yellow bands, elevation 17 and 21 m) on the same alignment, indicate a line about 41 m E of the main leading line.

4 **Useful mark:**

The flares of an oil refinery (17°43′N 64°46′W).

Berthing.

3.450

1 Vessels are turned in the turning basin and berthed head to seaward.

The Harbour Master (Pilot) will assist with berthing and unberthing at HOVIC oil berths.

Alongside berths

3.451

1 The tanker terminal consists of nine berths on T–jetties, projecting from both sides of the E mole and from the W side of the W mole, as shown on the chart. The largest berths are No 3 and No 4, with a length of 365·76 m and a depth of 18·2 m alongside, being the outermost berths on both sides of the E mole.

2 At the head of the E turning basin is a dry cargo dock for handling petroleum products and sulphur. Vessels with a maximum draught of 11·7 m and maximum length of 197 m can be accepted.

Port services

3.452

1 **Facilities:**

Three barges, each of 34 000 tonnes and capable of receiving oil at 6000 tonnes per hour, are available to assist in lightening vessels of deep draught, as described at 3.445.

2 Ballast, except permanent ballast, must be pumped ashore, where there are limited reception facilities for oily waste. Tank cleaning cannot be undertaken.

3 **Supplies:** All grades of fuel oil can be obtained, advice concerning quantities is required in advance.

4 **Harbour regulations:**

The loading and discharge of all crude petroleum will be stopped during any electrical storm.

Loading of low–flash products will be stopped during periods of calm, which allows the accumulation of gas pockets.

Port Alucroix

General information

3.453

1 **Function.** Privately owned Port Alucroix (17°42′N 64°46′W) serves as a shipping point for a bauxite refining

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plant on the W side, and for an alumina plant on the E side. It is also a bunkering station and depot for the distribution of caustic soda to the Caribbean and Central and South American areas. Large vessels call here to deliver bauxite ore and coal, and to load aluminium.

2 **Traffic.** In 2001, 226 vessels, with a total dwt of 4 513 456 visited the port area (excluding HOVIC (3.444)).

Port Authority. For general port authority see 3.426.

Limiting conditions

3.454

1 **Controlling depth** in 1988 was 10·4 m for a width of 91 m in Krause Lagoon Channel and in the turning basin at Port Alucroix, and 10·1 m for a width of 91 m to the head of the port.

2 **Deepest and longest berths.** There are two berths with similar dimensions.

Arrival information

3.455

1 **Entry** and departure is limited to daylight hours only.

Port

3.456

1 **General layout.** The port consists of two quays. forming a basin, extending NNW from a turning basin at the head of a long approach channel which penetrates the coast.

Currents

3.457

1 In Krause Lagoon currents are reported to set W and to vary in velocity with the wind, being strong at times. This current does not completely dissipate until inside Port Alucroix.

Directions for entering harbour

(continued from 3.422)

3.458

1 **Krause Lagoon Channel** (17°41′N 64°45′W), 91 m wide, with a controlling depth as at 3.454, leads through Long Reef (3.425 with view) then continues as a canal with dyked sides to a turning basin. This is a dredged channel, privately maintained and marked on both sides by light–beacons and light–buoys (lateral).

3.459

1 From the channel entrance proceed NNW through the middle of the channel into the turning basin.

3.460

1 **Useful mark:**

Flares (17°42′·6N 64°45′·7W).

Basin and berths

3.461

1 **Turning basin,** about 305 m in width, has an overall uniform depth as given at 3.454.

Alongside berths. Two berths, each 305 m in length, with a deck height of 3·66 m, which can accommodate vessels with a draught of 10·6 m . It is reported that the maximum length handled is 228 m. At the Alumina dock (3.453), the loader is fixed so vessels have to shift along the berth, which comprises a series of dolphins. Owing to the narrowness of the basin it is not always possible to have both berths in use.

2 A berth for handling molasses and bulk cargoes, reportedly lies on the E side of Krause Lagoon Channel between beacons 8 and 10; the berth is reportedly 170 m in length and can accomodate a maximum draught of 7·9 m.

Port services

3.462

1 **Oily waste reception** facilities are not available.

Supplies. Fuel and fresh water are available.

Other services see 3.442.

Container port

General information

3.463

1 **Function.** The container port (17°42′N 64°45′W), known locally as The Third Port, situated between the HOVIC Terminal and Port Alucroix, is a public facility for container traffic.

2 **Entry.** The normal entrance to the container port is through Krause Lagoon Channel (3.458) then along Container Port Cross Channel (3.467). Limetree Bay Channel (3.449) may be used, in emergency only, by vessels under the guidance of the HOVIC Pilot and using HOVIC controlled tugs.

3 **Port Authority.** See 3.426.

Limiting conditions

3.464

1 **Controlling depth**:

Krause Lagoon Channel as given at 3.454.

Container Port Cross Channel (3.467) with a controlling depth of 10·7 m reported in 1982, is able to accept vessels with a maximum draught of 10 m. The turning basin depth to the berth is 9·8 m, see 3.469

2 **Deepest and longest berth** is the container wharf.

Maximum size of vessel handled is 30 000 dwt with a length of 183 m and a draught of 9·7 m.

Arrival information

3.465

1 **Entry** and departure are possible day and night.

Port

3.466

1 **General layout.** The port consists of the W side of the W mole (3.447), with an entrance channel and a turning basin 225 m wide.

Directions for entering harbour

3.467

1 **Entrance channels:**

Krause Lagoon Channel (3.458) to the inner limit of Long Reef, thence:

2 Container Port Cross Channel (17°41′N 64°45′W), connecting Krause Lagoon Channel with Limetree Bay, which is 122 m wide with a controlling depth as given at 3.464. The channel is marked on both sides by pile light–beacons (lateral), light–buoys (port hand) and by Junction LK Beacon (green and red square topmark on a pile, elevation 4 m) (1½ cables S of the W mole).

3.468

1 From the vicinity of 17°41′N 64°45′W, the alignment (244°), astern, of leading lights (white rectangular daymarks, with a black stripe, on pile structures, elevation 4 and 9 m) (17°41′N 64°46′W) situated close W of Krause Lagoon Channel, leads in the channel towards Limetree Bay passing between Long Reef and the coastal bank.

Basin and berths

3.469

1 **Basin.** The turning basin, to the W of the W mole, reported in 1974 to be dredged to a depth of 9·8 m, is marked by light–beacons (port hand) along its SW side.

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2 **Alongside berths:**

The container wharf, 323 m in length, reported to have a depth of 10·6 m alongside, and a deck height of 3·6 m, is situated on the W side of the W mole.

Two Ro–Ro ramps, with deck heights of 0·9 and 1·8 m are also available.

Port services

3.470

1 As Port Alucroix (3.462).

LIMETREE BAY TO FREDERIKSTED

General information

Chart 485

Route

3.471

1 The coastal route passing S of Saint Croix, from a position SSE of Limetree Bay (17°42′N 64°45′W), continues generally W for about 15 miles, then N, in deep water outside the coastal bank, to a position off Frederiksted (17°41′N 64°53′W) (3.404).

Topography

3.472

1 General topography for Saint Croix is given at 3.339.

The high land behind the low lying Southwest Cape is from 3 to 4 miles inland.

The S coast in indented by several small bights and bays.

Depth

3.473

1 This part of the S coast is bordered by a bank extending up to 3¼ miles offshore to the 100 m contour, within which there are coral reefs on which the sea usually breaks.

Fishing

3.474

1 The area between Limetree Bay and Southwest Cape (8½ miles W), inside the 200 m depth contour, is extensively used for recreational and commercial trap fishing, both day and night. Most of the trap and line fishing is carried out in depths of less than 30 m. Caution is necessary.

Traffic regulations

3.475

1 **Submarine cable area** extending to the W of Saint Croix is covered by regulations as given at 3.398.

Anchoring is prohibited, without special permission, in a rectangular area centred on (17°41′·4N 64°54′·2W), as shown on the chart, which is marked on its S edge by a buoy (special). For further details see the Danger Zones and Restricted Area Regulations in Appendix VI.

Natural conditions

3.476

1 **Tidal stream.** A strong NW tidal stream has been reported off Southwest Cape.

Current S of Saint Croix is given at 3.419.

Flow. It is reported that the NW flow increases when the trade winds are blowing.

2 **Local weather** is given at 3.342.

Directions

(continued from 3.422)

3.477

1 From the vicinity of 17°36′N 64°41′W (7 miles SSE of Limetree Bay), the coastal passage continues generally W, for about 15 miles, passing (with positions from Southwest Cape Light (17°41′N 64°54′W)):

2 S of shoal patches, with depths of less than 10 m over them, (between 7¼ miles E and 5 miles ESE), which lie to seaward of the outlying reefs which border the coast and on which the sea generally breaks. This is a dangerous area which should be approached with caution. Thence:

3 S of Southwest Shoal, with a least depth of 1·8 m over it (4 miles ESE), lying about 1¼ miles off Long Point, which is low and covered with grass, thence:

4 S of a dangerous rock (1 mile S), marked by No 2 buoy (starboard hand) (8 cables SW of the rock). This rock is situated near the S edge of a coral reef, with depths of less than 5 m over it, extending 8 cables S from Southwest Cape, the SW extremity of Saint Croix, which is low and projects about 1½ miles SW from the general line of the coast. Care should be taken approaching the Cape not to over estimate the distance off. On the Cape lies a shallow salt pond, without an opening to the sea; the rest of the point is covered with low bushes, trees and coconut palms.

5 From a position SW of Southwest Cape, the passage leads N, passing:

W of No 2 buoy (above), thence:

W of Sandy Point (3 cables WNW), the W extremity of Saint Croix, which is sometimes mistaken for Southwest Cape. Dangerous rocks lie 3 cables SW of Sandy Point and the 100 m depth contour is only 4 cables offshore.

Useful marks

3.478

1 Three silos at the head of Krause Lagoon, Port Alucroix (17°42′·4N 64°46′·3W) (3.440).

Southwest Cape Light (grey framework tower, elevation 14 m) (17°40′·7N 64°54′·0W).

(Directions continue for approaching Frederiksted at 3.409)

Tanker mooring

General information

3.479

1 A tanker mooring (17°41′N 64°49′W), situated about 1¼ miles E of Long Point, consists of 3 mooring buoys. Many shoal patches, and a dangerous wreck (4 cables SSW), the position of which is approximate, exist in the approaches to the mooring, emphasising the need for caution.

Anchorage

3.480

1 **Southwest Anchorage** (17°40′N 64°52′W) situated between Southwest Cape and Long Point, offers anchorage for small vessels about 1 mile offshore, in depths of 6 to 7 m, clear of isolated patches with a depths of 5 m over them. Larger vessels may find temporary anchorage about 2½ miles offshore and SW of South West Shoal (3.477) in a depth of 12 to 14 m.

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NOTES

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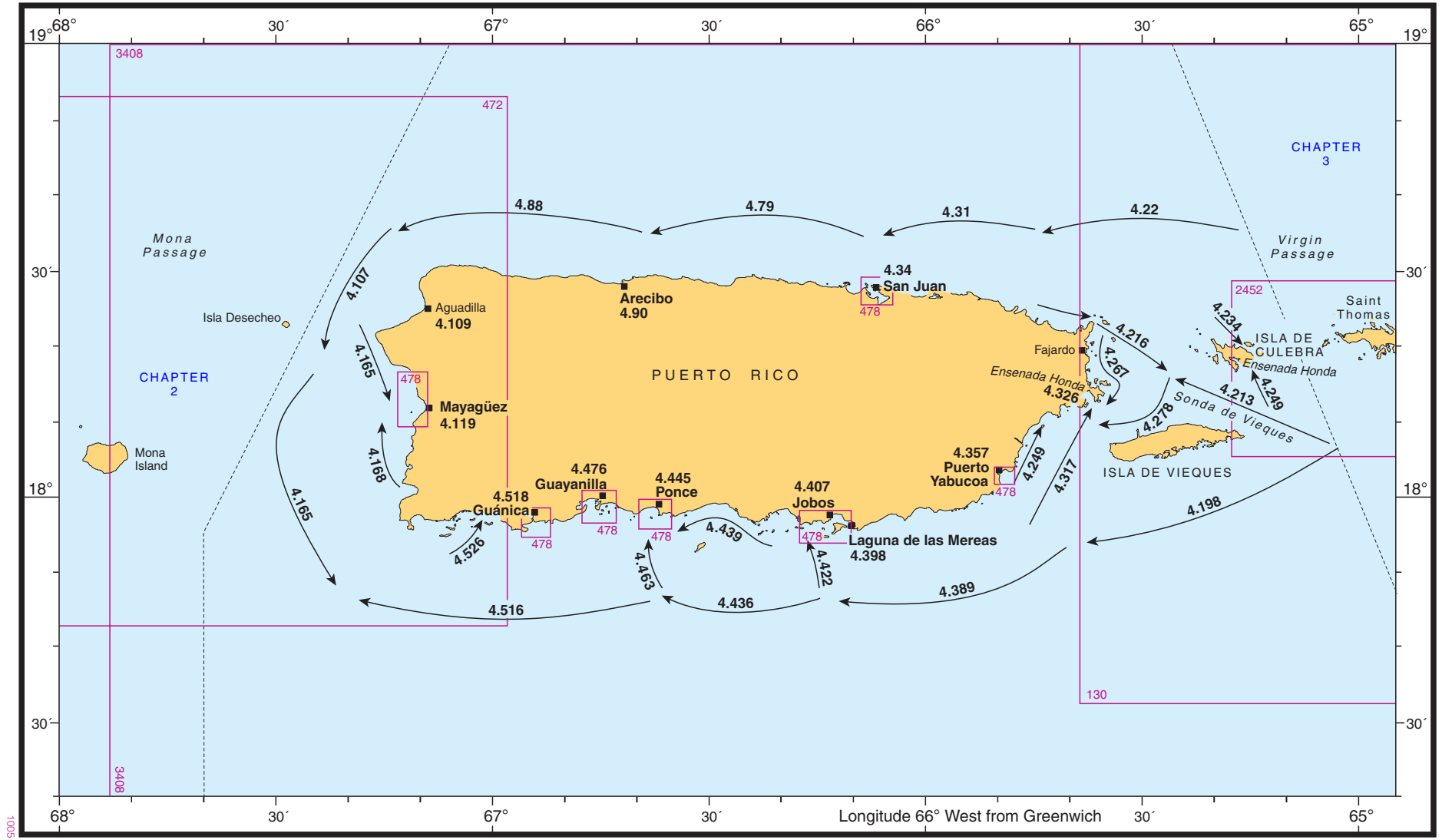
Chapter 4 - Puerto Rico and adjacent islands



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CHAPTER 4

PUERTO RICO AND ADJACENT ISLANDS

GENERAL INFORMATION

Chart 3408, US Chart 25640 (1.20)

Scope of the chapter

4.1

1 This chapter describes Puerto Rico (18°00′N 66°30′W) and the adjacent islands of Isla de Culebra and Isla de Vieques, presenting the coastal and inter–island waterways, including Sonda de Vieques.

Harbours

4.2

1 **Major harbours** described in this chapter, in order of presentation, are:

Bahía de San Juan (18°28′N 66°07′W) (4.34) which is a hurricane harbour.
Bahía de Mayagüez (18°13′N 67°11′W) (4.119).
Ensenada Honda (Puerto Rico) (18°13′N 65°38′W) (4.326) which is a hurricane harbour.
Puerto Yabucoa (18°03′N 65°50′W) (4.357).

2 Laguna de las Mareas (17°56′N 66°10′W) (4.398).
Bahía de Jobos (17°56′N 66°14′W) (4.407) which is a hurricane harbour.
Bahía de Ponce (17°58′N 66°38′W) (4.445).
Bahía de Guayanilla (18°00′N 66°46′W) (4.485), which is a hurricane harbour.
Bahía de Tallaboa ((17°59′N 66°44′W) (4.499).

3 **Minor harbours** of importance, in order of presentation, are:

Puerto Arecibo (18°29′N 66°42′W) (4.90).
Bahía de Aguadilla (18°25′N 67°10′W) (4.109).

4 Ensenada Honda (Isla de Culebra) (18°18′N 65°17′W) (4.246) which is a hurricane harbour.
Bahía de Fajardo (18°21′N 65°38′W) (4.289).
Bahía de Guánica (17°58′N 66°55′W) (4.518) which is a hurricane harbour.

Topography

4.3

1 **Puerto Rico** is the largest of the islands in the E Caribbean, with a length of 95 miles and a width of 35 miles. The interior of the island is very rugged, with the highest mountains rising nearer to the E and S coasts. Cerro Luquillo (18°17′N 65°46′W), situated in the NE part of the island is the most conspicuous feature. Roca El Yunque (18°19′N 65°48′W) in the W, is the highest and most prominent of this range.

2 There are many fertile valleys. Around the coasts generally, there are strips of low land of varying width, from which the higher land rises abruptly a short distance inland.

3 The island is well watered and some of the streams are of considerable size, though none is navigable except by boats and small craft. Owing to the location of the mountain divide, the streams on the S and E sides of the island are short and fall rapidly to the sea, whereas those on the N and W sides are longer and slope more gently. The mouths of these streams are generally closed by bars, except during short periods of heavy rainfall.

4 The S coast, which borders the Caribbean, abounds with small coves, anchorages and sandy beaches, making it suitable for pleasure cruising. The N coast, which is bordered by the Atlantic Ocean, has few indentations and offers few facilities for small craft.

5 **Adjacent islands.** General topography for the largest of the adjacent islands is given as follows:

Isla de Culebra (18°19′N 65°17′W) at 4.186.
Isla de Vieques (18°08′N 65°25′W) at 4.190.

Depths

4.4

1 The bank which surrounds Puerto Rico is, in most places, narrow and its outer edge falls suddenly to great depths. Under favourable conditions the shoals on the bank are indicated by the colour of the water over them.

Exercise and Firing Practice areas

4.5

1 Sonda de Vieques (18°15′N 65°30′W) and the surrounding region is an area of military activity by the United States Navy. Concentrations of vessels may be encountered and certain restrictions are imposed which are detailed below:

2 Restricted entry around sections of Isla de Vieques and off the SE coast of Puerto Rico is given at 4.182.
Explosives anchorages at 4.183.

3 Firing practice areas exist, for small arms, gunnery and bombing, in the N of Puerto Rico, off Culebra Island and E of Vieques Island as shown on the chart (see 4.78, 4.183 and Appendix VI—United States—Danger Zones and Restricted Area Regulations).

4 In addition, a number of cautionary areas are designated in the text, in which the mariner is advised against anchoring, dredging or trawling owing to the presence of unexploded ordnance.

Fishing

4.6

1 Mariners are advised that fishermen commonly mark the position of their fishing nets and fish–traps with plastic bleach bottles. They are requested to avoid destroying this fishing gear.

Weather

4.7

1 **Local climate.** Positioned only 18° N of the Equator, Puerto Rico enjoys a tropical climate (1.227), tempered by the almost constant North–east Trade Winds. In addition, the interior is tempered by altitude and the coastal region is tempered by the sea to achieve an equable climate, which is mild and healthy, with little seasonal or diurnal variation. Climatic table for San Juan is given at 1.253.

2 **Winds,** for about 80% of the time, blow from between NE and SE, with E winds predominating in summer. The wind tends to strengthen with the sun, creating a sea breeze which reinforces the prevailing wind on all but the W coast, where it opposes and thus reduces the overall wind strength.

3 Strong winds and heavy seas may occur from November to April. During the Hurricane Season (1.235) gales may strike from any direction.

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Sea state
4.8

1 Seas are usually moderate (less than 3 m wave height), being roughest off the N and W coasts in winter and mid–summer. Extreme wave heights are associated with hurricanes (1.221).

Flow
4.9

1 **Tidal streams.** In Mona Passage and in the various passages from the E coast of Puerto Rico to Virgin Passage (25 miles E) the tidal streams, under normal conditions, set for about 6 hours each way, turning as follows:

From S–going to N–going at 4½ hours after HW Bermuda.

From N–going to S–going at about 1 or 2 hours before HW Bermuda.

2 **Current.** Along the N and S coasts of Puerto Rico the prevailing W or NW current is of mainly moderate constancy, setting at a rate of ¾ to 1¼ kn; it is however influenced by the strength of the wind. With light or variable winds it is probable that tidal streams are felt at times.

3 The currents off the E and W coasts, which are mainly of low constancy, generally set between NW and NE and have average rates of about 1 kn. However the configuration of the W coast somewhat favours the formation of eddies and countercurrents, especially in the bays, with maximum recorded rates of 3 kn. Off the E coast a SE current of about ¾ kn may flow for a time in spring.

Regulations
4.10

1 **United States navigation safety and other regulations, including danger, safety and security zones,** are given in the Appendices, see also 1.46 to 1.48. Safety zones have been established in San Juan (4.50), Ponce (4.445), Guayanilla (4.486) and Tallaboa (4.476); a security zone has been established at San Juan.

2 **Ports Authority.** The control of all ports in Puerto Rico is vested in the Puerto Rico Ports Authority, PO Box 2829, San Juan, Puerto Rico 00936. Appointed Commonwealth Captains of the Port have administrative charge of the harbours, collect port fees and assign berths.

At ports where authorised officials are not stationed, inspectors usually attend from a nearby port.

3 **Pilotage** regulations are given at 1.34.

Designated Critical Habitat for the protection of marine turtles. See Appendix VIII.

PUERTO RICO — NORTH SIDE

GENERAL INFORMATION

Chart 3408, US Charts 25650, 25668, 25671 (1.20)

Area covered
4.11

1 This section describes the coastal passage N of Puerto Rico from a position N of Isla de Culebra (18°19′N 65°17′W) to a position N of Punta Agujereada (18°30′N 67°08′W); and includes the following harbours:

Bahía de San Juan (18°28′N 66°07′W) (4.34).

Puerto Arecibo (18°29′N 66°42′W) (4.90).

Topography
4.12

1 General topography for Puerto Rico is given at 4.3.

The N coast, from Bahía de San Juan to Punta Agujereada (60 miles W), extends almost directly W, with few indentations or offshore features.

2 Prominent features are the high hills in the interior, the high cliffs along parts of the coast and the many radio towers and chimneys dotted along the coast.

Depths
4.13

1 General information on depths is given at 4.4.

The N coast of Puerto Rico is relatively steep–to and all dangers will be avoided by keeping 1 mile or more offshore.

Flow
4.14

1 General remarks on flow are given at 4.9.

The current along the N coast of of Puerto Rico is greatly influenced by the strength and direction of the wind. In general terms the current is W–going owing to the prevailing wind.

ISLA DE CULEBRA TO PUNTA EMBARCADEROS

General information

Charts 130, 3408, US Chart 25650 (1.20)

Route
4.15

1 The coastal route N of Puerto Rico, from a position N of Isla de Culebra (18°19′N 65°17′W), leads W for about 25 miles, in deep water outside the coastal bank, to a position N of Punta Embarcaderos (18°23′N 65°44′W).

Topography
4.16

1 General topography for Isla de Culebra is given at 4.186.

The N coast of Isla de Culebra is generally bold and rocky, with sandy beaches in the coves and occasional coral reefs fringing the shore. The W part of this coast in indented by several bays. Between Punta Flamenco (18°20′N 65°19′W) and Punta Noroeste (NW Point) (2 miles WNW) (4.22) the coast consists of sandy beaches between rocky bluffs.

2 From The NW extremity of Isla de Culebra a group of islets and rocks extend about 2½ miles NW to Cayo Botijuela (Rock). A separate chain of islets, rocks and reefs extend WNW for about 15 miles to a position close N of Cabo San Juan, the NE extremity of Puerto Rico.

3 General topography for Puerto Rico N coast is given at 4.12 and for the E coast of Puerto Rico at 4.260.

Depths
4.17

1 The N coast of Isla de Culebra is generally steep–to but a coral ledge, with depths of 8·8 to 18·3 m (29 to 60 ft) over it, extends about 3½ miles W from Cayo Norte (18°20′N 65°15′W), running parallel to the N coast of the

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island, about 1 mile offshore. Depths of 37 m (20 fm) are found about 1½ miles offshore.

2 The chain of islets extending 15 miles WNW from Isla de Culebra is generally steep–to along its N side, with dangers extending no more than 5 cables offshore.

Danger areas

4.18

1 **Bombing** and gunnery target areas exist to the N and W of Isla de Culebra as shown on the chart. See Appendix VI.

Unexploded ordnance. Mariners are cautioned against anchoring, dredging or trawling in areas N and W of Isla de Culebra as shown on the chart.

Fishing and Designated Critical Habitat

4.19

1 Fishing marks (4.6). Protection of turtles (4.189).

Natural conditions

4.20

1 Sea state (4.8). Flow (4.14). Local weather (4.7).

Principal marks

4.21

1 **Landmark:**

Cabo San Juan Lighthouse (18°23′N 65°37′W) (4.265).

Major light:

Cabo San Juan Light—as above.

Directions

(continued from 3.40, 3.49 and 3.75)

4.22

1 From the vicinity of 18°35′N 65°15′W, the coastal passage leads generally W for about 25 miles, passing (with positions from Cayo Botijuela (18°22′N 65°23′W)):

N of Cayo Norte (NE Cay) (7 miles ESE) which is covered with a thick scrubby growth, thence:

2 Clear of isolated shoal patches, with depths of 25 to 29 m (14 to 16 fm) over them, near the N edge of the coastal bank (or reported near the edge), as shown on the chart, between 12 miles NE and 8 miles NNE, thence:

3 N of two coral patches, swept to a depth of 7 m and 5·2 m (23 and 17 ft) (3 miles ESE), as shown on the chart, thence:

N of Punta Noroeste (NW Point) (2 miles SE) the NW extremity of a prominent ridge, forming the NW extremity of Isla de Culebra, thence:

4 N of Cayo Botijuela (Rock), the NW of the islets and rocks extending 1½ miles NW from Punta Noroeste, thence:

N of La Cordillera (Reefs) (4.273), the NW of which is Las Cucarachas (13½ miles WNW) (4.268). This chain of reefs has a length of about 6 miles and is steep–to on its N side, thence:

5 N of the shallow ridge which extends W from Las Cucarachas (above) to a position N of Punta Embarcaderos (20 miles W) (4.268).

Useful marks

4.23

1 Observation tower (18°20′·0N 65°18′·6W) situated 3 cables S of Punta Flamenco; also two towers, marked by red obstruction lights, 7 cables S of Punta Flamenco.

(Directions continue for passage N of Puerto Rico at 4.31, and for Pasaje de San Juan at 4.267. Directions for entry to Sonda de Vieques from N are given as follows: Canal de Culebrite and approaches at 4.228, channels NW of Punta Noroeste at 4.216, channels NW of Cayo de Luis Peña at 4.221, and Pasaje Cucaracha at 4.269)

PUNTA EMBARCADEROROS TO BAHÍA DE SAN JUAN

General information

Chart 3408, US Chart 25668 (1.20)

Route

4.24

1 The coastal route N of Puerto Rico, from a position N of Punta Embarcaderos (18°23′N 65°44′W), leads W for about 23 miles, clear of danger outside a distance of 2 miles from the coast, to a position 4 miles N of Puerto San Juan Light (18°28′N 66°07′W).

Topography

4.25

1 General topography (4.12).

The N coast of Puerto Rico, between Punta Embarcaderos (4.268) and Punta Cangrejos (15 miles WNW), is low and sandy with coral reefs and breakers, indented by a number of coves and broken only by the bluffs at Punta Vacia Talega (18°27′N 65°54′W). Low land extends from 2 to 4 miles inland to the foothills of Cerro Luquillo (18°17′N 65°46′W) (4.3).

2 From Punta Cangrejos to Isla San Juan (7½ miles W) the coast is bold and rugged, with outlying rocks and reefs.

Río Grande de Loíza, which discharges 1½ miles ESE of Punta Vacia Talega, is the largest river in Puerto Rico and shows as a large gap in the trees.

Depths

4.26

1 General information on depths is given at 4.13. Rocks which dry extend up to 1 mile offshore in places.

Fishing

4.27

1 Fishing marks (4.6).

Rescue

4.28

1 The Coast Guard SAR Emergency Co–ordination Sub–Centre (1.67) is situated in the US Coast Guard Marine Safety Office, San Juan Base, La Puntilla, San Juan, Puerto Rico. See *Admiralty List of Radio Signals Volume 3(2)*.

A life boat and line–throwing apparatus are maintained.

Natural conditions

4.29

1 Sea state (4.8). Flow (4.14). Local weather (4.7).

Principal marks

4.30

1 **Landmark:**

Chimney (18°23′N 65°58′W), situated 5 miles SE of Punta Maldonado.

Major lights:

Cabo San Juan Light (18°23′N 65°37′W) (4.265).

Puerto San Juan Light (18°28′N 66°07′W) (4.55).

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Directions

(continued from 4.23)

4.31

1 From the vicinity of 18°35′N 65°44′W, the coastal track leads W passing (with positions from Punta Vacia Talega (18°27′N 65°54′W)):

2 N of a rock, with a depth of 4·6 m (15 ft) over it (8½ miles E), on which the sea breaks in a moderate swell, and also of rocks extending 5 cables W. WR2 Light–buoy (starboard hand) marks the N side of this danger, on which there are two dangerous wrecks, thence:

3 N of the fringing reef extending 3 cables N from Punta Uvero (4 miles ESE) which is low and sandy at its extremity and only shows up from the W. It is backed by extensive groves of coconut palms which extend W to Río Grande de Loíza (4.25). Thence:

N of Punta Vacia Talega, which is prominent from E and W, consisting of low bluffs from which the land rises gradually to a brush covered ridge (12 to 18 m high) declining suddenly to low land within, thence:

N of a light–buoy (special, pillar) (3½ miles NW), thence:

4 N of a reef, on which lie several barren, rocks (distinct from the E) extending 4 cables N and 6 cables NW from Punta Cangrejos (5 miles W) which is low with a scattered grove of coconut palms on it. The W end of the reef is marked by BC Light–and–bell–buoy (safe water), thence:

5 N of light–buoy (special, pillar) (7¾ miles WNW), thence:

N of a series of reefs, which extend up to 1 mile offshore, between Punta Congrejos (5 miles W) and the E end of Isla San Juan (10 miles W).

Useful marks

4.32

1 San Juan International Aero Light (elevation 56 m) (5½ miles W).

A pair of radio masts (6¾ miles W).

(Directions continue for Bahía de San Juan at 4.56, and for Passage N of Puerto Rico at 4.79)

Prohibited anchorage

4.33

1 Anchoring is prohibited within 2½ cables of submarine cables extending from the coast in the vicinity of 18°28′N 66°04′N to the 36 m (20 fm) depth contour.

BAHÍA DE SAN JUAN

General information

Chart 478, plan of Bahía de San Juan, 3408

Position

4.34

1 Bahía de San Juan (18°28′N 66°07′W) is situated on the N coast of Puerto Rico about 30 miles W of Cabo San Juan.

Function

4.35

1 Bahía de San Juan is the most important commercial harbour in Puerto Rico and is the only harbour on the N coast which affords protection in all weathers. Puerto San Juan serves metropolitan San Juan which, with an estimated population of 433 412 in 2002, is the capital and most important city in Puerto Rico.

Puerto San Juan is a customs port of entry.

Topography

4.36

1 General topography for the N coast of Puerto Rico is given at 4.12.

A range of hills (88 to 116 m in height (3½ miles S of Puerto San Juan Light (18°28′N 66°07′W)), prominent, conical, rocky and wooded, extend for about 3 miles to the S of the harbour, giving a bold appearance to parts of the S shore.

2 The city of San Juan stands on the W and higher part of Isla San Juan, which is a bold and rocky island fronting the harbour. Only the higher part of the city is visible from seaward as the summit of a ridge (about 30 m high), runs along the seaward side of the island. At each end of the city there is a large prominent stone fort Castillo Morro (on the W extremity of the island) and Fuerte San Cristobal (7 cables ESE) between which lies a continuous high wall and some minor works rising abruptly from the sea.

3 From Castillo Morro the city wall extends along the harbour side of the island to the palace (5 cables SE), a large and prominent building, thence E to the berthing area.

4 When approaching Bahía de San Juan the general aspect is dominated by a number of large hotels extending 5 miles E from the city, which are marked by red obstruction lights. In addition to the landmarks, given at 4.55, there are a number of television masts (1½ and 2 miles ESE of Puerto San Juan Light), which are marked by red obstruction lights.

Approach and entry

4.37

1 Bahía de San Juan is approached from the N and entered through a dredged channel which passes between Punta del Morro, the NE extremity of Isla San Juan, on which stands Puerto San Juan Light (4.55), and Isla de Cabras (5½ cables W).

Traffic

4.38

1 In 2004 2667 vessels totalling 29 058 727 dwt used the port, handling approximately 11 000 000 tons of cargo and about 154 400 teu.

Port Authority

4.39

1 Details of the Puerto Rico Ports Authority are given at 4.10

Local rules and regulations are enforced by a Commonwealth Captain of the Port, whose office is located on Isla Grande, 1¾ miles SE of Puerto San Juan Light.

Limiting conditions

Controlling depth

4.40

1 The main ship channel (Anegado Channel) (5 cables S of Puerto San Juan Light) is maintained at or near its project depth of 12·2 m (40 ft)).

Caution. Depths in the dredged channels are liable to change, particularly at the edges. Minimum mid–channel depths are given in the Depth Tables on the chart and local knowledge is required.

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Deepest and longest berths
4.41

1 **Deepest berths:** Pier 1 and Pier 3 (4.68).
Longest berth: Puerto Nuevo Docks (4.68).

Mean tidal levels
4.42

1 MHHW 0·4 m.
MLLW 0·0 m.
The tide is usually diurnal.

Density of water
4.43

1 1·025 g/cm^3.

Maximum size of vessel handled
4.44

1 Length of 228 m with a reported limiting draught of 11 m. *Queen Elizabeth II*, 66 450 gt, draught 9.9 m

Arrival information

Port radio
4.45

1 A port radio station for Bahía de San Juan is situated at Fuerte San Cristobal (4.36) which is manned day and night and through which mariners should obtain permission to enter and leave harbour. See *Admiralty List of Radio Signals Volume 6(5).*

Notice of ETA
4.46

1 Advise at least 24 hours in advance. Minimum notice of 2 hours is required for the Pilot.

Outer anchorages
4.47

1 None. Anchoring is prohibited in the cable area in the entrance, and inside the harbour, as shown on the chart.

Pilotage
4.48

1 Available day and night and compulsory for merchant vessels from foreign ports.

2 Pilots usually board from a small motorboat (black with a white top and the word PILOT or the letter "P" in white on both sides of the bow) about 3 miles N of Puerto San Juan Light (18°28′N 66°07′W) and vessels should not be brought within this distance until boarded. In bad weather the pilot boat may be considerably delayed by breaking seas in the entrance.

3 See *Admiralty List of Radio Signals Volume 6(5).*

Tugs
4.49

1 Compulsory for vessels over 8 000 tonnes displacement, unless fitted with bow or side thrusters.

Regulations concerning entry
4.50

1 **Speed limit** within the harbour is 5 kn, but see also 4.56.

Restricted areas. Vessels are prohibited from passing through or anchoring in restricted areas, indicated by pecked lines on the chart, except as may be directed by the Captain of the Port.

Safety and Security Zones. Zones have been established in Bahía de San Juan, see 4.10.

2 **Navigation Rules for United States Inland Waters** (Appendix VII) shall be observed in Bahía de San Juan, inside a line joining Puerto San Juan Light to Isla de Cabras Light (9½ cables WNW).

Dredgers and dredged areas. Following is a copy of the United States regulations for: "Channel leading to San Juan Harbor, P.R.; use, administration, and navigation":

3 (a) Steamers passing dredgers engaged in improving the channel shall not have a speed greater than 4 miles an hour, and the propelling machinery shall be stopped when crossing the lines to the dredger's anchors.

(b) Vessels using the channel shall pass the dredger on the side designated from the dredger by the signals prescribed in para (c) of this section.

(c) Dredgers shall display the red flag by day and four white lights hung in a vertical line by night to indicate the passing side.

4 (d) Vessels shall not anchor on the ranges of stakes or other marks placed for the guidance of the dredger, nor in such a manner as to obstruct the channel for passing vessels.

(e) Vessels shall not run over or disturb stakes, lanterns, or other marks placed for the guidance of the dredge.

(f) Dredgers work shall not obstruct the channel unnecessarily.

(g) The dredger will slack lines running across the channel on the passing side, for passing vessels, when notified by signal, with whistle or horn.

5 (h) The position of anchors of the dredger shall be marked by buoys plainly visible to passing vessels.

Quarantine
4.51

1 Quarantine is enforced in accordance with the regulations and information given at 1.48.

The quarantine station is situated on Isla San Juan. Vessels are boarded in anchorage area E (4.66) (1½ miles SE of Puerto San Juan Light).

Harbour

General layout.
4.52

1 Bahía de San Juan is a large natural basin, bordered by low shores and mangrove swamps in places, which is protected from the N by the relatively high land of Isla San Juan. The bay is about 3 miles long and up to 1½ miles wide but the SW part is encumbered with shallow flats.

2 Channels and berthing areas are as follows (with positions from Puerto San Juan Light (18°28′N 66°07′W)):

Bar Channel, the entrance channel, (2 cables W), leads via Anegado Channel, the main ship channel, (5 cables S), to the deep draught anchorage (1½ miles SE) (4.66).

3 San Antonio Channel (1 mile ESE) leads from Anegado Channel, between Isla San Juan and Isla Grande, to the commercial piers and the naval berthing facilities on the S side of Isla San Juan; and to the wharves on the N side of Isla Grande (4.68).

4 Graving Dock Channel (1½ miles SE) leads SE from Anegado Channel for about 1 mile to Graving Dock Turning Basin and berths (4.68).

Army Terminal Channel (1½ miles SE) leads S from Anegado Channel for about 1 mile to the Army Terminal Turning Basin and wharves (4.68).

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5 Puerto Nuevo Channel (2½ miles SE) connects Army Terminal Turning Basin with Graving Dock Turning Basin.

Signal station

4.53

1 It is advised by the Puerto Rico Ports Authority that the signal station at Isla de Cobras is manned around the clock. All vessels approaching to enter Bahia de San Juan shall, at a distance of not less than 3 miles N of the sea–buoy call San Juan Port Control on VHF channel 16 and the working channel 14 to obtain permission to enter the port.

2 A vessel ready to depart the berth to proceed to sea shall, prior to departure, call the signal station to obtain clearance to sail.

3 Vessls should follow closely the procedure herein to avoid close quarters situations and subsequent collision risk in the Bar and in Anegado Channel.

Natural conditions

4.54

1 **Currents** in Bahía de San Juan are always slightly W–going owing to the prevailing North–east trade wind.

2 **Sea state.** General information on sea state is given at 4.8.

Strong N winds, likely to occur during the winter season, pile up heavy seas and breakers in the harbour entrance, making it dangerous to negotiate.

3 When seas from the N set into Bahía de San Juan, an undertow is evident well into the harbour. In San Antonio Channel (4.62) this undertow and a surge have caused mooring lines to part.

4 **Climatic table** is given at 1.253.

Local weather. General information (4.7).

Bahía de San Juan lies in the tropical hurricane region of the E Caribbean and several hurricanes affect this area to some degree every season. It is fairly well protected as a hurricane harbour.

Principal marks

4.55

1 **Landmarks** (with positions from Puerto San Juan Light (18°28′N 66°07′W)):

Isla de Cabras (7 cables W), a low island with cliffs 11 m high. Isla de Cabras Light (red and white chequered diamond in a tower, elevation 13 m) (9½ cables WNW) is situated on the NW extremity of the island.

2 White marble dome of the Capitol Building (1 mile ESE).

Spires of a large white church (1½ miles ESE).

Hotel (2¼ miles ESE).

Hotel (2¾ miles ESE).

3 **Major light:**

Puerto San Juan Light (cream coloured, square brick tower on an 8 sided base, 16 m in height) situated on Morro Castillo.

Directions for entering harbour

(Continued from 4.32)

Approaches

4.56

1 **Approach** from the E or W should be made at least 3 miles off the coast to achieve a position 4 miles N of Puerto San Juan Light, from which position it is safe to approach the entrance direct.

2 **Speed.** When approaching the entrance with the sea astern or on the quarter, which is most likely in winter, a speed of not less than 10 kn is recommended. This requirement for speed allows sufficient time to commence turning into Anegado Channel, whilst maintaining control of the vessel.

3 **Useful marks:**

Approaching from W, Punta Salinas (18°29′N 66°11′W) (4.79) will first appear as an island, which could be mistaken for Isla de Cabras (4.55).

4 Approaching from N or E the dome of Capitol Building (4.55) is unmistakable and, on nearer approach, the grey and yellow walls of Castillo Morro (on which stands Puerto San Juan Light) can be identified.

Entrance channel

4.57

1 **Bar Channel,** is dredged over a width of 244 m, to maintain it close to its project depth of 12·2 m (40 ft).

See caution at 4.40.

Entering harbour

4.58

1 **Initial position** 3 miles N of the harbour entrance.

Leading lights:

Front light (red column with white stripe on framework tower, on piles, elevation 7 m) (18°27′·5N 66°07′·7W).

Rear light (similar structure, elevation 17 m) (1¼ cables from the front light).

2 The alignment (180½°) of these lights leads through Bar Channel, passing (with positions from Puerto San Juan Light (18°28′·4N 66°07′·4W)):

3 W of a shoal patch (3 cables N), with 10·3 m (34 ft) of water over it, thence:

E of No 2 Light–buoy (starboard hand) (3¼ cables WNW), marking the NE extremity of Bajo Colnas (see below), moored 2 cables ESE of a wreck lying on Las Cabritas, which are three small prominent islets. It is reported (2003) that the wreck is no longer visible although its positions can be identified by breakers. Thence:

4 W of No 3 Light–buoy (port hand) (2 cables W), marking the E side of the entrance to the dredged channel, thence:

E of a dangerous wreck (4 cables W) which lies near the edge of Bajo Colnas, extending 1¾ cables E from a large above–water rock and several below–water rocks and dangerous wrecks lying off the E extremity of Isla de Cabras, thence:

5 W of No 5 Light–buoy (port hand) (2¼ cables WSW) marking the E side of the dredged channel, off the SW extremity of Bajo Santa Elena, and:

E of No 4 Light–buoy (starboard hand) (3½ cables WSW) marking the W side of the dredged channel, off the SE extremity of Bajo Colnas which is usually marked by breakers. When the North–east Trade Wind is blowing it is necessary to keep well clear of Bajo Colnas. Thence:

6 To a position NE of No 6 Light–buoy (starboard hand) (4 cables SW), moored about 1½ cables NE of Arrecife Bajios, on which the sea breaks at times.

Anegado Channel

4.59

1 Anegado Channel is dredged over a least width of 244 m, to maintain it at or near its project depth of 12·2 m (40 ft), see 4.40.

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San Antonio Channel from NE (4.61)

(Original dated 1993)

(Photograph – Puerto Rico Ports Authority)

2 The turn from Bar Channel into Anegado Channel may be difficult when the North–east Trade Wind is blowing, as this tends to force a vessel almost broadside to the swell during the turn. It is recommended therefore that this turn should be started early, before the markers on the N side of the channel are visible.

4.60

1 From a position NE of No 6 Light–buoy Anegado Channel leads SE, passing (with positions from Puerto San Juan Light (18°28·4′N 66°07·4′W)):

2 SW of No 7 Light–buoy (port hand) (3 cables SSW), thence:

NE of No 8 Light–buoy (starboard hand) (4¾ cables SSW) moored at the NE extremity of the extensive bank which forms the SW side of the channel, thence:

3 SW of No 9 Light–buoy (port hand) (4¼ cables S) moored off the W side of Bajo San Agustin which is one of the shoals which extend up to 1½ cables off the SW coast of Isla San Juan, thence:

4 NE of No 10 Light–buoy (starboard hand) (7 cables SSE) moored on the NE side of 4·2 m (14 ft) shoal close NE of Bajo Tablazo, thence:

SW of No 11 Light–buoy (port hand) (8½ cables SSE) moored close SW of La Puntilla, marking the NW side of the dredged channel, close to the junction with San Antonio Approach Channel (4.61), thence:

5 SW of No 13 Light–buoy (port hand) (1¼ miles SE) moored SW of Yaboa Shoal (not named on chart), with a depth of 5·5 m (18 ft) over it, 1½ cables from the coast, thence:

NE of No 14 Light–buoy (starboard hand) (1½ miles SSE) marking the SW end of Anegado Channel.

San Antonio Channel

4.61

1 **San Antonio Approach Channel** is dredged over a least width of 183 m, to maintain it at or near its project depth of 10·7 m (35 ft).

See caution at 4.40.

2 From a position 1 mile SE of Puerto San Juan Light the channel leads NE towards Puerta de Tierra.

4.62

1 **San Antonio Channel** with a least width of 152 m, is maintained at or near its project depth of 9·1 m (30 ft), extending E to about 4 cables from the head of the basin. There are several shoal patches, and a dangerous wreck, position approximate, close outside the dredged area, as shown on the chart.

2 See caution at 4.40.

Graving Dock Channel

4.63

1 Graving Dock Channel is dredged over a least width of 106 m, to maintain it at or near its project depth of 11.0 m (36 ft).

See caution at 4.40.

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2 **Initial position** 1½ miles SE of Puerto San Juan Light.
Leading lights:
Front light (red column with white stripe on piles, elevation 13 m) (18°26′·6N 66°05′·2W).
Rear light (red column with white stripe on tower, elevation 25 m) (2½ cables from the front light).

3 The alignment (111°) of these lights leads through the centre of the channel which is marked on both sides by light–buoys and buoys (lateral).

Army Terminal Channel
4.64

1 Army Terminal Channel dredged over a width of 106 m, to maintain it at or near its project depth of 12·2 m (40 ft).
See caution at 4.40.
Initial position 1½ miles SE of Puerto San Juan Light.

2 **Leading lights:**
Front light (red column with white stripe on tower, elevation 9 m) (18°25′·8N 66°06′·5W).
Rear light (red column with white stripe on tower, elevation 13 m) (2 cables from front light).

3 The alignment (175½°) of these lights leads through the centre of the channel which is marked on both sides by light–buoys and buoys (lateral).

Puerto Nuevo Channel
4.65

1 Puerto Nuevo Channel is dredged over a width of 106 m, to maintain it at or near its project depth of 11.9 m (39 ft) as far NE as No 5 Light–beacon (port hand) (18°26′·5N 66°05′·4W); thence a least charted depth of 9·4 m (31 ft) in the fairway.
See caution at 4.40.
Initial position 2½ miles SSE of Puerto San Juan Light, in Army Terminal Turning Basin.

2 **Leading lights:**
Front light (red column with white stripe on tower, on piles, elevation 14 m) (18°26′·6N 66°05′·2W).
Rear light (red column with white stripe on tower, elevation 24 m) (3 cables from the front light).

3 The alignment (058½°) of these lights leads through the centre of the channel which is marked along its NW side by light–buoys, buoys and light–beacons (port hand). The SE side of the channel is fronted by wharves with depths alongside (2004) between 7·2 m and 11·3 m (23½ ft and 37 ft).

Anchorages and berths

Anchorages
4.66

1 The following designated anchorage areas, as shown on the chart, are positioned from Puerto San Juan Light (18°28′N 66°07′W):

2 Area "E" (Deep Draught Anchorage) (1½ miles SE), with a project depth of 11 m (36 ft), is a temporary anchorage for use whilst awaiting customs or quarantine clearance. The time limit is 24 hours except with a permit from the Captain of the Port. A special can light–buoy (B) marks the E corner of the area and a special conical buoy (A) marks the NE corner.

San Juan Isla Grande Pier (4.67)

(Original dated 1993)

(Photograph – Puerto Rico Ports Authority)

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3 Area "F" (1 mile SSE), with a controlling depth of 7·9 m (26 ft) and a least charted depth of 6·4 m (21 ft) near the S boundary, is a restricted area, which, with a permit from the Captain of the Port, may be used as an additional general anchorage when Area "E" is full. This area is also used for loading and unloading explosives not exceeding 40 tonnes. A light–buoy (A) (special) (1¼ miles SSE) marks the SW limit of the area and No 14 Light–buoy marks the SE limit.

4 Area "D" (1¾ miles ESE), situated, at the E end of Caño de San Antonio, with general depths of 9·1 to 11·9 m (30 to 39 ft), is restricted for the use of small craft.

Alongside berths

4.67

1 The Port of San Juan has 33 wharves and piers with a total of 43 berths. Most of these are owned and operated by the Puerto Rico Ports Authority, from whom a berthing permit is required. The following list of berths includes only the largest berth in each separate location, which are given with positions from Puerto San Juan Light (18°28′N 66°07′W).

4.68

Berth	*Position*	*Lengths*	*Depths*	*Remarks*
South side of Isla San Juan:				
Pier 3	8 cables SE	275 m	10·7 m	Cruise ships
Pier 4	1 cable E of No 3 Pier	330 m	8·8 m	Cruise ships
Puerta de Tierra:				
Pier 9	1¼ miles ESE			
E Side		182 m	8·2 m	Containers
N side of San Antonio Channel:				
Frontier Base Pier (Fernandez Juncas Wharf)	2 miles ESE	270 m	8·8 m	Military and cruise ships
North side of Isla Grande:				
Navieras de Puerto Rico Terminal				
Seatrain Wharf	1¼ miles ESE	400 m	7·6 to 9·8 m	Containers
Isla Grande Terminal Berths (Pan American Wharf) (1½ miles ESE):				
"W"	W end			Containers
"D"	Centre	400 m	8·8 to 4·6 m	Bulk cargo
"C"	E end			General cargo
SW side of Isla Grande:				
TMT Terminal	1¾ miles SE	91 m	5·4 m	Ro–Ro Ramp
Graving Dock Terminal				
Pier 15	2½ miles SE	305 m	8·6 m	Repairs 45 tonne crane
Army Terminal:				
Army Terminal Pier	2¾ miles SSE	183 m	8·8 m	General cargo
			7·9 m	Ro–Ro
PR Mills wharves	2½ miles SSE	Total of 547 m	9·1 m	Bulk grain
Puerto Nuevo Channel:				
Puerto Nuevo Docks, from SW end (2¾ miles SSE) to NE:				
A and B	SW end	305 m	8·8 m	General cargo
C		183 m	7·0 to 8·5 m	Ro–Ro Terminal
D to M		1740 m	7·9 to 9·4 m	Containers
Isla de Cabras (8 cables W)				
Pier	Close S of Isla de Cabras.		Shallow draught	Explosives

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Port services

Repairs
4.69

1 Major repairs of all kinds can be carried out. Docking facilities are as follows (with positions from Puerto San Juan Light):

2 Dry dock (2½ miles SE), details given at 1.203.
Floating dock (at Pier 15, near the Dry Dock) has a capacity of 1400 tonnes and a maximum length 61 m, width 12·2 m and depth 4·5 m.
Patent slip (at Punta Cataño, 1¾ miles SSE) is able to handle vessels of 1000 tonnes with a length of 68·6 m and draught of 5·5 m.

Other facilities
4.70

1 **Deratting** and Deratting Exemption Certificates.
Hospitals: available.
Oily waste cannot be received.
Salvage equipment and tugs for long distance towing are available.

Supplies
4.71

1 **Fuel oil** and marine diesel are available at the Navy Fuelling Pier (Army Terminal (4.68)) and can also be supplied by lighter.
Fresh water is laid on to all berths and can be supplied by water–boat.
Provisions and marine stores of all kinds are available.

BAHÍA DE SAN JUAN TO PUNTA LAS TUNAS

General information

Chart 3408

Route
4.72

1 From a position N of Ponta del Morro Light (18°28′N 66°07′W) the coastal route leads W for about 30 miles, to a position N of Punta Las Tunas (18°30′N 66°38′W).

Topography
4.73

1 General topography (4.12).
From Bahía de San Juan to Punta Las Tunas the coast is indented by several coves and bights, although none of them afford sheltered anchorage.
From Bahía de San Juan to Punta Puerto Nuevo (15 miles W) the coast contains numerous hummocks and rocky bluffs (40 m high) with short beaches between them.

2 From Punta Puerto Nuevo (18°30′N 66°24′W) to Punta Las Tunas (14 miles W), the coast consists of sandy beaches and dunes, with occasional rocky bluffs.

Depths
4.74

1 General information (4.13).
A line of breakers, enclosing numerous detached rocks, fringes the coast about 5 cables offshore.

Fishing
4.75

1 Information on fishing marks is given at 4.6.

Natural conditions
4.76

1 General information is given as follows:
Sea state at 4.8.
Flow at 4.14.
Local weather at 4.7.

Principal mark
4.77

1 **Major light:**
Puerto San Juan Light (4.55).

Firing Practice Area
4.78

1 There is a firing area on the N coast extending to 5 miles offshore (see chart and Appendix VI).

Directions
(continued from 4.32)

4.79

1 From a position N of Ponta del Morro Light (18°28′N 66°07′W) the track leads W, passing (with positions from Punta Puerto Nuevo (18°30′N 66°24′W)):

2 N of a small rock (0·6 m high) lying about 1½ miles WNW of Punta Salinas (12 miles E), a long narrow peninsula, at the N end of which stands a hill (20 m high) with a bluff on its N side. Several dome–shaped structures standing on the point and a large blue water tank, 1¾ miles S of the point, are prominent from seaward. Thence:

3 N of Punta Fraile (20 m high) (7 miles E), a green–covered ridge with a small bluff at its W end. Two chimneys stand 2½ miles SSE of the point. Thence:
N of a light–buoy (special, pillar) (6½ miles ENE), thence:

4 N of Punta Cerro Gordo (3½ miles E) which has on it a distinctive ridge (41 m high) extending about 1 mile E, which is faced seaward, in places, with bluffs, thence:

5 N of Isletas de Garzas (1¼ miles E), consisting of bare rocks which are only visible when close–to, situated N of a grassy hill which terminates W in a prominent bluff, at the mouth of Río Cibuco, thence:

6 N of rocky islets, which extend 3 cables N from Punta Puerto Nuevo and are distinctive against the sandy beach to the S, thence:
N of the numerous rocks lying E and W of Punta Manati (7 miles W), situated 5 cables E of Río Grande de Manati which discharges between two hills (40 m high), thence:

7 N of Tres Hermanos, three islets which lie at the W extremity of numerous rocks and reefs extending about 7 cables W from Punta Palmas Altas (11 m high) (9½ miles W) which is a bare, rocky point, thence:

8 N of Los Negritos (12 miles W) which are high, rugged, prominent rocks, close to the coast.

9 From this position the track continues W for about 1½ miles to a position N of Punta Las Tunas (14 miles W) the W extremity of several high rocky hummocks which form the coast for about 1¼ miles.

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Useful marks

4.80

1 Isla de Cabras (15 miles E) (4.55).
High chimney (2½ miles SE) visible above surrounding trees.
Aero radio beacon (2 miles SSW).
Two chimneys (7½ and 8½ miles WSW).
Mark in the vicinity of Puerto Arecibo is given at 4.93.
(Directions continue at 4.88)

Anchorage

Punta Palmas Altas

4.81

1 Anchorage is available about 4 cables off Punta Palmas Altas (18°29′N 66°34′W) in depths of 13 to 15 m (42 to 48 ft). There is always a swell and a rather strong current at this anchorage.
Houses and the remains of a small concrete pier are situated in the bight to the W of the point.
2 **Local knowledge** is required.

PUNTA LAS TUNAS TO PUNTA AGUJEREADA

General information

Charts 3408, 472

Route

4.82

1 From a position N of Punta Las Tunas (18°30′N 66°38′W) the route leads W for about 30 miles, to a position N of Punta Agujereada (18°30′N 67°08′W).

Topography

4.83

1 General topography (4.12).
Conspicuous high hills in the interior, consisting of smooth grassy slopes rising to conical wooded summits (up to 244 m high), extend from a position 1 mile W of Arecibo (18°29′N 66°42′W) to the W end of the island.
2 To the W of Río Camuy (18°29′N 66°50′W), the coast consists of rocky cliffs (46 to 91 m high) with sandy beaches and dunes between them. These cliffs rise direct from the sea in places, including a continuous section for 5 miles W of Punta Peñon (18°30′N 66°52′W).
3 From Arecibo to Punta Agujereada, the coast has few indentations and affords no sheltered anchorages.

Fishing

4.84

1 Fishing marks (4.6).

Rescue

4.85

1 A lifeboat and line–throwing apparatus are maintained at Arecibo (18°29′N 66°42′W) (4.90).

Natural conditions

4.86

1 Sea state (4.8). Flow (4.14). Local weather (4.7).

Principal marks

4.87

1 **Major light:**
Punta Borinquen Light (18°30′N 67°09′W) (4.105).
Landmark:
Punta Morrillos Light (white, 6–sided tower and dwelling, 14 m in height) (18°29′N 66°42′W) situated on the summit of a hill on Punta Morrillos.

Directions

(continued from 4.80)

4.88

1 From a position N of Punta Las Tunas (18°30′N 66°38′W) the track leads W passing (with positions from Punta Peñon (18°30′N 66°52′W)):
N of Punta Caracoles (11 miles E), a rocky bluff (21 m high) with 2 islets close W of it, thence:
N of Punta Morrillos (10 miles E) (4.87), thence:
N of Punta Manglillo (2½ miles E) on which stands a distinctive group of buildings, thence:
2 N of Peñon de Afuera, a rocky islet situated close W of Punta Peñon, which is a slight projection with lower land between it and the foothills about 3 cables inland, thence:
N of Punta Sardina (8½ miles W) which is low and rocky.
3 From this position the track continues W for about 7 miles to a position N of Punta Agujereada (15½ miles W) the NW extremity of Puerto Rico, situated at the W end of a rocky bluff which is over 60 m high.

Useful marks

4.89

1 The following marks are positioned from Punta Peñon (18°30′N 66°52′W):
2 The radio masts and towers, chimneys and aero lights, as shown on the chart.
The mouth of Río Guajataca (5 miles W) consists of a deep gulch that is distinctive from the N.
A large yellow church, with spire and 2 towers, situated in the village of Isabela (9 miles W), is a distinctive mark by day. The lights of the village are distinctive at night.
3 Mark in the vicinity of Puerto Arecibo (10 miles E) is given at 4.93.
(Directions continue for passage W of Puerto Rico at 4.107.
Directions for Mona Passage are given at 2.36)

Puerto Arecibo

Chart 3408 (see 1.20)

General information

4.90

1 **Description.** Puerto Arecibo is an open bay, partly protected by a breakwater extending 2 cables SW from the headland on which stands Punta Morrillos Light (18°29′N 66°42′W) (4.87), which will be used as a general reference object in this text.
2 **Function.** Owing to a lack of normal facilities and aids its use is not recommended. It is now used mainly by fishing vessels, chemical supply barges and small craft.
Population. In 2002 the population was 101 283
3 **Topography.** Within Punta Morrillos (4.87) the land rises to two hills (about 24 m high), as follows:
The N hill is situated about 1½ cables E of the point.
The S hill, which has a bluff on its S side, is situated about 2½ cables farther S.

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Puerto Arecibo from NE (4.90)

(Original dated 1993)

(Photograph – Puerto Rico Ports Authority)

Río Grande de Arecibo discharges into the head of the bay (8½ cables SW), close E of the town.

4 **Pilots** can be obtained from Bahía San Juan (4.48).

Limiting conditions: Entrance channel is dredged to a controlling depth of 7·0 m.

Directions for entering harbour

4.91

1 **Approaches.** The recommended approach from both E and W is to remain at least 3 miles off the coast until in a position to close the port.

2 **From east:**

From the vicinity of 18°33′N 66°41′W, the line of bearing, 200°, of the cathedral (1 mile WSW), which has a belfry and a dome, and a large building near it, all of which are prominent, leads towards the entrance channel.

3 **From west:**

From the vicinity of 18°33′N 66°47′W, the line of bearing, 132°, of Punta Morrillos light (4.87) leads towards the entrance channel.

4.92

From a position 7 cables NW of Punta Morrillos Light, with the light bearing 132° and the cathedral bearing 200°, the track leads 165° with a position midway between two prominent, high chimneys (1¾ miles S) on a bearing ahead, passing:

1 WSW of Tres Hermanos, three islets, the outermost of which (0·9 m high) (2¾ cables W) lies close off the breakwater, thence:

WSW of Roca Coginera (3¼ cables WSW), at the outer end of the mole extending 1¾ cables SW from Punta Morrillos, marked off its W side by No 1 Light–buoy (port hand), thence:

2 ENE of No 2 Light–buoy (starboard hand) (5 cables WSW).

4.93

1 **Useful mark:**

High chimney (2½ miles WSW).

Anchorages

4.94

1 Anchorage exists about 2½ cables NW of the head of the mole, in a depth of 15 to 16 m (48 to 54 ft), positioned by the following:

2 The alignment (118°) of Roca Coginera (3 cables WSW) (4.92) with the bluff on the S side of the hill (3 cables S).

The line of bearing, 216°, of the cathedral (1 mile WSW) (4.92).

3 Anchorage is also available about 2½ cables W and NW of the above position, in depths of 16 to 22 m (54 ft to 12 fm), well clear of Roca Resuello, which dries, (1 mile WSW).

A wind from the N may make the anchorage untenable.

Alongside berth

4.95

1 A wharf, with a length of 183 m and a depth alongside of 6·7 m (22 ft) (reported 1998), and less at the inner end, is situated on the SE side of the mole. The basin off the wharf has depths of 2·8 to 4·2 m (9 to 14 ft) (2003) with lesser depths along the E edge and S part of the basin. A charted depth of 2·2 m (7 ft) lies S of the berth.

Port services

4.96

1 **Facilities:** two hospitals.

Supplies: fresh provisions.

PUERTO RICO—WEST SIDE

GENERAL INFORMATION

Chart 472

Area covered

4.97

1 This section describes the coastal passage W of Puerto Rico from a position NW of Punta Agujereada (18°30′N 67°08′W) to a position off Cabo Rojo (17°56′N 67°12′W), a distance of about 55 miles, and includes the following:

2 The harbour of Bahía de Aguadilla (18°25′N 67°10′W) (4.109).

The harbour of Bahía de Mayagüez (18°13′N 67°11′W)) (4.119).

The inshore channel of Canal de Guanajibo (18°05′N 67°13′W) (4.167).

Offshore information

4.98

1 The W coast of Puerto Rico, and the banks and shoals extending seaward, form the E side of Mona Passage. Offshore information is therefore included under Mona Passage in Chapter 2.

PUNTA AGUJEREADA TO MAYAGÜEZ

General information

Chart 472

Route

4.99

1 From a position N of Punta Agujereada (18°30′N 67°08′W) the route leads SW for about 20 miles to a position SE of Isla Desecho (18°23′N 67°29′W) (2.34).

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Topography

4.100

1 General topography (4.3).

Topography in the vicinity of Bahía de Aguadilla (18°25′N 67°10′W) (4.110).

2 Punta Higuero (18°22′N 67°16′W), a salient and prominent point, is low and partly wooded at its extremity. From about 3 cables inland, rolling hills (from 40 to 80 m high) rise steeply then extend S in a gradual rise to Pico Atalaya (5½ miles SE of the point), the W peak of the highest part of a short level ridge. A television tower stands on Pico Atalaya.

3 Topography in the approach to and vicinity of Bahía de Mayagüez is given at 4.121.

Depths

4.101

1 Information on depths is given as follows:

In the vicinity of Bahía de Aguadilla at 4.112.

In the vicinity of Bahía de Añasco (18°16′N 67°14′W) at 4.124.

Hazards

4.102

1 Fishing marks (4.6).

Overfalls, appearing similar to a land mass on radar, have been observed in the vicinity of 18°30′N 67°18′W.

Rescue

4.103

1 A Coast Guard Air Station is operated at Borinquen Airport (18°30′N 67°08′W) and crash boats are based at the Air Force Pier in Aguadilla (4.117).

Information regarding area organization is given at 1.61.

Natural conditions

4.104

1 Sea state (4.8). Flow (4.9). Current (2.29). Local weather (4.7).

Principal marks

4.105

1 **Landmarks:**

Punta Borinquen Lighthouse (grey column, 18 m in height) (18°30′N 67°09′W). A brown scar in the cliff, just beneath the light, distinctive from seaward. A description of the adjoining cliffs is given at 4.83.

2 Radio tower (with an elevation of 367 m) (18°24′N 67°11′W) is a most prominent feature from seaward.

3 White dome, 2 cables NE of Punta Higuero Light (grey column 21 m in height) (18°22′N 67°16′W). A radio tower (with an elevation of about 100 m), standing close E of the light, is marked by red lights.

4 Isla Desecheo (18°23′N 67°29′W) (2.34), 12 miles W of Punta Higuero.

4.106

1 **Major light:**

Punta Borinquen Light—as above.

Directions

(continued from 4.89)

4.107

1 From a position N of Punta Agujereada (18°30′N 67°08′W), the track leads SW passing (with positions from Punta Higuero Light (18°22′N 67°16′W)):

2 NW of Punta Borinquen (9½ miles NE), steep–to with deep water 5 cables offshore but has a small–arms firing area in the vicinity of the light. The W extremity of the point is low, but backed by steep, wooded slopes about 5 cables inland. The rocky bluff along the N coast (4.83) terminates close NNE of the point and Punta Borinquen Light (4.105) stands 1 mile NNE. Thence:

3 NW of Punta Higuero, the W extremity of Puerto Rico (4.100), noting that tide–rips occur off this point at some stages of the tide, thence:

SE of an isolated coral patch with a depth of 84 m over it (8 miles WNW), reported 1971.

4 From this position the track continues SW for about 3 miles to a position SE of Isla Desecheo (12 miles W) (2.34).

Useful mark

4.108

1 Red and white water tower (18°30′N 67°08′W).

(Directions continue for Bahía de Mayagüez at 4.139, and for passage W of Puerto Rico at 4.165)

Bahía de Aguadilla

General information

4.109

1 **Description.** Bahía de Aguadilla (18°25′N 67°10′W), an open bay exposed to the N and W, extends from Punta Borinquen to Punta Higuero (10 miles SW). The bay provides two open sea berths for local coasters engaged in the export of sugar and molasses; and for tankers supplying Ramey Air Force Base. This is a customs port of entry.

4.110

1 **Topography.** From 1 to 2 miles S from Punta Borinquen the coast consists of low rocky bluffs backed by sloping high land. From a position 2 miles S of Punta Borinquen, conical wooded hills (150 to 250 m high), with patches of white rock showing near their summits, follow the coast S to a large valley formed by Río Culebrinas (2 miles SW of Aguadilla) then trend inland along the N side of the valley.

2 From the head of the bay to Punta Higuero, the coast is formed by a sandy beach, backed by groves of coconut palms and, W of Río Culebrinas, low wooded hills rise at a short distance inland, the higher hills being to the S. A number of prominent radio towers are situated about 2 miles S of Aguadilla.

4.111

1 The town of Aguadilla, situated at the head of the bay, is built along a bluff on a narrow strip of low land at the foot of the hills. It is visible from seaward and the lights show well at night. The following features may be identified among the highest features in the town:

2 Cemetery, with prominent vaults, at the N end.

Two red roofed buildings, to the S of the cemetery.

The Townhall Clock Tower (18°25′·8N 67°09′·3W).

The N and higher of the two grey towers of the cathedral.

3 The municipal hospital (large concrete building) situated near the beach at the S end of the town, which is prominent from seaward.

Green–roofed grandstand (about 1 mile S of Clock Tower), the only large building in this vicinity which stands close NE of Columbus Monument, which is situated close to the coast but is small and obscured by trees.

4.112

1 **Depths.** The shores of the bay are bordered by a narrow steep–to bank. A shoal extends about 1 cable off the point

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at the N end of the town, between the cemetery and the second red roofed building (4.111). Another shoal, with a depth of 4·6 m over it, extends 1¾ cables off the point about 3 cables S of the Customs House.

2 Sand bars are said to extend 2 cables offshore in the vicinity of the mouths of the streams flowing into the S side of the bay.

3 **Port Authority.** For details see 4.10.

Limiting conditions

4.113

1 **Density of water:** 1·025 g/cm^3

Swell. The bay is subject to a ground swell (1.220) in the winter, making it difficult to berth alongside and untenable for small craft.

2 **Maximum size of vessel handled.** Length 183 m, draught 11 m.

Arrival information

4.114

1 **Pilotage** is compulsory and available day and night. For regulations and information see 1.34.

Pilots, available from Mayagüez (4.133) on receipt of 24 hours notice, will board vessels 3 to 4 miles off the bay. When the Pilot agrees to berth a vessel at night the lights of the assisting tug will be used to assist the manoeuvre.

2 **Tugs** are available from San Juan (4.49) on request.

Quarantine is enforced in accordance with the regulations given at 1.48.

Directions for entering harbour

4.115

1 **From north–west.** From a position on the coastal route at 18°29′N 67°17′W, with Punta Borinquen Light (4.105) bearing 084° distant 7 miles, the track leads SE for about 6 miles into the anchorage, passing:

SW of a fish haven (18°27′·5N 67°10′·1W) with an authorised minimum depth of 20 m.

2 When the N tower of the cathedral (4.111) bears 110°, or is in line with a rounded hill that is a little higher than the surrounding hills and shows up on the skyline from the W, the track leads towards the anchorage.

3 **From south.** From the vicinity of 18°23′·7N 67°17′·0W, with Punta Higuero Light (4.105) bearing 155°, the track leads towards the N part of the town then approaches the anchorage on the line of bearing 110°, as given above.

Anchorage

4.116

1 The usual anchorage in Bahía de Aguadilla is along the approach line, 110° in depths of 16 to 36 m, anchoring when the chosen depth has been achieved. As the bottom shoals rapidly it is usual to veer cable to the anchoring depth prior to arrival. This anchorage is calm during the prevailing winds but from November to March there are sometimes strong N winds and a high sea, rendering the anchorage dangerous.

2 At night it is possible to anchor off the centre of the town lights.

Alongside berths

4.117

1 There are three berths around the bay, as follows:

Conveyor pier (1¼ miles N of the town), with a depth of 12·2 m at its outer end. Vessels are secured to four mooring buoys and a dolphin at the head of the pier which is fitted with a pipeline for molasses.

2 A concrete pier (about 1¾ miles N of the town) which extends about ½ cable from the coast, is used by the Air Force for handling aviation fuel. In 1972 a depth of 9·1 m was reported alongside the platform at the end of the pier. The berth consists of mooring buoys and pile clusters, with a connecting platform and pipeline.

3 A small pier, situated off the town and marked by a light (framework tower, elevation 8 m), with depths of 3·6 to 4·3 m alongside its outer end, is used for loading lighters for use with vessels at anchor.

Port services

4.118

1 **Other facilities:** two hospitals; facilities for oily waste reception.

Supplies: fuel is reportedly available; fresh water.

BAHÍA DE MAYAGÜEZ AND APPROACHES

General information

Chart 478 plan of Bahía de Mayagüez, 472

Position

4.119

1 Bahía de Mayagüez (18°13′N 67°11′W), situated near the middle of the W coast of Puerto Rico, is about 190 km from San Juan (4.34). The bay extends from Punta Algarrobo (18°14′N 67°10′W) to Punta Guanajibo (3¾ miles S).

Function

4.120

1 Bahía de Mayagüez contains a deep water harbour and spacious anchorage, combining good swinging room with fair protection, providing shelter for vessels of deep draught, in any weather except a hurricane. In 1985 Mayagüez, situated at the head of the bay, became the second most important port in Puerto Rico, as well as being one of the three leading commercial towns of the island. In 1996 the estimated population was 100 937.

2 Mayagüez is a port of entry lying close to a free port area.

Topography

4.121

1 **Northern approach.** South–east of Punta Higuero (18°22′N 67°16′W) (4.100) the coast consists of a narrow strip of low land, fringed with coconut palms and backed by rolling hills. From Córcega (3¼ miles SSE of Punta Higuero) a valley trends inland toward Pico Atalaya (4.100). A conspicuous red building stands close to the beach at Córcega.

2 Cerros San Francisco (4½ miles SSE of Punta Higuero), a series of dome–shaped hills which slope upwards from Punta Cadena to Pico Atalaya, are mostly cultivated and have few trees on them.

4.122

1 **Bahía de Añasco** (18°16′N 67°13′W) is marked on its E side by the mouths of several large rivers, indicated by a break in the groves of coconut palms.

4.123

1 **Bahía de Mayagüez.** The shore of the bay is formed by a sandy beach, close within the S part of which are a number of lagoons and marshes.

2 Punta Algarrobo is low and covered with coconut palms; a range of wooded hills extends E from the point. One of the large rocks off this point is painted white and is distinctive.

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The town of Mani extends along the coast for a mile close N of Punta Algarrobo.

Depths
4.124

1 South–east of Punta Higuero (18°22′N 67°16′W) (4.100) the coast is bordered by rocks and coral reefs which extend about 4½ cables offshore. When approaching the coast the depths decrease from over 200 m (100 fm) to 10 m (30 ft) and less, within a distance of 5 cables. However the water is clear and shoal patches can usually be distinguished by the colour of the water over them.

2 The N shore of Bahía de Añasco is foul for a distance of about 1 mile offshore. As there are a number of shoals, with depths of about 5 m (16 ft) over them, within the 20 m (60 ft) depth contour, sounding gives little or no warning when approaching them. Off Río Añasco depths of less than 2 m (6 ft) exist up to 3½ cables offshore.

Approach and entry
4.125

1 Bahía de Mayagüez is approached from the W and entered by a marked channel through the reef which extends across the entrance to the bay. It is reported to be easy to enter by day and at night.

Traffic
4.126

1 In 2004 217 vessels, with a total dwt of 735 557 tonnes, used the port.

Port Authority
4.127

1 Puerto Rico Ports Authority (4.10).

Local rules and regulations for Bahía de Mayagüez are enforced by a Commonwealth Captain of the Port, with an office on the Ports Authority Shipping Terminal Wharf (4.151).

Limiting conditions

Controlling depth
4.128

1 The controlling depth in the centre of the Approach Channels (4.145) is 9·1 m (30 ft) and in the Terminal Channel (4.146), leading to alongside berths, is 6·4 m (21 ft). The reported depths were 9·1 m (30 ft) (1999) in the Approach Channel and 7·9 m (26 ft) (2004) in the Terminal Channel, with shoaling on the sides of the channels (see 4.145 and 4.146). Local knowledge is required.

2 There are depths of 10 to 20 m (33 to 65 ft) in the anchorage (4.148 and 4.149).

Deepest and longest berths
4.129

1 The deepest and longest berth is the fish packing wharf (4.151) in the Ports Authority Shipping Terminal.

Mean tidal levels
4.130

1 MHW 0·3 m.
MLW 0·0 m.

Maximum size of vessel handled
4.131

1 Vessels of 180 m or more in length.

Arrival information

Notice of ETA
4.132

1 Twenty four hours notice is required for a pilot.

Pilots
4.133

1 Compulsory and available day and night. For regulations and information see 1.34. Pilots board 2½ miles W of Punta Algarrobo, about 1 mile W of the entrance channel as shown on the chart. See *Admiralty List of Radio Signals Volume 6(5)*

Tugs
4.134

1 None.

Quarantine
4.135

1 Quarantine (1.48).

Mayagüez is an Agricultural Quarantine Station.

Harbour

General layout
4.136

1 An open roadstead, protected somewhat by the shoals extending across the entrance, with a shipping terminal in the N part of the bay.

Natural conditions
4.137

1 **Tidal streams** set N and S across the entrance to the bay at an estimated rate of about 1 kn. For further details see 2.30. These streams are not felt in the anchorage.

2 **Caution.** Vessels have sometimes been set S, dangerously near to Arrecife Tourmaline (10 miles SW of Punta Algarrobo).

3 **Sea state.** There is always a slight surf on the beach but it does not interfere with boats and lighters at the landing places.

Wind from the W or SW creates a surge in the harbour causing vessels to move against the wharf and forcing smaller vessels to anchor off.

4 **Local weather.** General information on local weather is given at 4.7.

Wind blows mainly from the ENE and sea breezes, which are not common, oppose the North–east Trade Wind.

The nearest hurricane anchorage is at Bahía de Guánica (4.518) a distance of 60 miles.

Principal marks
4.138

1 **Landmarks** (with positions from Punta Algarrobo (18°14′N 67°10′W)):

Saddle–shaped hill (163 m high) (5½ miles NNW), situated at the W end of Cerros San Francisco (4.121), prominent from S.

2 Cerro Anterior (3 miles ESE) a saddle–shaped, wooded hill identified by a group of buildings on its SW side, somewhat higher than those in the town.

Tall water tank (3 miles SSE), blue painted.

3 Punta Guanajibo (3¾ miles S), rises to a flat–topped ridge (Cerro Cornelia), on which stands a reform school prominent from the S.

Pico Montoso (10 miles ESE, Chart 472) (4.163).

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Directions for entering harbour
(continued from 4.108)

Approach from north
4.139

1 From a position SE of Isla Desecheo (18°23′N 67°29′W) the approach leads SE towards the entrance channel (4.141), passing (with positions from Punta Algarrobo (18°14′N 67°10′W)):

SW of Punta Ensenada (8¾ miles NW), thence:

2 SW of Arrecife Peregrina (6 miles NW) which extends from the coast to a position 6½ cables SW of Punta Cadena. This reef is in the form of a ridge and its outer edge is steep–to; thus depths give no warning of approach and a wide berth is recommended. Thence:

3 SW of Manchas Exteriores (2½ miles WNW) steep–to on its W side and marked by No 1 Buoy (port hand). Broken ground, with depths of less than 9 m (30 ft) over it, extends ESE to within 1 mile of the coast.

(Directions continue for entering harbour at 4.141)

Approach from south
4.140

1 From the vicinity of 18°10′N 67°23′W, the approach from S leads ENE towards the entrance channel (4.141), passing (with positions from Punta Algarrobo (18°14′N 67°10′W)):

2 NNW of Arrecife Tourmaline (10½ miles WSW) which is the W extremity of a series of shallow, rocky banks (centred on Escollo Negro (4.170)), extending about 9 miles W from Punta Guanajibo (4.138), marked on its W side by No 8 Light–buoy (starboard–hand). Thence:

3 NNW of Manchas Grandes (2¼ miles SW) (4.142).

Bahía de Mayagüez Entrance Channel
4.141

1 Bahía de Mayagüez Entrance Channel (1½ miles WSW of Punta Algarrobo), between Manchas Grandes and Manchas Interiores, has a charted width of 3½ cables in which there is deep water.

Entering harbour
4.142

Leading lights:

Front light (red column with white stripe, elevation 8 m) positioned on the roof of a warehouse (8 cables SE of Punta Algarrobo (18°14′N 67°10′W)).

1 Rear light (red column with white stripe, elevation 27 m) positioned on a tower on a building (1½ cables E of the front light).

The alignment (092¼°) of these lights (which were reported in 1987 to be difficult to see by day) leads through the entrance channel, passing (with positions from Punta Algarrobo):

2 S of Manchas Interiores (1½ miles W), the S end of the broken ground extending SE from Manchas Exteriores. The W and S sides are steep–to and Bahía de Mayagüez Entrance Light–buoy No 3 (port hand) marks the S extremity of the shoal. Thence:

3 N of the N extremity of Manchas Grandes (1½ miles WSW) which is marked by Bahía de Mayagüez Entrance Light–buoy No 4 (starboard hand). Manchas Grandes extends generally S for 1½ miles to Escollo Rodriguez, on which the sea always breaks and from which shoal water extends to the coast. Thence:

4 S of Arrecife Algarrobo (3 cables SW), which dries in places and on which the sea frequently breaks, which is marked off its S side by Bahía de Mayagüez Light–buoy No 5 (port hand).

4.143

1 **Alternative leading line** for the entrance channel is the alignment (103°) of the summit of Cerro Anterior (3 miles ESE) (4.138) with Pico Montuoso (10 miles ESE, (Chart 3408) (4.163). These marks are difficult to identify unless the visibility is good.

(Directions continue at 4.145)

Secondary entrance channel
4.144

1 A secondary entrance channel (1 mile WNW), passing inside Manchas Exteriores and Manchas Interiores, and W of Arrecife Algarrobo, has a least depth of 5·4 m (18 ft) in it. This channel is unmarked and the swell is reported to break in depths of 4 m.

Approach Channel
4.145

1 Approach Channel (7 cables SE of Punta Algarrobo), 750 m in length and 305 m wide at its W end, narrowing to 152 m at its E end, is a dredged channel, maintained at or near the controlling depth given at 4.128, leading towards the main wharf. In 1999 the depth in the channel was the project depth of 9·1 m (30 ft) but with shoaling along the N edge to 6·8 m (22½ ft) and slight shoaling on the S edge.

2 From a position S of No 5 Light–buoy (4.142) the recommended track leads 096° to line–up with the Terminal Channel (4.146), passing:

N of an isolated patch with a depth of 4·6 m (15 ft) over it (1¾ miles SE of Punta Algarrobo), marked by Bahía de Mayagüez Light–buoy No 6 (starboard hand).

Terminal Channel
4.146

1 Terminal Channel (9 cables ESE), 350 m in length with a width of 153 m, is a dredged channel maintained at or near its project depth of 6·4 m (21 ft), fronting the main wharf and marked on its S side by No 8 and No 10 buoys (starboard hand). In 2004 the depth in the channel was the project depth with shoaling along the S and E perimeter with a least depth of 5·8 m (19 ft) in the SE corner of the basin.

2 **Local knowledge** is required.

Useful marks
4.147

1 Features recognisable at Mayagüez, given from N to S, (with positions from Punta Algarrobo (18°14′N 67°10′W)):

Storage tanks and two closely positioned chimneys in the vicinity of the shipping terminal (9 cables SE).

2 City hall clock tower (about 1¾ miles SE) which is white with a green roof stands higher than other buildings.

Church (close E of the clock tower).

Basins and berths

Anchorages
4.148

1 Anchorage may be obtained in Bahía de Mayagüez, in depths of over 6 m (20 ft), anywhere off the leading line,

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with the rear leading light (4.142) bearing between 064° and 122°. This area is larger than in any other harbour in Puerto Rico and the holding ground is good.

2 A sewer outfall extends from the coast about 1 mile N of Punta Algarrobo, as shown on the chart.

4.149

1 The usual anchorage is SW of the shipping terminal, in depths of 9 to 15 m (30 to 50 ft), clear of the following (with positions from Punta Algarrobo (18°14′N 67°10′W)):

Bajo Mondongo (1 mile SE), parts of which dry.
A sunken wharf off Punta Algarrobito (1¼ miles SE).
Escollo Rodriguez (2¼ miles SSW) (4.142).
Roca Blanca (1½ miles SSW).

2 Approach to this anchorage can be made from the entrance channel (4.141) on a line of bearing (as required) on a green and white day beacon (1½ miles SE), off the mouth of Río Yagüez.

Mooring

4.150

1 A white mooring buoy is positioned 1¼ miles N of Punta Algarrobo.

Alongside berths

4.151

1 The Port Authority Terminal in the N part of the bay, controlled by the Puerto Rico Ports Authority, consists of three wharves as follows (with positions from Punta Algarrobo):

2 Main wharf (1 mile SE) with a length of 390 m and a depth of 6·4 m alongside.

The fish packing wharf (6 cables SE), with a length of 395 m and depths of 8·5 to 9·1 m alongside, is operated by three fish packing companies.

Bulk grain pier (3½ cables SE) with dolphins and a reported depth of 9·4 m alongside.

Port services

Repairs

4.152

1 Minor repairs above the waterline only.

Other facilities

4.153

1 Hospitals. Oily waste reception facilities are not available.

Supplies

4.154

1 Furnace fuel and marine diesel are available at the main wharf. Diesel fuel only is available at the fish packing wharf. Fresh water at the main and fish packing wharves. Fresh provisions.

Side channel

Entering harbour

(continued from 4.170)

4.155

1 **Route.** Passages for fishing vessels and smaller craft exist over the shoals SW of Mayagüez, passing SW of Manchas Grandes (2 miles SW of Punta Algarrobo (18°14′N 67°10′W) (4.123) and either side of Escollo Rodriguez (2¼ miles SSW of Punta Algarrobo) (4.142).

2 **Local knowledge** is essential.

Mayaguez – Port (4.151)

(Original dated 1993)

(Photograph – Puerto Rico Ports Authority)

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Caution. Depths over the coral heads may be as much as 1·8 m (6 ft) less than charted.

Attention is drawn to the submarine cable area, extending NW from the coast in the vicinity of Río Guanajibo (3½ miles S of Punta Algarrobo), as shown on the plan.

Anchorages

4.156

1 Fishing vessels anchor in depths of 1 to 4 m (3 to 12 ft) along the shore, S of the shipping terminal.

Alongside berths

4.157

1 A berthing facility at the E end of the main wharf (4.151) is reported to be available for short periods for the use of craft obtaining entry clearance and supplies. This berth is also reported to be subject to the local surge (4.137).

2 There are two piers fronting the town, for the use of harbour craft.

There are several landing places with depths of 0·6 to 1·8 m alongside.

BAHÍA DE MAYAGÜEZ TO CABO ROJO

General information

Chart 472

Route

4.158

1 From a position SE of Isla Deschecheo (18°23′N 67°29′W the route leads SW for about 16 miles to a position NE of Cabo Rojo (17°56′N 67°12′W) thence SSE for about 20 miles, to a position WSW of Cabo Rojo.

Topography

4.159

1 General topography (4.3).

The W coast of Puerto Rico, N of Cabo Rojo, is irregular with projecting wooded points between shallow bays. In the S part, the land is low near the shore with prominent high hills in the interior.

2 A description of Isla de Mona is given at 2.25.

Depths

4.160

1 General information (4.4).

From Punta Guanajibo (18°10′N 67°11′W) to Punta Aquila (13 miles S), the coast is fronted by off–lying shoals and dangers which lie on an extensive bank, the edge of which, with a depth of 200 m over it, extends as much 15 miles offshore, then closes the coast to pass 3½ miles S of Cabo Rojo. Along the SW edge of the bank a ridge, with depths from 8 to 18 m over it, extends SE for about 15 miles.

2 A channel within these dangers, though buoyed, is available for use of coasters and smaller craft only (4.167).

Fishing

4.161

1 Fishing marks (4.6).

Natural conditions

4.162

1 Sea state (4.8), Flow (4.9), Current (2.29), Local weather (4.7).

Both the S–going and N–going tidal streams (2.30) attain a rate of about 1 kn over the NW end of the bank about 13 miles W of Punta Guanajibo.

Principal marks

4.163

1 **Landmarks:**

Isla Desecheo (18°23′N 67°29′W) (2.34).

Pico Montuoso (18°10′N 67°00′W) (chart 3408), a cone–shaped peak which, when seen from the W, is prominent.

2 Punta Guanajibo (18°10′N 67°11′W) (4.138).

Punta Ostiones (18°06′N 67°12′W) low, covered with high coconut palms and fringed with mangroves, prominent especially from N or S.

3 Cerro Buena Vista (18°05′N 67°08′W) visible for many miles, especially from the W whence it shows a knob at its summit, with a steep convex slope on is N side descending to low land. A ridge of equal elevation extends E from the hill and another ridge, decreasing in elevation, extends W to the coast. A television tower stands on the W slope, 7 cables WSW of the summit.

4.164

1 **Major light:**

Cabo Rojo Light (grey six–sided tower, 37 m in height with a flat–roofed dwelling) (17°56′N 67°12′W), situated on the summit of the W hill on Cabo Rojo (4.165).

Directions

(continued from 4.108)

4.165

1 From a position SE of Isla Deschecheo (18°23′N 67°29′W the track leads SW passing (with positions from Punta Guaniquilla (18°02′N 67°13′W)):

NW of a detached bank, with a least depth of 20 m over it, (16½ miles NW), thence:

2 NW of Arrecife Tourmaline (11 miles NW) (4.140), and:

Clear of an isolated coral patch, with a depth of 80 m over it (22 miles WNW), thence:

NW then WSW of an isolated shallow patch, with a charted depth of 9·1 m (12½ miles WNW), situated near the edge of the coastal bank, marked by No 6 Light–buoy (starboard hand).

3 From this position the track leads SSW passing:

WSW of an isolated rocky patch, with a least depth of 8·7 m over it (10½ miles W); situated 6 miles SW of Escollo Media Luna, a rocky patch on which the sea always breaks, thence:

4 WSW of an isolated shoal patch, with a least charted depth of 9·1 m (9½ miles W) marked off its SW side by No 4 Light–buoy (starboard hand), situated near the edge of the coastal bank, thence:

WSW of an isolated shoal patch, with a least charted depth of 8·7 m (8 miles WSW), fronting Bajo Gallardo, 5 cables NE with charted depth of 4·6 m, thence:

5 WSW of Punta Aquila (5 miles S) which consists of two small, bluff headlands with lower land within. A windmill and some buildings stand about 4 cables N of the point.

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6 From this position the track continues SSE for about 2 miles to a position WSW of an isolated rocky patch, with a depth of 8·2 m over it (9 miles SSW), marked by No 2 Light–buoy (starboard hand), which is situated 4 miles SW of Cabo Rojo, the extremity of a low neck of land which rises to two hills with yellow bluff faces. The E hill is 36 m high and the W hill is 23 m high. Cabo Rojo Light (4.164) stands on the SW point of the cape.

Clearing bearing

4.166

1 The line of bearing, more than 353°, of Isla Desecheo (25 miles NW) (2.34) clears to the W of the detached bank.

(Directions for passage S of Puerto Rico are given at 4.516)

Canal de Guanajibo

Chart 472 (see 1.20)

Channel

4.167

1 **Description.** Canal de Guanajibo (18°05′N 67°13′W) is a buoyed channel, with a least depth of 5·4 m, which leads from Cabo Rojo (4.165) to Bahía de Mayagüez (15 miles N) (4.119), passing within the offshore shoals extending W from the coast. This channel, which also gives access to Bahía de Boquerón (4.171) and Puerto Real (4.203), has a least depth of about 7 m in its S entrance (17°58′N 67°14′W).

2 **Local knowledge** is required.

Current in the channel sets N and S with an average rate of about 1 kn and a maximum rate of 1¼ kn.

Sea state is usually smooth.

Directions for approach from south

4.168

1 From a position W of No 2 Light–buoy (4.165), the alignment (020°) of Punta Guaniquilla (18°02′N 67°13′W) (4.170) with Punta Boca Prieta (1¼ miles NNE) (4.170) leads towards Canal Guanajibo, passing (with positions from Punta Guaniquilla):

2 Over the bank, with a least depth of 6·9 m (4½ miles SSW), extending over 2 miles W from Bajo Casabe which extends up to 1 mile from the low lying coast N of Punta Aquila (4.165), thence:

3 ESE of the SE edge of Bajos Resuello (2½ miles SSW), marked by No 1 Buoy (port hand), thence:

WNW of Punta Melones (2½ miles S), the W end of a range of hills (about 90 m high) which extend E. A detached hill (70 m high) is situated on the point. Thence:

4 WNW of Bajo Enmedio (1 mile S) (4.172), marked at its S end by No 1 Light–buoy (4.173). Thence:

ESE of a dangerous wreck (1½ miles WSW) the position of which is approximate.

(Directions continue for Bahía de Boquerón at 4.172)

Approach from south–south–west

4.169

1 Bajo Corona Larga (4 miles WSW) consists of two shoals separated by a channel 8 cables wide, with depths of 7·8 to 16·5 m in it. However this channel is unmarked and is fronted by Bajo Gallardo (7 miles WSW of Punta Guaniquilla (18°02′N 67°13′W)).

Directions for Canal de Guanajibo

4.170

1 From a position W of Punta Guaniquilla, (18°02′N 67°13′W) the channel leads N, passing (with positions from Punta Guaniquilla):

W of Punta Guaniquilla, a prominent, narrow, grassy ridge, about 11 m high and fringed with trees; from which a higher, wooded ridge extends NE. From S this point shows as a low brown bluff. Thence:

2 W of Punta Boca Prieta (1¼ miles NNE) which is low but covered with tall coconut palms, giving it the appearance of a bluff from S, thence:

W of Cayo Fanduca (2¾ miles N) consisting of a few, low, bare rocks situated 8 cables SW of Punta Ostiones (3¼ miles N) (4.163), thence:

3 E of a ridge extending E from Las Coronas (3½ miles NNW) which is partly awash, and:

1·5 miles W of Punta Ostiones where the deepest charted water of 9·1 m lies in a narrow gap between this ridge and the unmarked shoals extending W from Punta Ostiones, thence:

4 E of a stranded wreck (6 miles NW), on the SW side of Arrecife Tourmaline (4.140), thence:

W of Isla Piñero (4¾ miles N), situated about 3 cables offshore, on which there is a clump of mangrove, thence:

5 W of a reef, partly awash, extending 2½ cables NW from Punta Arenas (6 miles NNE) the NW extremity of a strip of low coast, covered with coconut palms, separating Laguna Joyuda from the sea, thence:

E of Escollo Negro, with a rock awash on its N end (7¼ miles NNW) on which the sea always breaks, and:

6 Over the ridge, with a least depth of 5·5 m (7 miles NNW) extending NE from Escollo Negro, past the edge of the shoals extending WNW from Punta Arenas, the deepest water being 2·5 miles WNW of Punta Arenas.

(Directions continue for Bahía de Mayagüez at 4.155)

Bahía de Boquerón

General information

4.171

1 **Description.** Bahía de Boquerón (18°01′N 67°12′W) is used by coasters and small craft passing through Canal Guanajibo. It is rarely used except by local craft.

2 Owing to the protection afforded by the reefs at the entrance, this bay may be a good anchorage in a hurricane, although there are no reports of its use as such and a better hurricane anchorage is at Guánica (4.518).

3 A pilot can be obtained from Boquerón Village, a small fishing settlement on the N side at the head of the bay which is also a bathing resort.

Directions for entering harbour

(continued from 4.168)

4.172

1 **Entrance channels** pass both N and S of Bajo Enmedio, a shoal, nearly awash in places, which extends about 1 mile S across the entrance to the bay, from a position 3 cables S of Punta Guaniquilla. This shoal is steep–to, especially on its W side, and its full extent, as indicated by the colour of the water, only shows under favourable conditions. In the following text, positions are given from Punta Guaniquilla (18°02′N 67°13′W).

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4.173

1 **Canal Sur** (1½ miles S), has depths of 9·4 to 11·9 m in it, over a width of 1¾ cables.

From a position 200°, 1·8 miles from Punta Guaniquilla, with the hill above Punta Melones (4.168) bearing 140°, the line of bearing, 069°, of Boquerón Village leads through Canal Sur, passing:

2 NNW of Bajo Palo (2 miles S) with depths of less than 2·4 m over it, extending 7 cables N from the S side of the entrance. The W side of the shoal is steep–to. Thence:

3 SSE of the S end of Bajo Enmedio (1½ miles S). No 1 Light–buoy (port hand) is moored 1 cable SW of the S end of Bajo Enmedio. Thence:

4 NNW of Bajo Ramito, with a least depth of 2·4 m over it (1¾ miles SSE), lying 4½ cables off the S shore of the bay; passing over the bank, with depths of 5·5 to 7·0 m over it, which extends 5 cables N from Bajo Ramito.

4.174

1 **Canal Norte** (2½ cables SE) has depths of 6·4 to 8·5 m in it, over a width of 1¾ cables. This is considered to be the easier entrance for strangers owing to its proximity to the N shore.

2 From a position 5 cables W of Punta Guaniquilla, the recommended track leads 105°, passing:

SSW of Punta Guaniquilla (4.170), thence:

NNE of Bajo Enmedio (3 cables SSE).

When the hill above Punta Melones (2¾ miles S) (4.168) bears 193° the track alters S, as convenient, passing E of Bajo Enmedio.

3 When Boquerón Village (2 miles ESE) bears 087° the track alters E along this line of bearing, passing:

S of Bajo Roman, with a least depth of 5·5 m over it (1 mile ESE), lying 3½ cables off the N shore of the bay.

4 **Clearing bearings:**

The line of bearing, about 011°, of Punta Ostiones (2½ miles N) (4.163), open W of Punta Guaniquilla (4.170), passes close W of Bajo Enmedio.

5 The line of bearing, 189°, of the summit of the hill above Punta Melones (2¾ miles S) (4.168) passes close E of Bajo Enmedio.

Anchorages

4.175

1 Anchorage is available anywhere in Bahía de Boquerón. The bottom is soft except on the shoals. Recommended positions are as follows:

E of Bajo Enmedio, in depths of 8 to 10 m. The line of bearing, 193°, of the hill above Punta Melones (2¾ miles S) (4.168) indicates a safe position from which to approach this anchorage.

2 Off Boquerón Village, in depths of 5 to 8 m, with the village bearing 087°, and clear of Roca Valásquez, with a depth of 3 m over it, (2 cables W of the village). Soundings are a good guide in the approach to this anchorage.

3 Caño Boquerón, a lagoon which leads from the SE corner of the bay, is reported to provide good shelter in a hurricane.

Supplies

4.176

1 Fuel; fresh water; chandlery.

Bahía Salinas

4.177

1 **Description.** Bahía Salinas (17°57′N 67°12′W), entered between Punta Aquila (4.165) and Cabo Rojo (4.165), affords shelter but is reported to be a poor anchorage. Yellow buildings with red roofs stand on the W side of the bay.

Local knowledge is required.

SONDA DE VIEQUES AND APPROACHES

GENERAL INFORMATION

Charts 3408, 130, US Chart 25650 (1.20)

Area covered

4.178

1 This section describes Sonda de Vieques (Vieques Sound) (18°15′N 65°30′W) and approaches, including the coastal passage S of Isla de Vieques.

2 Sonda de Vieques is presented in two parts:

E part, at 4.205, which includes the main expanse of water between Isla de Culebra and Isla de Vieques.

W part, at 4.257, which includes Radas Roosevelt (4.302) and the N/S passages off the E coast of Puerto Rico (4.272).

3 Approaches are presented as follows:

Main entrance channel from ESE at 4.213.

Entrance channel from NE, passing E of Isla de Culebra, at 4.228.

Pasaje de San Juan (entrance from NW) at 4.267.

Pasaje de Vieques (entrance from SW) at 4.310.

Minor entrance channels from N at 4.215 and 4.269.

Routes

4.179

1 Routes through Sonda de Vieques are used as follows:

As a calm water route from the E to Bahía de San Juan (18°28′N 66°07′W) (4.34).

2 For medium sized vessels on passage from Bahía de San Juan to ports on the S coast of Puerto Rico, passing E then S of Isla de Vieques (18°08′N 65°25′W).

As approach routes to Ensenada Honda (18°13′N 65°38′W) (4.326).

Description

4.180

1 Sonda de Vieques, about 20 miles in length with a width of 8 to 15 miles, lies between the E coast of Puerto Rico, on the W and Virgin Passage, on the E. It is bounded N by Isla de Culebra and the reefs extending WNW from that island; and to the S by Isla de Vieques.

2 The E part of the sound is generally clear of dangers.

The W part of the sound contains numerous shoals and reefs.

Harbours

4.181

1 Major harbour:

Ensenada Honda (Puerto Rico) (18°13′N 65°38′W) (4.326), which contains a hurricane anchorage.

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2 Minor harbours:
Ensenada Honda (Isla de Culebra) (18°18′N 65°17′W) (4.246), which contains a hurricane anchorage.
Bahía de Fajardo (18°21′N 65°38′W) (4.289).

Regulations

4.182

1 **Restricted areas.** Except by special permission, vessels may not enter or remain within restricted areas. See Appendix VI.

2 On the S side of Isla de Vieques a restricted area extends 7½ cables offshore, between Punta Conejo (18°06′N 65°22′W) the W entrance point of Ensenada Honda, and the W entrance point of Puerto Mosquito (4¼ miles WSW).

3 Off the W end of Isla de Vieques a restricted area extends 7½ cables offshore, from a point on the coast 2 miles ENE of Punta Vaca (18°05′N 65°32′W), passing:
WSW around Punta Vaca, thence:
WNW and NW around Punta Boca Quebrada (3 miles NW of Punta Vaca), thence:
N around Punta Arenas (the NW extremity of Isla de Vieques), thence:

4 Generally E, and as required to pass at 7½ cables around the causeway extending 1¼ miles N from Desembarcadero Mosquito (Mosquito Landing) (4 miles E of Punta Arenas), to end at Punta Caballo (18°09′N 65°30′W).

5 On the SE coast of Puerto Rico a restricted area extends 7½ cables offshore from Punta Figueras (18°17′N 65°38′W), passing:
ESE around Isla Cabeza de Perro (18°15′N 65°35′W), thence:
SSW to a position off Punta Puerca (1½ miles SW), to join with:

6 An area, with a radius of 1½ miles, centred on Isla Cabras Light (18°13′N 65°36′W) (4.317) and including Ensenada Honda, which then continues as:
An area extending 7½ cables offshore from Punta Cascajo (18°13′N 65°38′W) W to a position S of Río Daguda (2 miles W).

Danger areas

4.183

1 **Explosives anchorages** are situated within the area covered by this section, as detailed at 4.256, 4.303, 4.307, and 4.325.

2 No vessel is permitted to enter or remain in the area while they are occupied by vessels having onboard explosives or other dangerous cargo.
Explosives in quantities no greater than 1474 tonnes will be handled in any area at one time.

3 **Danger areas.** Bombing and gunnery target areas exist to S and E of Isla de Vieques, in Sonda de Vieques and around Isla de Culebra; as shown on the chart, See Appendix VI.

4 **Cautionary areas.** Mariners are cautioned against anchoring, dredging or trawling, owing to the presence of unexploded ordnance, in a number of areas within Sonda de Vieques as given at: 4.195, 4.211, 4.263 and 4.314, and as shown on the chart.

Off–lying islands

Chart 130, US Chart 25653 (1.20)

Isla de Culebra

4.184

1 **Position.** Isla de Culebra (18°19′N 65°17′W), situated on the W side of Virgin Passage, lies 16 miles E of Puerto Rico.

4.185

1 **Function.** This island, with an estimated population of 1632 in 1996, has an economy based on the production of cattle. Vegetables and some tropical fruits are grown but only for local consumption. It is a cruise liner destination.

2 The island has two settlements only, Culebra and Clark Village, both located at the head of Ensenada Honda (4.246), which is the main port.
Regular ferries run to Isla de Vieques and to Puerto Rico.

4.186

1 **Topography.** Isla de Culebra is about 6 miles long, of modest elevation, with a broken and rugged terrain. Its hills are covered with a scrubby growth (6 to 9 m high) giving a barren and brown appearance.

2 Near its centre Monte Resaca rises to an elevation of 198 m and about midway between this hill and the SE extremity of the island, stands Cerro Balcón (168 m (551 ft) high) which is a prominent hill, the S slope of which is comparatively steep.

4.187

1 **Designated Critical Habitat.** The area within 3 miles of Isla de Culebra and the outlying cays are within a United States Designated Critical Habitat for green turtles — see Appendix VIII.

Isla de Vieques

4.188

1 **Position.** Isla de Vieques (Crab Island) (18°08′N 65°25′W), forming the S side of Sonda de Vieques, is situated about 6 miles SE of Puerto Rico.

4.189

1 **Function.** This island, with an estimated population of 9503 in 1996, produces sugar cane, horses and cattle for export, and vegetables and tropical fruits for local consumption.
Isabel Segunda (Isabella 2nd), situated near the centre of the N coast, is the capital, with Bahía de Mulas (4.304) as its port of call. There are no effective harbours around the island but the sugar cane is shipped from Puerto Real (18°06′N 65°28′W) (4.203).

2 There is no customs facility on the island; entry is usually made through Puerto Rico, at Playa de Fajardo (4.289) or Puerto Humacao (4.318).
Regular ferries run to Puerto Rico.

4.190

1 **Topography.** Isla de Vieques is about 18 miles in length, with a width of 3½ miles near its middle. A range of hills, some of which are prominent, extends the entire length of the island, rising to a summit in Monte Pirata, near its SW end. Cerro Martineau (18°08′N 65°28′W) is a prominent wooded dome, situated near the NW coast of Isla de Vieques.

2 The island is wooded in places, especially in its E half, as also is Monte Pirata, but some of the other hills are cultivated with sugar cane to their summits.

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ISLA DE VIEQUES — SOUTH SIDE

General information

Charts 3408, 130, US Chart 25650 (1.20)

Route

4.191

1 From a position E of Punta Este (East Point) (18°08′N 65°16′W), the E extremity of Isla de Vieques, the route leads WSW for about 37 miles to a position S of Pasaje de Vieques (18°07′N 65°40′W) (4.310).

Topography

4.192

1 General topography (4.190).

The S coast of Isla de Vieques is irregular and indented by sandy bays.

Cerro Matias Jalobre (Mount Jalobre) (18°08′N 65°19′W) is prominent.

Depths

4.193

1 A bank, with depths of 9·4 to 18·3 m (31 to 60 ft) over it, extending about 10 miles WSW from Punta Este, lies from 1 to 2 miles offshore.

Fishing

4.194

1 Fishing marks (4.6). Restricted areas (4.182).

Traffic regulations

4.195

1 **Cautionary areas.** Mariners are cautioned against anchoring, dredging or trawling in the vicinity of 18°03′N 65°35′W, owing to the presence of unexploded ordnance.

Natural conditions

4.196

1 Sea state (4.8), Flow (4.9), Tidal streams around Punta Este (4.212), Local weather (4.7).

Principal mark

4.197

1 **Landmark:**

Tower on Monte Pirata (18°06′N 65°33′W) (4.190).

Directions

(continued from 3.110 and 3.232)

4.198

1 From a position E of Punta Este (East Point) (18°08′N 65°16′W), the E extremity of Isla de Vieques, the track WSW passing (with positions from Puerto Ferro (18°06′N 65°25′W)):

2 SSE of Punta Este (East Point) (9 miles ENE) which is of modest elevation and grassy, terminating in rocky bluffs. Punta Este Light (red and white chequered diamond on a framework tower, elevation 13 m) stands on the point, thence:

3 SSE of a reef which dries, extending 4 cables S from Punta Conejo (3 miles ENE). A yellow buoy (1 mile SSE of Punta Conejo) is moored on the W side of a danger area established off the E end of Isla de Vieques. Thence:

4 SSE of an obstruction (1½ miles S) which lies S of a rocky bluff at Puerto Ferro, thence:

SSE of rocks lying close off Punta Vaca (6 miles W) which is the S point of Isla de Vieques.

5 From this position the track continues SSW for about 12 miles to a position S of Pasaje de Vieques (18°07′N 65°40′W) (4.310).

Useful marks

4.199

1 Tank (1¾ miles ENE).

Five tanks (2 miles NNE).

A framework radio tower (2¾ miles W) marked by a light.

(Directions continue for passage S of Puerto Rico at 4.389.

Directions for Puerto Yabucoa are given at 4.377)

Harbours and offshore facilities

Charts 3408, 130, US Chart 25650 (see 1.20)

Bahía Salina del Sur

4.200

1 Bahía Salina del Sur (2 miles W of Punta Este) has its E entrance point in position (18°07′·6N 65°17′·8W).

2 **Directions.** From a position about 1 mile S of the bay the recommended approach leads generally N, passing (with positions from the E entrance point):

W of Roca Alcatraz (4 cables SW) which is low and bare, with several rocks (3·0 to 4·6 m high) in the vicinity, and:

E of Cayo Conejo (12 m high) (8 cables WSW) which is wooded on its summit, with a large bare rock close to its SE end.

Local knowledge is required.

3 **Anchorage,** in depths of 5 to 7 m (18 to 24 ft), is available in the W part of the bay, sheltered from winds N of E.

Landing can also be effected when the wind is N of E.

Offshore fuelling terminal

4.201

1 An offshore fuelling line, extending about 3½ cables seaward from a group of tanks (18°06′·6N 65°24′·0W), is connected at its outer end to a group of buoys. This terminal is in a restricted area (4.182).

Ensenada Sun Bay

4.202

1 Ensenada Sun Bay (Sombe) is situated with Punta de Tierra (its W entrance point) in position 18°05′·4N 65°27′·9W.

2 **Directions.** From a position S of the bay the approach leads generally N passing, (with positions from Punta de Tierra)):

W of a rocky spit extending 1 cable W from the E entrance point (5 cables E), and:

Clear of a shallow patch with a depth of 5·0 m (16 ft) over it (1¾ cables E).

Local knowledge is required.

3 **Anchorage** is available in depths of 5 to 7 m (18 to 24 ft) exposed to winds from between SE and SW.

Puerto Real

4.203

1 Esperanza Pier (18°06′N 65°28′W) is situated in the NE corner of Puerto Real.

Directions. From a position 1 mile SSW of Esperanza Pier the recommended approach leads generally N passing (with positions from Esperanza radio mast (18°06′N 65°28′W) (4.199)):

2 E of a detached shoal, with a least depth of 4 m (13 ft) over it (1½ miles SW), the E extremity of which is marked by No 1 Buoy (port hand), and:

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W of an isolated rocky patch, with a depth of 7 m (23 ft) over it (1 mile SSW), thence:

3 E of an isolated shoal patch with a charted depth of 6·1 m (20 ft) (1 mile SW), thence:

E of a shoal, with a depth of 4·6 m (15 ft) over it (9 cables WSW).

4.204

1 **Anchorages.** Puerto Real affords good anchorage during normal weather (with winds between N and SE), in depths of 5 to 7 m (18 to 24 ft), protected to some extent by Cayo Real (15 m high) (3 cables S) to the S, and Punta de Tierra (4 cables SSE) to the E.

2 Recommended anchorages are:

About 2¾ cables W of Cayo Real, in depths of about 9 m (30 ft), suitable for vessels with a draught of 6 m.

A temporary anchorage, in a depth of about 36 m (20 fm) (2 miles SE) is established as a waiting area for Puerto Yabucoa (4.369).

3 **Berths:**

Esperanza Pier (4.203) with a depth of 3 m alongside its head.

A mooring buoy is situated 5 cables W of Esperanza Pier.

SONDA DE VIEQUES — EASTERN PART

General information

Chart 130, US Chart 25650 (See 1.20)

Description

4.205

1 Sonda de Vieques (Vieques Sound) (4.180).

The E part of Sonda de Vieques extends from the Virgin Passage (18°20′N 65°10′W) (3.103), W to the vicinity of the meridian 65°26′W (about 8½ miles E of Puerto Rico). It is bordered along its S side by the N coast of Isla de Vieques, E of Punta Mulas (18°10′N 65°27′W).

2 To the N it includes Isla de Culebra (18°19′N 65°17′W) (4.184) and the reefs and passages extending W and NW from the NW extremity of the island to Arrecife Barriles (Barriles Reef).

3 W part of the Sound and reefs (4.257).

4.206

1 **Approaches.** The E part of Sonda de Vieques can be approached from the following directions:

ESE through the main entrance channel (18°12′N 65°15′W) (4.213).

2 N through minor entrance channels (4.215), to the W of Isla de Culebra.

NE through Canal de Culebrite (18°19′N 65°14′W) (4.228).

NW through the outer route (4.272), passing N of Isla Palominos (18°21′N 65°34′W)

3 SW through Pasaje Radas Roosevelt (18°10′N 65°30′W) (4.278).

Topography

4.207

1 Isla de Culebra (4.186), Isla de Vieques (4.190), E coast of Puerto Rico (4.260).

Depths

4.208

1 The E part of Sonda de Vieques, which is clear of dangers except for Bajos Grampus (18°15′N 65°12′W) (3.108), has fairly regular depths of 18 to 31 m (60 ft to 17 fm).

Bajo Holiday (18°13′N 65°23′W) with depths of 14·6 to 18·3 m (48 to 60 ft) over it lies near the middle of the sound, with patches of a similar depth extending 1¾ miles NW and 3 miles W.

Fishing

4.209

1 Fishing marks (4.6).

Designated Critical Habitat

4.210

1 See 4.187.

Cautionary areas

4.211

1 Mariners are cautioned against anchoring, dredging or trawling in the area N, W and SW of Isla de Culebra, within about 5 miles of the land, as shown on the chart, owing to the presence of unexploded ordnance.

Natural conditions

4.212

1 **Flow** (4.9).

Tidal stream. From Isla de Culebra the S–going tidal stream sets towards Punta Este (East Point) (18°08′N 65°16′W), around which the tidal streams are strong.

2 **Local weather** (4.7).

Main entrance channel

Directions

(continued from 3.110 and 3.232)

4.213

1 From the vicinity of 18°07′N 65°03′W, the main entrance channel into Sonda de Vieques leads WNW, passing (with positions from Punta del Soldado Light (18°16′·7N 65°17′·2W)):

SSW of Bajo Grampus (4 miles ESE) marked by No 2 Light–buoy (starboard hand) (3.108), thence:

NNE of Punta Este (8½ miles S) (4.198), thence:

2 NNE of Isla Yallis (about 4·6 m high) (7¾ miles S) situated 8 cables W of a high bluff point, close E of which are some bare white cliffs with strata sloping E, thence:

NNE of Roca Cucaracha (8 miles SSW) consisting of 2 small rocks (about 1 m high) situated close together about 4 cables offshore, thence:

3 SSW of Punta del Soldado, which is wooded and terminates in a rocky bluff about 11 m high, which appears as a prominent ridge from E or W. Punta del Soldado Light (red and white chequered diamond on a tower, 5 m in height) stands on the point, thence:

NNE of Punta Brigadier (8½ miles SSW) which may be identified by Roca Roja, a large, rugged, bare rock lying close to the point, thence:

4 SSW of Cayo de Luis Peña (Luispena Cay) (3 miles WNW) which rises near its centre to a wooded

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peak. The N and S extremities of the cay, which have elevations of 52 and 46 m, respectively, are connected with the centre part by low necks of land. The face of the cliff on Punta Cruz (the SW extremity of the cay) has been painted white and appears as a prominent white tower from NW. And:

5 NNE of Punta Cabellos Colorados (9 miles SW) which is rocky and steep–to.

Useful mark

4.214

1 Radio masts (18°19′·6N 65°18′·4W).

(Directions continue for Ensenada Honda, in Puerto Rico, at 4.277.

Directions for the outer route from Pasaje de San Juan are given at 4.273)

Entrance channels from north

US Charts 25650, 25653 (see 1.20)

Route

4.215

1 The recommended route for medium sized vessels passes W of Cayo Botijuela (18°22′N 65°23′W) (4.22) then through La Pasa de los Cayos Lobos (2½ miles SSW) (4.222).

Punta Noroeste — north–west side

4.216

1 **Description.** The channels between Punta Noroeste (NW Point) (4.22) and the islets and rocks NW of it are safe and easy to navigate by day as most of the dangers are above water and the tidal streams in the fairway are estimated to be less than 1 kn. These channels are presented below, in order from NW to SE, with positions from Punta Noroeste.

4.217

1 **Directions.** Pasaje Lavador (2 miles NW), with a charted width of 3½ cables and depths of 22 to 29 m in the fairway, which is clear of dangers, leads SW passing:

SE of Roca Lavador, which dries (2¼ miles NW), lying about ¾ cable SE of Cayo Botijuela (4.22), and:

2 NW of Alcarraza (1¾ miles NW) a prominent, bare, whitish rock, with rugged perpendicular sides.

4.218

1 **La Pasa de la Alcarraza** (1¼ miles NW), with a charted width of 2¾ cables and depths of 11·5 to 16 m in the fairway, with the greatest depths on the E side of the channel, leads SSW passing:

ESE of Alcarraza (4.217), and:

2 WNW of the small rock which lies about ½ cable NW of Los Gemelos (1 mile NW) (4.219).

4.219

1 **La Pasa de Los Gemelos** (1 mile NNW), with a charted width of 4 cables and depths of 16·5 to 25·6 m in the fairway, which is clear of dangers and is the safest of the passages NW of Punta Noroeste, leads generally S, passing:

2 E of Los Gemelos (1 mile NW) consisting of a rock, with a small low rock close SW of it and another small rock about ½ cable NW, and:

W of Piedra Stevens (6 cables N) with a spit extending about ½ cable S from it, thence:

3 E of El Ancón, with a depth of 2·1 m over it, (8½ cables NW) which is steep–to and on which the sea breaks when there is much swell, thence:

W of the shoal bank fringing Punta Noroeste (4.22).

4.220

1 **Canal Piedra Stevens** (4 cables N), with a charted width of 3 cables and a depth of 10·7 to 21·9 m in the fairway, leads SW, passing:

2 SE of the spit extending ½ cable S from Piedra Stevens (6 cables N), thence:

NW of the shoal bank fringing Punta Noroeste (4.22) on which stand three rocky islets. From the SW islet a reef extends about 2 cables NNW into the fairway.

Directions for the channels northwest of Cayo de Luis Peña

4.221

1 **Pasaje de Barriles** (4 miles WSW) with a width of about 1½ miles and depths of 11·0 to 14·6 m, has the deepest water on the E side but contains dangerous patches for which local knowledge is required. The fairway of the channel leads generally S, passing (with positions from Punta Noroeste (18°21′N 65°21′W)):

E of the E drying rock on Arrecife Barriles (4¾ miles W), thence:

2 W of a shallow bank, on which stands Cayo Tuna, extending 1½ cables NW from Cayo Lobito (2½ miles WSW) which is the NW of a chain of islets extending about 3 miles NW from Cayo de Luis Peña. A light (red and white chequered diamond on a framework tower, elevation 34 m) stands on Cayo Lobito. And:

3 E of a patch, with a depth of 8·5 m over it, situated 1¾ miles W of Cayo Lobito.

4.222

1 **La Pasa de Los Cayos Lobos** (2½ miles WSW), with a width of about 5 cables and depths of 18·3 to 23 m (60 ft to 16 fm) in the fairway, which is clear of dangers, leads generally SW, passing:

SE of Roca Columna (2½ miles WSW), a detached bare pin 23 m high standing close to the S extremity of Cayo Lobito (4.221), and:

2 NW of Cayo Lobo (2½ miles SW), a triangular island covered with scrub and grass. The three points of the cay are high with rocky bluffs, connected by lower land in the middle. On the NE point of the cay stands a beacon (white tower 5·5 m in height).

4.223

1 **A passage** (2¼ miles SW) between Cayo Lobo (4.222) and El Mono (4 cables SE of Cayo Lobo), a small irregular ledge with a number of above–water heads on it, has a width of about 2½ cables with depths of 20·0 to 27·4 m in the fairway, which is clear of dangers.

4.224

1 **A passage** (2 miles SSW) between El Mono (4.223) and Las Hermanas (about 8 cables E of El Mono), consisting of Cayo Yerba (4.225), Cayo Ratón (4.225) and Cayo del Agua (4.226), has a charted width of 7 cables with depths of 10·5 to 20·1 m in the fairway, which is clear of dangers.

4.225

1 **A passage** (2 miles S) between Cayo Yerba (the NW of Las Hermanas), which has a smooth grassy slope on its E

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side and rocky bluffs on its W side; and Cayo Ratón (the SW of Las Hermanas) which is the smallest of the 3 islets, with rocky sides and grass on its summit; is about 1 cable wide with charted depths of 10·3 to 16·1 m in the fairway.

4.226

1 **A passage** (2¼ miles S) leads between the NW extremity of Cayo de Luis Peña (4.213) and Cayo del Agua (the SE of Las Hermanas), which is rocky with many large boulders scattered on and around the coast. It is low in the middle and high at its E end, on which stands a grey tower with an elevation of about 15 m. This channel has a charted width of 2½ cables and depths of 11·0 to 14·6 m in the fairway.

(Directions continue for Ensenada Honda, in Puerto Rico, at 4.277)

US Chart 25653 (see 1.20)

Canal de Luis Peña

4.227

1 Canal de Luis Peña (2 miles SSE) has a charted width of about 3 cables and a least depth of 6·4 m over a coral head in the middle of the fairway; N and S of which are other patches with depths of 8·2 to 8·8 m over them. Positions in this text are given from Punta Melones Light (18°18′N 65°19′W).

2 **Tidal streams:**

The SE stream is deflected N of Bahía Tarja (just N of Punta Melones) and then sets towards the S end of of Cayo de Luis Peña; it is weak at the entrance to Bahía de Sardinas (3 cables SE).

3 The NW stream sets directly through the passage. The rate of the stream is about 2 kn.

Directions. From the vicinity of 18°19′·3N 65°20′·2W the channel leads ESE passing:

4 S of two detached rocks, close off Punta Tamarindo Grande (1¾ miles NW), which rises to a hill (30 m high) with reddish bluffs, that is connected to Isla de Culebra by a low neck of land, thence:

N of the N extremity of Cayo de Luis Peña (4.213).

5 The channel then continues S, passing:

W of Punta Melones, which is low and narrow and terminates in a small pinnacle rock. A light (red and white chequered diamond on a tower, 5 m in height) stands on the point.

Canal de Culebrite and approaches

General information

4.228

1 Canal de Culebrite (18°19′N 65°14′W), is a sheltered passage between the E end of Isla de Culebra (to the W), and Isla Culebrita and the adjacent cays and reefs extending SSW (to the E), in which there are several well protected anchorages (4.244). This passage forms part of a protected channel, sometimes called Culebra Sound, around the E end of Isla de Culebra, which may be approached from N or S, as given below, (with positions from Isla Culebrita Light (18°19′N 65°14′W) (3.108)):

2 **Approach from north:**

Western Passage (2 miles NNW) (4.229), thence:

Canal Tiempo (1 mile NNW) (4.232).

Canal de Cayo Norte (3 miles NW) (4.234), which is the recommended approach from the N.

3 **Approach from south:**

From SE (4 miles S) (4.237).

From S (4 miles SSW) (4.240).

From SW (4 miles SW) (4.241).

These three approaches are continued through Canal del Sur (2 miles SW) (4.242).

Western Passage

4.229

1 Western Passage (18°20′N 65°14′W), with a charted width of 5 cables and a least depth of 18·3 m in the fairway, is clear of dangers and safer than Middle Passage (4.231), and leads into Canal Tiempo (4.232).

2 **Tidal streams** between Cayo Norte (NE Cay) and Cayos Geniqui are N–going and attain rates of 1½ kn.

4.230

1 **Directions.** From the vicinity of 18°21′N 65°14′W, the alignment (186°) of the W extremity of Cayo Botella (1 mile NW of Isla Culebrita Light (18°19′N 65°14′W)) with Cabeza de Perro (1¼ miles S) (4.236) leads in the channel, passing (with positions from Isla Culebrita Light):

2 W of Cayo Ballena (Whale Rock) (2 miles NNW) at the N extremity of a rocky bank, thence:

W of Cayo Tiburón (2 miles NNW) at the SE extremity of the same rocky bank, thence:

W of Cayos Geniqui (1½ miles N) (4.233), thence:

E of Cayo Sombrerito (1¾ miles NNW) a rocky islet lying close off the NE extremity of Cayo Norte (4.235).

4.231

1 **Middle Passage** (18°21′N 65°14′W), which provides an alternative approach to Western Passage, with a charted width of 2 cables and a least depth of 9·1 m, leads WSW between Cayo Tiburón (4.230), to the N, and Cayos Geniqui (4.233) to the S. The SW end of Canal Tiempo (4.232) provides a continuation SW.

Canal Tiempo

4.232

1 Canal Tiempo (18°20′N 65°14′W) is the most direct route into Canal de Culebrite, with a least charted depth of 9·4 m (31 ft) in the fairway, but the route is foul, with a least width of ½ cable (1¼ miles NW of Isla Culebrita Light (18°19′N 65°14′W).

2 **Local knowledge** is required.

4.233

1 **Directions.** From the vicinity of 18°20′N 65°13′W, the channel leads W then SW, passing (with positions from Isla Culebrita Light):

S of Cayos Geniqui (Palada Cays) (1½ miles N), 2 rocky islets, the NW of which is flat and covered with grass; the SE islet rises to a point and has a little grass on it; thence:

2 N of the shallow bank (1 mile NNW) which extends 6 cables N from the NW extremity of Isla Culebrita.

3 From a position 4 cables S of the NW cay of Cayos Geniqui, the line of bearing, 241°, of Cerro Balcón (2¼ miles W) (4.186) leads through the narrow part of Canal Tiempo, passing:

4 Midway between the shallow bank, with depths of 2·1 to 3·7 m (7 to 12 ft) over it, extending 1¼ cables NW from Cayo Botella; and the spit, with a charted depth of 3·7 m (12 ft) extending 3 cables SE from Cayo Norte, thence:

5 About 2 cables NW of Cayo Botella (1 mile NW), which is covered with grass and lies near the outer end of a coral reef which extends 5 cables NW from Punta Pond, the NW extremity of Isla Culebrita.

(Directions continue for Canal de Culebrite at 4.236)

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Canal de Cayo Norte

4.234

1 **Canal de Cayo Norte** (18°20′N 65°16′W)), the recommended approach to Canal de Culebrite, is about 5 cables wide at the NW end, with depths of 13·7 to 21·9 m (45 ft to 12 fm) in the fairway, as far as Punta Garay (1½ miles WNW of Isla Culebrita Light (18°19′N 65°14′W). The S end of the channel, SW of Tierra á Medio (7 cables W of Isla Culebrita Light) has a charted width of about 2 cables and a least depth of 12·8 m (42 ft) in the fairway, which is clear of dangers and presents no difficulties. Canal del Sur (2 miles SW of Isla Culebrita Light) (3.108) provides a continuation SW.

4.235

1 **Directions.** From the vicinity of 18°21′N 65°17′W the track leads 132° into Canal de Cayo Norte, passing (with positions from Isla Culebrita Light):

NE of Cayo Matojo (6 m high) (3¾ miles WNW), lying close NE of Punta Resaca (18°20′N 65°17′W), a projecting point, thence:

2 Midway between Cayo Norte (4.22) and the coast of Isla de Culebra, thence:

NE of Roca Speck (2 miles WNW) which is low and bare, lying near the coast, thence:

NE of Punta Garay (1½ miles WNW) a projecting point at the N end of a fringing coral reef which extends ½ cable offshore.

4.236

(continued from 4.233 and 4.235)

1 From a position 1¼ cables NE of Punta Garay, the track leads 146° towards Canal de Culebrite, passing (with positions from Isla Culebrita Light (3.108)):

SW of two shoals; with a depth of 8·5 m (28 ft) over them, (centred 1 mile WNW), thence:

2 Midway between Isla de Culebra and Tierra á Médio which is scattered with coral heads, with a least depth of 4 m (13 ft) over them (6 cables W), thence:

Clear of an isolated patch, with a depth of 11·9 m (39 ft) over it (8 cables WSW), situated about 1½ cables S of Tierra á Médio, thence:

3 At least 1½ cables NE of Cabeza de Perro (1 mile WSW), a salient rocky bluff forming the E extremity of Isla de Culebra, which is fringed by a reef that is clearly visible.

(Directions for Canal del Sur are given at 4.243)

Approach from south–east

4.237

1 **Directions.** From the vicinity of 18°14′N 65°13′W, the alignment (322°) of Punta Vaca (18°17′·5N 65°15′·8W) (4.247) with Monte Resaca (about 2½ miles NW) (4.186) leads towards Canal del Sur, passing (with positions from Isla Culebrita Light (18°19′N 65°14′W)):

2 About 5 cables SW of No 2 Light–buoy (starboard hand) (4¾ miles SSE). A dangerous wreck, the position of which is approximate, lies 1¼ miles ESE. Thence:

SW of Bajos Grampus (4 miles S) (3.108), thence:

3 SW of Arrecife Culebrita (2¾ miles SW) which extends 2½ miles SW from Isla Culebrita and is marked at its SW end by No 2 Buoy (starboard hand). This reef, on which the sea breaks, nearly dries in places with coral heads awash.

4 From a position SW of No 2 Buoy, the track alters NNW, passing:

ENE of Cabezas Crespas (2¾ miles SW) a group of small shoals, marked off their NE side by No 3 Light–buoy (port hand), thence:

WSW of No 4 Buoy (2¼ miles SW) marking the SW extremity of Cabezas Puercas (4.243).

4.238

1 **Clearing marks:**

The alignment (305°) of Punta del Soldado (18°17′N 65°17′W) (4.213) with the summit of Cayo de Luis Peña (3¼ miles NW) (4.213) passes SW of Bajos Grampus.

Grumpas Channel

4.239

1 **Description.** Grampus Channel (18°17′N 65°14′W), which passes between Bajos Grampus (3.108) and Arrecife Culebrita (4.237), has a charted width of 5 cables and general depths of 16·2 to 25·6 m (53 ft to 14 fm) in the fairway.

2 **Tidal streams** set diagonally across the channel, which is unmarked and not recommended.

(Directions continue for Canal del Sur at 4.243, and for Ensenada Honda, in Isla de Culebra, at 4.249.)

Approach from south

4.240

1 **Directions.** From the vicinity of 18°15′N 65°16′W, the line of bearing, 007°, of the left tangent of Punta Vaca (18°18′N 65°16′ W) (4.247) leads towards Canal del Sur, passing (with positions from Isla Culebrita Light (18°19′N 65°14′W)):

Over a patch with a charted depth of 11·2 m (37 ft) (3¼ miles SW), thence:

2 W of isolated shoal patches, with depths of 7·9 and 3·6 m (26 and 12 ft) (3 miles SW), extending 2½ cables and 1 cable SW from Cabezas Crespas (4.237), thence:

E of Bajo Amarillo (3¼ miles SW) (4.241).

(Directions continue for Canal del Sur at 4.243, and for Ensenada Honda, in Isla de Culebra, at 4.249)

Approach from south–west

4.241

1 **Directions.** From the vicinity of 18°16′N 65°17′W, the alignment (041°) of the SE extremity of Pelá (9 m high) ((18°18′N 65°15′W), which is wooded and has a prominent bluff facing SE; with Montecito Primero (2 miles NE), standing on the NE part of Isla Culebrita, leads towards Canal del Sur, passing (with positions from Isla Culebrita Light (18°19′N 65°14′W)):

2 SE of Bajo Amarillo (3¼ miles SW), the SW of the shoals in the approach to Ensenada Honda, which is marked at its SW extremity by No 2 Light–buoy (starboard hand).

3 When the beacons marking Ensenada Honda inner leading line (3½ miles WSW) (4.251) are in line bearing 323°, the track alters to about 057°, passing:

NW of Cabezas Crespas (2¾ miles SW) (4.237), thence:

SE of Bajo Camaron (2¾ miles SW) (4.250), thence:

4 SE of shoal patches, with depths of 7·9 and 9·8 m (26 and 32 ft) over them (2¼ miles SW).

(Directions continue for Canal del Sur at 4.243, and for Ensenada Honda, in Isla de Culebra, at 4.249.)

Canal del Sur

4.242

1 Canal del Sur (South Channel) (18°17′N 65°15′W), forming the SW approach to Canal de Culebrite, is also the

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continuation SW of Canal de Cayo Norte (4.234). This channel, which has a width of about 2½ cables and a least charted depth of 10·7 m (35 ft) in the fairway (1¼ miles SW of Isla Culebrita Light (18°19′N 65°14′W)), has been swept to a depth of 10·4 m (34 ft); however, as there is frequently a heavy swell in the channel, it is recommended that an under–keel clearance of 3 m should be allowed unless the sea is calm.

2 **Tidal streams** are NE–going and SW–going, at rates of about 2 kn, as shown on the chart.

4.243

1 **Directions** (*continued from 4.239, 4.240 and 4.241*). From the vicinity of 18°17′N 65°15′W (about 1 cable NW of No 4 Buoy) the line of bearing, 044°, of Isla Culebrita Light (18°19′N 65°14′W) (3.108), leads through Canal del Sur, passing (with positions from the light):

2 SE of shoal patches with a least depth of 7·9 m (26 ft) (2¼ miles SW) (4.241), thence:

Over the least charted depth (12·5 m (41 ft)) in the fairway, (2¼ miles SW) (4.242) and:

3 About 1 cable NW of Cabezas Puercas (2 miles SW) which consists of a number of shoals, nearly awash in places, lying parallel with the SE side of Isla de Culebra, marked off its SW end by No 4 Buoy (starboard hand), thence:

4 SE of Pelá (1½ miles SW) (4.241) and the drying reefs extending, with one small gap, 8 cables SW, thence:

SE of the drying reef and shallow bank extending 2 cables S and 1 cable SE from Cabeza de Perro (1 mile WSW) (4.236).

(Directions for Canal de Cayo Norte are given at 4.235)

Canal de Culebrite

4.244

1 **Anchorages** are available in the deepest part of Canal de Culebrite (18°19′N 65°14′W) (4.228), S of Tierra á Medio (4.236), where there are depths of 12 to 26 m (39 ft to 14 fm).

The best anchorage, in depths of 18 to 22 m (60 ft to 12 fm) (7 cables SW of Isla Culebrita Light (18°19′N 65°14′W) (3.108)) has the following anchor bearings, (with positions from Isla Culebrita Light):

2 The alignment (347°) of the W extremity of Cayo Botella (1 mile NW) (4.233) with the E extremity of Cayo Sombrerito (1¾ miles NW) (4.230), and:

The line of bearing, 067°, of the SE extremity of Isla Culebrita (3 cables SE).

3 Anchorage is also available closer inshore, under the lee of Isla Culebrita, according to draught.

Puerto del Manglar

4.245

1 Puerto del Manglar (18°18′N 65°15′W) is a small but well sheltered bay on the SE side of Isla de Culebra.

2 **Directions.** The entrance channel has reefs on both sides, reducing the width to about ½ cable, with charted depths of over 12 m (40 ft) in the fairway. From a position in Canal del Sur (about 1½ miles SW of Isla Culebrita Light (18°19′N 65°14′W) (3.108)), the line of bearing, 312°, of Cerro Balcón (2¼ miles W of Isla Culebrita Light) (4.186) leads into the bay, passing (with positions from Isla Culebrita Light):

3 Midway between the reefs extending SW from Cabeza de Perro (1 mile SW) (4.236) and those extending NE from Pelá (1½ miles SE) (4.241).

4 **Anchorage** is available in depths of 5 to 11 m (17 to 37 ft) on sand and mud near the middle of the bay; the sides and head of which are shallow.

Ensenada Honda (Isla de Culebra)

US 25653 (see 1.20)

General information

4.246

1 **Position.** Ensenada Honda (18°18′N 65°17′W) is situated on the SE side of Isla de Culebra.

2 **Function.** Ensenada Honda is the most secure hurricane anchorage in the area. The anchorage serves Culebra, which is the principal settlement on the island.

4.247

1 **Topography.** The harbour is about 1½ miles long and up to 5 cables wide, with several small bays around the shores, which are hilly and covered with a scrubby forest growth. Punta Vaca (18°17′N 65°16′W) is a prominent bluff on the E side of the approach.

Limiting conditions

4.248

1 **Controlling depth** into the harbour is 8·2 m (27 ft).

Mean tidal levels:

MHW 0·2 m.
MLW 0·0 m.

Directions for entering harbour

(continued from 4.239, 4.240 and 4.241)

4.249

1 **Approach.** Ensenada Honda is approached from the S through Canal del Sur (4.242) and entered through Canal del Este (2½ cables SSW of Punta Vaca (18°17′N 65°16′W).

4.250

1 **Canal del Este.**

From a position ESE of Punta del Sudado (18°17′N 65°17′W the track leads NNE for about 6 cables passing (with positions from Punta Vaca (18°17′N 65°16′W)):

ESE of R2 Light–buoy (starboard hand) (9 cables SW) marking the SW extremity of Bajo Amarillo, thence:

WNW of Cabezas Crespas (7 cables SSE), a group of shoals lying in mid–channel at the S extremity of Canal del Sur and marked on the NE extremity by G3 Light–buoy (port hand).

2 From this position the track continues NNE for about 2½ cables to a position E of C5 Buoy (port hand) from whence the track leads WNW along the leading lines.

3 Outer leading beacons:

Front beacon (red rectangular daymark with a white stripe, on a pole, 7·6 m in height) standing on Punta Colorada (1 mile WNW of Punta Vaca).

Rear beacon (red rectangular daymark with a white stripe, on a framework tower, 13·7 m in height) (about 3¾ cables WNW of the front beacon).

4 The alignment (296°) of these beacons leads through Canal del Este, towards the entrance, passing (with positions from Punta Vaca):

SW of Bajo Camaron, with a least depth of 2·7 m (9ft) over it (2 cables S), marked off its S side by No 6 Buoy (starboard hand), thence:

5 NE of Bajo Grouper (4½ cables SW), marked off its SE end by No 5 Buoy (port hand), and:

SW of a shoal patch, with a least charted depth of 5·8 m (19 ft) (1½ cables W), thence:

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6 SW of Bajo Snapper, with a least depth of 1·8 m (6 ft) over it (3 cables W), situated in the middle of the entrance to Bahía Mosquito, thence:

SW of a shoal patch, with a least charted depth of 5·8 m (19 ft) (4½ cables W), marked off its S side by No 8 Light–buoy (starboard hand).

4.251

1 **Entrance channel** (7½ cables WNW of Punta Vaca), between the reefs which fringe the entrance points, is about ½ cable wide with a least depth in the fairway as given at 4.248.

Initial position, 5¼ cables W of Punta Vaca.

2 Inner leading beacons:

Front beacon (red rectangular daymark with a white stripe, on a pole, 7·6 m in height) standing at an elevation of 16·8 m on Punta Cemeterio (18°18′·5N 65°17′·2W).

3 Rear beacon (red rectangular daymark with a white stripe, on a framework tower, 9·1 m in height) standing at an elevation of 52 m, about 6 cables NW of the front beacon.

4 The alignment (323°) of these beacons leads into the harbour, passing (with positions from Punta Carenero (18°17′·8N 65°16′·6W)):

NE of an isolated patch with a charted depth of 5·2 m (17 ft) (4 cables SSE), thence:

Between No 9 Light–buoy (port hand) (1¾ cables S) and No 10 Buoy (starboard hand), moored close SE of a 7 m (23 ft) depth, marking the sides of the entrance channel, thence:

SW of No 12 Buoy (starboard hand) (1 cable W) marking the E side of the harbour.

5 When Punta Colorada (4 cables WSW) bears 233° the track alters towards the W to pass SW of No 14 Buoy (starboard hand) (4 cables NW) marking the SW extremity of a spit extending from the E side of the harbour.

6 Useful mark:

House on a small hill above the wharf at San Ildefonso (18°18′N 65°17′W) (4.252).

Landing

4.252

1 An L–shaped concrete wharf, with a depth of 3·7 m alongside, extends from the coast at San Ildefonso (1½ miles NW of Punta Vaca).

Facilities

4.253

1 An official at Culebra handles customs and immigration.

San Ildefonso is a US Naval Reservation.

Supplies

4.254

1 Petrol is available in drums.

Fresh water is not available.

Anchorages

Anchorages in the vicinity of Cayo de Luis Peña

4.255

1 Good anchorage is available, with normal trade winds, between Cayo de Luis Peña and Isla de Culebra or farther SE, remaining at least 3 cables offshore. It is necessary to avoid the cable and pipeline area extending SW across Vieques Sound, from Punta de Maguey (7 cables SE of Punta Melones (18°18′N 65°19′W), as shown on the chart; and the cautionary area given at 4.211. Recommended anchorages are as follows (with positions from Punta Melones):

2 In a depth of 24 m (13 fm), (3½ cables W), clear of a rocky patch, with a least depth of 12·8 m (42 ft) over it (6 cables W), positioned by the following:

The alignment (320°) of the N extremity of Cayo de Luis Peña (1 mile NW) (4.213) with Alcarraza (4¾ miles NW) (4.217).

The line of bearing, 098°, of Punta Melones.

3 More comfortable anchorage for smaller vessels, can be obtained nearer Isla de Culebra, between Punta Melones and Punta Tamarindo Grande (1¾ miles NW). One of the best positions, in a depth 6 to 9 m (20 to 30 ft), lies in the middle of the entrance to Bahía Tamarindo (1 mile NW).

4 Except when the wind is N of NE, fairly smooth anchorage may be obtained about 3 cables off the NW side of Cayo de Luis Peña, in depths of about 15 m (50 ft), positioned by the following:

The alignment (289°) of the N extremity of Cayo Yerba (2¾ miles NW) (4.225) with Roca Columna (5 miles NW) (4.222).

The line of bearing, 210°, of the NW extremity of Cayo de Luis Peña.

Explosives anchorage

4.256

1 An explosives anchorage is established off the N coast of Isla de Vieques, with a radius of about 1 mile, centred on a position about 2½ miles NNE of Punta Mulas (18°10′N 65°27′W). For regulations and instructions see 4.183.

SONDA DE VIEQUES — WESTERN PART

General information

Description

4.257

1 The W part of Sonda de Vieques (4.180), extends up to 12 miles off the E coast of Puerto Rico to the vicinity of 65°26′W. It is bordered along its N side by a chain of islets and barren rocks extending about 11 miles ESE from their W extremity (1 mile N of Cabo San Juan (18°23′N 65°37′W) (4.268). To the S it extends to the N coast of Isla de Vieques, W of Punta Mulas (18°10′N 65°27′W) (4.280) and adjoins Pasaje de Vieques (4.310) in the SW corner. For a description of the E part see 4.205.

Approaches to the W part of Sonda de Vieques

4.258

NW through Pasaje de San Juan (18°24′N 65°38′W) (4.267).

1 N through Pasaje Cucaracha (18°24′N 65°36′W) (4.269).

NE through Pasaje de Hermanos (18°21′N 65°28′W) (4.271).

2 E through Sonda de Vieques E part (18°15′N 65°25′W) (4.205).

SW through Pasaje de Vieques (18°10′N 65°37′W) (4.310).

Routes

4.259

1 The two main routes through the W part of Sonda de Vieques are:

The outer and deeper route at 4.272.

The inner and shallower route at 4.281.

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Topography

4.260

1 Isla de Culebra (4.186). Isla de Vieques (4.190).

The E coast of Puerto Rico is very irregular with perpendicular rocky bluffs separating many small coves and bays; with hills, covered with grass and mangrove, rising within a mile of the shore. Some distinctive features along the coast, from N to S, are as follows:

2 Cabo San Juan (18°23′N 65°37′W) (4.268).

A hill (110 m high) (4 cables WNW of Punta Gorda (18°22′N 65°38′W) is the highest and N part of a high ridge which extends SW for nearly 2 miles.

Punta Barrancas (18°19′N 65°38′W) is a small, prominent, red bluff, rising inland to hills which are mostly covered with grass.

3 Punta Mata Redonda (3 cables S of Punta Barrancas) is low. Within 5 cables S is a bluff, covered with bushes, inland of which the land rises to a hill about 120 m high.

Punta Figueras (18°17′N 65°38′W) and Punta Figuerita (4 cables S) are both low and wooded.

Punta Medio Mundo (18°16′ N 65°36′ W) is a prominent hill (40 m high) which falls steeply on its seaward sides.

4 Punta Puerca (18°14′N 65°36′W) (4.265).

Depths

4.261

1 The W part of Sonda de Vieques contains numerous shoals and reefs scattered over an area extending 8 miles off the E coast of Puerto Rico.

The coastal bank, containing reefs awash and drying, and shoals with depths of less than 3 m over them, extends more than 1 mile from the coast of Puerto Rico.

Fishing

4.262

1 Fishing marks (4.6).

Traffic regulations

4.263

1 **Restricted areas** are situated off the SE coast of Puerto Rico and off the W end of Isla de Vieques. See 4.182.

2 **Cautionary area.** Anchoring, dredging or trawling in the vicinity of 18°16′N 65°23′W as shown on the chart, is unwise owing to the presence of unexploded ordnance.

Flow

4.264

1 In the W part of Sonda de Vieques there are strong tidal streams over the shoals and around Isla Cabeza de Perro (18°15′N 65°35′W).

In the channel W of Cayo Largo (18°19′N 65°35′W) the stream flows S with the rising tide and N with the falling tide at a rate of ½ kn.

2 Details of the current N of Escollo de Arenas (18°09′N 65°36′W) are given at 4.315.

Principal marks

4.265

1 **Landmarks:**

Cabo San Juan Lighthouse (18°23′N 65°37′W) (4.268).

Cabeza de Perro East Point Light–structure (red and white chequered diamond on a framework tower, 24 m in height) (18°15′N 65°35′W) standing near a rocky bluff on the NE side of Isla Cabeza de Perro, a prominent wooded islet.

2 Several large white dish radar aerials (18°14′N 65°36′W) standing on a high point 3 cables inland from Punta Puerca, a prominent, wooded headland, terminating in a high rocky bluff. Puerca Point Light (4.317) stands on the point.

3 Radio tower at Puerto Medio Mundo (18°15′·8N 65°38′·2W). A church tower lies 9 cables E.

4.266

1 **Major light:**

Cabo San Juan Light—as above.

Directions for approach channels from north

US Charts 25650, 25667 (see 1.20)

Pasaje de San Juan

(continued from 4.23)

4.267

1 **Channel.** Pasaje de San Juan (18°24′N 65°38′W) is 7 cables wide between Cabo San Juan and Las Cucarachas, with a controlling depth of 16·5 m in the fairway. It is one of the principal channels leading into Sonda de Vieques; however a narrow ridge, with depths of 11·6 to 14·6 m over it lies parallel to the coast, across the NW approach to the channel.

2 **Tidal streams,** with a rate of 2 kn, have been reported to flow in the channel.

4.268

1 **Directions.** From the vicinity of 18°25′N 65°44′ W, the channel leads generally ESE, passing (with positions from Cabo San Juan Light (18°23′N 65°37′W)):

2 NNE of the coastal bank, with a charted depth of 5 m (7 miles WNW), which extends about 1 mile NW from Punta Embarcaderos, which can be identified by the following: a conspicuous white building on the E side of the point, three tall buildings at Luquillo (6 miles W), and a prominent reddish bluff (17 m high), at the W end of a knoll, standing 1¼ miles SE of the point. Thence:

3 SSW of a shoal patch, with a charted depth of 12·3 m (5½ miles WNW), being the least charted depth at the W end of the narrow ridge which lies parallel to the track, thence:

NNE of a dangerous wreck (4¾ miles W) the position of which is approximate, thence:

4 SSW of a dangerous wreck (4¼ miles WNW) the position of which is approximate, thence:

NNE of a dangerous wreck (4 miles WNW), the position of which is approximate, thence:

5 Clear of an isolated rocky patch, with a charted depth of 14·6 m (3 miles WNW), which is the least charted depth in the fairway thence:

SSW of a dangerous wreck (2¼ miles NW), thence:

6 NNE of rocky patches, with charted depths of 8·7 m, extending 5 cables N from Cabeza Chiquita (1½ miles WSW), a sharp projecting point with several knolls and bare bluffs on its E side, thence:

7 SSW of a patch, with a depth of 12·5 m (1¼ miles NNW), situated 3 cables SW of the shoal extending 7 cables WNW from Las Cucarachas, thence:

SSW of Las Cucarachas (1¼ miles NNE) a small group of rocks on which stands Las Cucarachas

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Light (green and white chequered diamond on a framework tower, 5 m in height), thence:

8 NNE of Cabo San Juan (4 cables N), the NE extremity of Puerto Rico, which is steep–to on its N side and fringed by a reef, on which the sea breaks, on its NE and E sides. This cape terminates in a bluff (about 30 m high) rising to a hill (67 m high), 4 cables inland and appears as an island from the NW. Cabo San Juan Light (4.265) stands on the summit of the hill.

(Directions continue for the E coast of Puerto Rico at 4.272 and 4.273)

Pasaje Cucaracha

4.269

1 **Description.** Pasaje Cucaracha (18°24′N 65°36′W), about 3 cables wide between the shoals extending from Las Cucarachas and Los Farallones, has a least depth of 10·7 m in the fairway, leading into Pasaje de San Juan from the NE. This is the best passage for sailing vessels entering the NW end of Sonda de Vieques, during East Trade Winds.

2 **Tidal streams,** with a rate of 2 kn, have been reported to flow in the channel.

4.270

1 **Directions.** From a position about 2 miles NE of Cabo San Juan Light (18°23′N 65°37′W) the line of bearing, 218°, of this light, leads through the centre of the passage, over a depth of 11 m, passing (with positions from the light):

2 NW of a shoal patch, with a depth of 6·9 m over it (1½ miles NE) lying 1 cable W of Los Farallones a group of bare, rugged rocks about 9 m high, thence:

3 SE of the extremity of a shallow bank, with depths of 5·2 to 7·0 m over it (1¼ miles NE), which extends 2 cables SE from Las Cucarachas (4.268).

(Directions continue for the E coast of Puerto Rico at 4.272 and 4.273)

Pasaje de Hermanos

4.271

1 **Description.** Pasaje de Hermanos (18°21′N 65°28′W), which is about 2 miles wide between the rocks of Arrecife Hermanos (to the NW) and Arrecife Barriles, is a chain of rocks (to the SE), with dangerous patches and with depths of 4·5 to 9 m over them, in the fairway.

2 **Local knowledge** is essential.

Directions for the east coast of Puerto Rico

(Continued from 4.268 and 4.270)

Route

4.272

1 **The outer (easterly) route** (4.273) with a least charted depth of 14·6 m in the fairway (1 mile E of Cabo San Juan Light) is recommended for vessels with a draught of more than 6·7 m. It leads towards the E part of Sonda de Vieques and facilitates onward passage as follows:

Through the E part of Sonda de Vieques (4.205), E to the Virgin Passage (3.103).

2 Through Radas Roosevelt (18°10′N 65°32′W), which provides the deepest approach route to Ensenada Honda (Puerto Rico) (4.326) with a least charted depth of 12·8 m in the buoyed channel through Pasaje Radas Roosevelt (4.278) which has been swept clear to a least depth of 12·2 m. This route also leads to Pasaje de Vieques (4.310).

Directions for the outer route

(continued from 4.272)

4.273

1 From a position NE of Cabo San Juan Light (18°23′N 65°37′W) the track leads SE, passing (with positions from Cabo San Juan Light):

2 Close SW of a dangerous wreck (1 mile ENE) and clear of a second dangerous wreck (1¼ miles ESE), the positions of which are approximate, thence:

3 At least 3 cables SW of Cayos Icacos (1¾ miles E) which is steep–to on its SW side but has depths of less than 8·5 m within 2¾ cables of the S coast. It is the largest island in La Cordillera, with hummocks (12 m high) covered with scrubby growth. A prominent tower stands near the centre of the island. Thence:

4 SW of a rock (3 m high) (2 miles E) which lies at the extremity of a reef awash extending 2 cables SW from Cayo Ratones, a bare ledge (18 m high). Depths of less than 6·4 m extend up to 3 cables SW from the rock.

4.274

1 From a position 5 cables S of Cayo Icacos, the track leads ESE, passing (with positions from Cabo San Juan Light):

SSW of Cayo Lobos (7·6 m high) (3 miles E) with higher rocks lying to the N, thence:

2 NNE of a shallow bank extending about 2 cables off the N coast of Isla Palominos (3½ miles SE) which appears as a smoothly rounded grassy hill, somewhat flat on top. The NW extremity consists of a narrow rocky point connected to the island by a low neck of land. No 2 Light–buoy (starboard hand) marks the NE edge of dangerous shoals (4.275). And:

3 SSW of La Blanquilla (3¾ miles ESE).

4.275

1 From a position NE of Isla Palominos (18°21′N 65°34′W), the track leads SE, passing (with positions from the S extremity of Isla Palominos):

NE of dangerous shoals, the edges of which are steep–to, which extend about 5 cables E from Isla Palominos and a dangerous wreck (1 mile E), the position of which is approximate, and from Isla Palominitos (3 cables S), and:

2 SW of Cayo Diablo (2 miles NE) which is generally low with a hummock (12 m high) at its E end and a white beach on its S side, thence:

SW of Bajo Blake (2 miles E) which is marked off its S side by No 3 Buoy (port hand).

3 **Clearing lines** for Bajo Blake:

The alignment (278°) of the N extremity of Isla Palominos with a hill (110 m in height) (1½ miles SSW of Cabo San Juan Light) passes close N of Bajo Blake.

The alignment (285°) of the S summit (50 m in height) of Isla Palominos with the same hill (above) passes S of Bajo Blake.

4 **Useful mark:**

A detached rock (9 m high) (3 miles ENE).

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4.276

1 From a position SW of Bajo Blake (4.275) the track leads ESE into the E part of Sonda de Vieques (4.205), passing (with positions from the S extremity of Isla Palominos):

Clear of an isolated rocky patch, with a least charted depth of 12·8 m (3½ miles ESE), thence:

2 NNE of Roca Piraguas Exteríor (Outer) (5½ miles SE) a pinnacle (4·6 m high) with a rock awash close S of it, thence:

NNE of a shallow patch, with a least charted depth of 12·8 m, near the NE extremity of a shoal extending 2 miles NW from Bajo Hodgkins (7¼ miles SE) which is a narrow ridge.

(Directions for the E part of Sonda de Vieques are given at 4.213)

4.277

(continued from 4.214 and 4.226)

1 From the vicinity of 18°17′N 65°27′W, the outer route leads SSW towards Pasaje Radas Roosevelt, with a controlling depth as given at 4.272, passing (with positions from Bajo Chinchorro del Sur Light (18°14′N 65°31′W)):

ESE of Bajo Hodgkins (3 miles ENE) (4.276), thence:

2 ESE of Bajo Chinchorro del Sur, on which there is a patch awash, near the middle, on which the sea always breaks. Bajo Chinchorro del Sur Light (red and white chequered triangle on a white tower on piles, elevation 8 m) stands on the W side of the shoal. A broken line of shoals, with depths of 4·1 to 7·8 m over them, extend about 3½ miles S from the light. Thence:

3 WNW of No 1 Light–buoy (port hand) (3 miles ESE), moored off the NW extremity of a coral patch, with a least charted depth of 11·4 m, thence:

ESE of a shallow patch, with a least charted depth of 8·2 m (2¼ miles SE), thence:

4 WNW of coral patches, with a least depth of 5·0 m over them, and marked on the NW side by a light–buoy (port hand), extending 6 cables NNW from Caballo Blanco (4¾ miles SE), a low grassy islet from which a light is exhibited, situated near the S end of a reef which dries in places, thence:

5 WNW of a coral patch with a charted depth of 8·7 m 7 cables WNW of Caballo Blanco, thence:

ESE of the E extremity of an extensive shoal, with a charted depth of 6·4 m (3 miles SSE).

(Directions continue for Bahía de Mulas at 4.305 and 4.306)

4.278

1 From a position SSE of Bajo Chinchorro del Sur Light, the track leads generally W for about 3¼ miles through Pasaje Radas Roosevelt within a channel, with depths as given at 4.272, marked by light–buoys (lateral), passing (with positions from the N end of a causeway (18°09′N 65°31′W) (4.308)):

2 N of Arrecife Mosquito (1¼ miles ENE) which is awash and steep–to and on which the sea always breaks, and between Nos 5 and 6 Light–buoys (lateral), thence:

3 N of a shoal with a depth of 5·0 m over it (9 cables NNE), thence:

N of a patch with a depth of 3·2 m over it (5 cables N), and:

4 S of a patch with a least depth of 5·0 m over it (2 miles N).

4.279

1 From the W end of the buoyed channel (3¾ miles SE of Isla Cabras Light (18°13′N 65°36′W)) the approach to Ensenada Honda and to Bahía de Puerca leads NW, passing (with positions from Isla Cabras Light):

2 NE of a dangerous wreck (3¾ miles SSE), the position of which is doubtful, and of a shoal patch, with a charted depth of 6·4 m (2¾ miles SSE), both lying off the NE side of Escollo de Arenas (4.317), thence:

3 NE of No 11 Light–buoy (port hand) (1¾ miles SSE) moored off the NE extremity of a shoal patch with a least depth of 7·8 m over it and 7 cables N of another patch with a least charted depth of 8·7 m.

4.280

1 **Useful marks** (with positions from Punta Mulas Light (18°09′ N 65°27′ W)):

Punta Mulas Light (10 m in height) standing on Punta Mulas, a low bluff with some small houses E of it.

Old brick fort standing on a hill (5 cables SSE).

Two lights standing on the head of the Navy Pier (6¼ miles SE) (4.308), and Breakwater Head Light (pile), close NNE of the pier.

(Directions continue for Ensenada Honda at 4.347
Directions for Pasaje de Vieques are given at 4.317, and for the inner route at 4.281)

Directions for the inner route

4.281

(continued from 4.268 and 4.270)

1 **This channel;** with a controlling depth of about 8·7 m and recommended only for use by day for vessels with a draught of less than 6·7 m leads S towards Ensenada Honda (Puerto Rico) (4.326) and Pasaje de Vieques (4.310).

2 **Local knowledge** is required.

An alternative track with a least depth of 6·1 m in it, lying at the N end of the inner route, (4.286) is useful to vessels with appropriate draught.

Caution. These routes pass through a restricted area (4.182).

From a position 8 cables NE of Cabo San Juan Light (18°23′N 65°37′W) the line of bearing, 340° astern, of Las Cucarachas Light (1¼ miles NNE of Cabo San Juan Light) leads 160° in the fairway, passing (with positions from Cabo San Juan Light):

3 ENE of Cabo San Juan (4.268), thence:

WSW of Cayo Icacos (1¾ miles E) (4.273), thence:

ENE of coral patches (1½ to 2½ miles SSE) (4.286).

4.282

1 When the summit of Isla Palominos (18°21′N 65°34′W) (4.274) bears 096° the track alters towards the S, along the line of bearing, 188°, of Punta Medio Mundo (18°16′N 65°36′W), and along the line of bearing, 008°, astern, of the tower on Cayos Icacos (4.273), passing (with positions from Punta Barrancas (18°18′·5N 65°37′·6W)):

2 W of the dangerous shoals extending 5 cables W from Isla Palominos and from Isla Palominitos (3¾ miles ENE), thence:

Close E of a shoal patch with a least charted depth of 6·4 m (2½ miles NE), thence:

W of No 1 Buoy (port hand) (2½ miles NE) marking the NW extremity of Cayo Largo (4.283), thence:

E of a shoal extending 3 cables E and SE from Arrecife Corona Carillo (1½ miles NNE) a detached reef, which dries in places and on which the sea always breaks.

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3 **Useful marks** in the vicinity of Bahía de Fajardo are given at 4.298.

4.283

1 When Cabo San Juan Light bears 340° the track leads 160°, along this line of bearing, astern, with No 7 Light–buoy (6 miles SE of Punta Barrancas) nearly ahead, passing (with positions from Punta Barrancas):

ENE of the reefs extending up to 1½ cables from Isla de Ramos (11 m high) (1 mile ENE), which is covered with palm trees, except on its summit which is a grassy knoll on which stands a small house, thence:

2 WSW of No 1A Light–buoy (port hand) marking a shallow patch close W of Cayo Largo (Largo Shoals) (2½ miles E), a group of narrow ledges the S part of which are awash and on which the sea always breaks. At night the breakers, which show as a white line, are easily distinguished, thence:

3 ENE of No 2 Buoy (starboard hand) (1½ miles E) marking the NE side of an isolated patch with a least charted depth of 5·0 m, thence:

WSW of a shallow patch with a least charted depth of 7 m (2¼ miles E) lying 3 cables SSE of No 1A Light–buoy (port hand), thence:

4 Between shallow patches, with a charted depth of 7·8 m (2½ miles E) and with a charted depth of 7·3 m (2 miles ESE), thence:

ENE of No 4 Buoy (starboard hand) (2¼ miles ESE), marking a shallow patch with a least depth of 6·9 m over it, thence:

5 WSW of No 3 Buoy (port hand) (3 miles ESE) marking a shallow patch with a least charted depth of 6·4 m, being the NW of many shoals lying between Cayo Largo (above) and Roca Lavandera del Oeste (3 miles farther SSE) (described below), thence:

6 WSW of No 5 Buoy (port hand) (4 miles SE) marking the NW extremity of a narrow shoal, with a least depth of 5·8 m over it, and on which lies a dangerous wreck, the position of which is approximate, thence:

Over a shallow patch, with a charted depth of 8·7 m (4 miles SE), which is the N of the least charted depths on the track, and into a restricted area (4.182), thence:

7 ENE of the reef fringing Isla Piñeros (4 miles SSE), rising near its middle to a wooded hill, which slopes regularly to the E end of the island and forms a rocky bluff, thence:

WSW of Roca Lavandera del Oeste (4¾ miles SE) consisting of two rocks (about 0·3 m high), on which the sea always breaks, lying close together on the W side of a rocky shoal, thence:

8 ENE of Isla Cabeza de Perro (4½ miles SE) (4.265), and over a charted depth of 8·8 m (29 ft).

9 **Clearing line.** The alignment (171°) of Isla Cabeza de Perro with Monte Pirata (18°06′N 65°33′W) (4.190) passes 3 cables W of Cayo Largo (above) and over a depth of 7·3 m but close E of No 1 Buoy (port hand) and No 1A Light–buoy (port hand).

4.284

1 When Cabeza de Perro East Point Light (18°15′N 65°35′W) (4.265) bears 260°, the line of bearing, 000°, astern, of Isla Palominos (4 miles NE of Punta Barrancas) (4.274) leads in the channel, passing (with positions from Isla Cabeza de Perro East Point Light):

2 2 cables E of a bank, with a least charted depth of 5·9 m (4½ cables S), extending 1 mile S from Isla Cabeza de Perro, thence:

W of Roca Descubridor (1½ miles E) which has a least depth of 4·6 m over it.

4.285

1 When Isla Cabras Light (18°13′N 65°36′W) (4.317) bears 232° the track alters to about 214° to pass about 7 cables from the light, passing (with positions from the light):

2 ESE of a shallow patch, with a charted depth of 6·9 m (2 miles NE), situated near the SW edge of the bank extending S from Isla Cabeza de Perro, thence:

WNW of No 7 Light–buoy (port hand) (2¾ miles ENE) marking a shoal with a least depth of 2·3 m over it, thence:

3 ESE of a shallow patch, with a least charted depth of 8·2 m (1 mile NE), situated 5 cables E of the S extremity of Punta Puerca (4.265), thence:

4 ESE of Isla Cabras (21 m high), which is low in the middle and rises to a rocky bluff at its E extremity. It is connected by a causeway to the mainland. A light (4.317) stands near the E end of the island.

(Directions continue for Ensenada Honda at 4.347. Directions for the outer route are given at 4.273, and for Pasaje de Vieques at 4.317)

Directions for the alternative track in the inner route

4.286

1 For the limitations of this route see 4.281.

From a position 8 cables NE of Cabo San Juan Light (18°23′N 65°37′W), the line of bearing, 167°, of Cabeza de Perro East Point Light (18°15′N 65°35′W) (4.265), and the line of bearing, 347° astern, of Las Cucarachas Light (4.268), leads SSE, passing (with positions from Punta Barrancas (18°19′N 65°38′W)):

2 Close ENE of Cabo San Juan (4.268), thence:

WSW of Cayos Icacos (1¾ miles E) (4.273), thence:

Over coral patches, with depths of 6·4 to 7·3 m over them (from 3¼ miles NNE to 2¼ miles NE). The least charted depth is near the S end of the chain. And:

3 ENE of Bajo Laja (2½ miles NNE), thence:

ENE of dangerous wreck (2¼ miles NNE) which lies about 1 cable E of Arrecife Roncador (4.297), thence:

ENE of a shoal extending 3 cables E from Arrecife Corona Carillo (1½ miles NNE) (4.282), thence:

4 WSW of No 1 Buoy (port hand) (2½ miles NE) (4.282), thence:

ENE of the reefs extending up to 1½ cables from Isla de Ramos (1 mile ENE) (4.283).

4.287

1 From a position 2 miles E of Punta Barrancas (18°19′N 65°38′W) (WSW of No 1A Light–buoy (port hand)), the track alters to 160° and follows the Directions given at 4.283.

4.288

1 **Useful marks** in the vicinity of Bahía de Fajardo are given at 4.298.

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Bahía de Fajardo

Chart US 25667 (see 1.22)

General information

4.289

1 **Position** Bahía de Fajardo, off the E coast of Puerto Rico, extends SE from Punta Bateria (18°21′ N 65°38′ W) (4.290).

Function. It affords good shelter for vessels with a maximum draught of 5·2 m.

2 Playa de Fajardo (6 cables S), with a population of about 1000, is a customs port of entry and is the port of Fajardo (1½ miles SW of Punta Bateria) which is the principal town in the NE part of Puerto Rico.

4.290

1 **Topography.** Bahía de Fajardo lies between Punta Bateria (a black rocky cliff, 21 m high) and Punta Fajardo (8 cables SSE) to the W; and Isleta Marina (two cays covered with mangroves and palm trees) (5 cables E of Punta Bateria) and the reefs surrounding and S of it, to the E.

2 The following features are prominent, (with positions from Punta Bateria):

A high reddish bluff close W of Playa de Fajardo (6 cables S).

The Customs House on the waterfront at Playa de Fajardo.

A tall lime kiln, near a ruined pier (6½ cables S).

3 **Traffic.** In 2004, 4 vessels with a total dwt of 50 602 tonnes used the port.

Port Authority. (4.10). Local rules and regulations are enforced by a Commonwealth Captain of the Port.

Limiting conditions

4.291

1 **Controlling depth** in the main entrance channel as far as Punta Bateria (4.296) is 7·0 m (23 ft).

Dredged depth in the channel leading to the Public Pier was 3·3 m (11 ft) in 1962.

Berths:

Deepest and longest berth is the Public Pier.

2 **Mean tidal levels:**

MHW 0·3 m.
MLW 0·0 m.

Arrival information

4.292

1 **Outer anchorages** are available in the N entrance (1½ miles NE of Punta Bateria) or in Rada Fajardo (2½ miles NE of Punta Bateria) (4.301), which are able to accommodate vessels with a draught greater than 5·2 m.

Pilotage. Compulsory. Available day and night (1.34).

2 **Tugs.** None.

Local knowledge is required.

Quarantine (1.48).

Harbour

4.293

1 **Tidal streams** in Bahía de Fajardo set as follows:

SSE at a rate of 0·3 kn with the rising tide.

NNW at a rate of 1·1 kn with the falling tide.

The sea is calm in normal weather.

2 **Principal mark:**

Cabo San Juan Lighthouse (18°23′N 65°37′W) (4.265) in the approach to Bahía de Fajardo.

Aids to navigation. Many of the aids to navigation are privately maintained.

Directions for entering harbour

4.294

1 **Approaches.** Bahía de Fajardo can be approached from the N through Pasaje de San Juan (18°24′N 65°38′W) (4.267); or from the S or E through Sonda de Vieques, following either of the channels given at 4.272.

2 An alternative approach route from Sonda de Vieques passes between Isla Palominos (18°21′N 65°34′W) (4.274) and Cayo Largo (1½ miles SSW of Isla Palominos). This channel is 6 cables wide with a depth of 8·2 m (27 ft) in the fairway.

3 **Entrance channels.** The main entrance channel to Bahía de Fajardo is from the N (4.295). Smaller vessels can enter from the E (4.297).

4.295

1 **Entrance channel from the north** is an unmarked channel (1½ miles NE of Punta Bateria (18°21′ N 65°38′ W)) (4.291), extending as far as Punta Bateria, thence through a dredged channel (4.291) to the berths at Playa de Fajardo.

4.296

1 **Directions.** From a position 2 miles NE of Punta Bateria, the alignment (210°) of the reddish bluff (5 cables S of Punta Bateria), with a high grassy hill with a clump of trees on its summit, leads towards Bahía de Fajardo, passing (with positions from Punta Bateria):

2 SE of the coastal reef which extends up to 1 cable offshore, extending NNE and SSW from Punta Gorda (9 cables NNE), which is a prominent headland, thence:

Close NW of a bank, with a least depth of 7·6 m (25 ft) over it (1 mile NE), thence:

NW of Bajo Laja (9 cables ENE) (4.286).

3 From a position 8 cables NE of Punta Bateria, the line of bearing, 200°, of the Customs House (4.290) leads into the bay passing:

WNW of a shoal patch, with a depth of 3·4 m (11 ft) over it (3¾ cables E). No 3 buoy (port hand) is moored 2 cables N of this shoal. Thence:

WNW of a shoal, with a least depth of 3 m (10 ft) over it (4¼ cables SE).

Entrance channel from the east

4.297

1 **Description.** A channel, seldom used, (1 mile ENE) which leads into Bahía de Fajardo from the E, with a controlling depth of 5·2 m (17 ft), as far as a position N of No 3 Buoy (port hand) (4¾ cables E) (4.296), passes:

2 S of Bajo Laja (9 cables ENE) (4.286) and:

N of Arrecife Roncador, which dries in places (9 cables E) and on which the sea always breaks, marked about 1 cable off its N extremity by No 1 Light–buoy (port hand).

3 **Local knowledge** is required.

4.298

1 **Useful marks** (with positions from Punta Bateria (18°21′ N 65°38′ W)):

Hotel with two cupolas (each marked by a red light) (8½ cables NNE) stands at the head of a yacht marina.

2 Two light–coloured chimneys (1½ miles SW) situated in the sugar mill close E of Fajardo.

Navigational lights at Punta Gorda (9 cables NNE) — four lights, Marina Puerto Chico (3 cables NW) — five lights, Playa de Fajardo (5 cables S) — one light, Isla Marina (6 cables ESE) — four lights.

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Anchorages and berths

Anchorages

4.299

1 The usual anchorage is in a depth of 5 to 7 m (16 to 24 ft) about 2½ cables NE of Punta Bateria, with good holding ground and fair protection.

Anchorage, suitable for vessels with a draught of less than 3·7 m, is available on either side of the entrance channel, to the WSW of Isleta Marina, clear of a cable and pipeline area.

2 **Alongside berths:**

The Public Pier at Playa de Fajardo has a length of 67 m and a depth alongside of 2·4 m.

There are two ferry piers and a number for other cargoes.

Port services

4.300

1 **Repairs:** Limited facilities.
Hospital: Fajardo.
Fresh water: available at the Public Pier.

Anchorages

Rada Fajardo

4.301

1 **Description.** Rada Fajardo (18°22′N 65°35′W), lying between Cabo San Juan and Isla Palominos (4 miles SE) affords good anchorage, in normal weather, in depths of 13 to 18 m (28 to 60 ft), except in the SW part of the roads where there are many shallow patches, with depths of 5·8 to 9·1 m (19 to 30 ft) over them.

2 Good anchorage is available, in a depth of about 12 m (40 ft), 5 cables W of the N part of Isla Palominos, with bearings as follows (positioned from Cabo San Juan Light):

Cabo San Juan Light (4.265), 313°.

Las Cucarachas Light (1¼ miles NNE) (4.268), 331°.

Punta Aguila (3 miles SE), the NW extremity of Isla Palominos, 037°.

US Charts 25663, 25664 (see 1.20)

Radas Roosevelt

4.302

1 **Anchorage** is available in Radas Roosevelt (18°10′N 65°34′W), the open water portion at the SW end of Sonda de Vieques, lying between the SE side of Puerto Rico to the NW, Escollo de Arenas (18°09′N 65°36′W) (4.317) to the SW and, to the S, the coastal bank, with depths of less than 10 m extending about 1 mile N from the W end of Isla de Vieques, between Punta Arenas and Desembarcadero Mosquito (Mosquito Landing) (4 miles E).

Restricted areas

4.303

1 See 4.182.

Explosives anchorage area, with a radius of 8½ cables, centred about 2½ miles NE of Punta Arenas, lies in the S part of Radas Roosevelt. (4.183).

Bahía de Mulas

4.304

1 Bahía de Mulas, an open bight on the N side of Isla de Vieques, W of Punta Mulas (18°09′ N 65°27′ W) (4.280), serves Isabel Segunda (Isabella 2nd), the principal town on the island. There is regular communication with Playa de Fajardo (4.289) and Bahía de Sardinas (18°18′N 65°18′W) by ferry.

2 With N winds a heavy sea sets into the bay, causing smaller vessels to drag anchor.

Directions

(continued from 4.277)

4.305

1 **West–north–west approach.** From a position in Pasaje Radas Roosevelt, WNW of Punta Mulas Light (4.280) and in the vicinity of Nos 3 and 4 Light–buoys (4.278), a channel, in which there are patches with a depth of 7·3 m (23 ft) over them (2 miles WNW of Punta Mulas Light), leads ESE towards Punta Mulas, passing (with positions from Punta Mulas Light (18°09′N 65°27′W)):

2 NNE of Arrecife Corona (2½ miles W), awash and steep–to. Two shallow patches, with depths of 6·4 and 7·0 m (21 and 23 ft) over them, lie 2¾ and 5½ cables respectively, E of the reef. Thence:

3 SSW of Caballo Blanco (1¾ miles NW) (4.277), thence:

NNE of Bajo Commandante, (1½ miles W).

4.306

1 **North approach.** From a position NNW of Punta Mulas the track leads towards Punta Mulas, passing (with positions from Punta Mulas Light):

Clear of a shallow patch with a depth of 7·9 m (26 ft) over it (2 miles NNW), thence:

2 ENE of Caballo Blanco (1¾ miles NW) (4.277), thence:

Clear of a shallow patch with a least depth of 6·4 m (21 ft) over it (1½ miles NNW), thence:

3 Clear of a shallow patch with a depth of 8·8 m (29 ft) over it (1¼ miles NNW).

4.307

1 **Anchorage** exists in a maximum charted depth of 12 m (39 ft), 2½ to 7½ cables offshore, with Punta Mulas Light bearing between 107° and 122°.

Smaller vessels can obtain better shelter closer inshore.

An explosives anchorage area is centred 1½ miles N of Punta Mulas Light. Regulations are given at 4.183.

2 A pipeline and cable area, extending NE from the coast between 6 cables and 1½ miles E of Punta Mulas Light, is mentioned at 4.255.

Alongside berths

Navy Pier

4.308

1 **Description.** On the N side of Isla de Vieques, a spur pier (18°09′ N 65°31′ W), with a length of 183 m and a depth of 11·5 m alongside both sides (1965), extends WNW from a position near the head of a causeway extending about 1¼ miles N from Desembarcadero Mosquito. However, unmarked shoal patches, with a least charted depth of 3 m (10 ft), lie up to 5 cables N of the causeway (4.280).

2 **Local knowledge** is required.

Bahía de Puerca

4.309

1 **Description.** Bahía de Puerca (18°14′N 65°36′W), Puerto Rico, is entered between Punta Puerca and a line of shallow patches, with depths of 3·7 to 5·5 m (12 to 18 ft), extending 5 cables SE from Cayo Cabritas (18°13′ N 65°36′ W), which is rocky and covered with bushes.

Depths. In the middle of the bay, over a width of 3 cables, there is a least depth of 11·3 m (37 ft).

2 **Alongside berth.** A pier, consisting of caissons joined by catwalks, which projects 305 m from the head of the

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bay, has a maximum depth of 11·3 m alongside. A patch, with a depth of 7·9 m (26 ft) over it, is situated ¾ cable SW of the pier. A light, which is privately maintained, stands at the head of the pier. The pier is reportedly in poor condition and not available for use.

PASAJE DE VIEQUES

General information

US Charts 25664, 25663 (see 1.20)

Channel

4.310

1 Pasaje de Vieques (18°10′N 65°37′W) is the strait passing between Punta Cascajo, on the SE side of Puerto Rico, and Punta Arenas (6 miles SE), the NW extremity of Isla de Vieques.

Topography

4.311

1 Isla de Vieques (4.190).
Puerto Rico (4.3).
Distinctive features along the SE coast of Puerto Rico include, with positions from Punta Lima (18°11′N 65°42′W)):

2 Punta Fraile (8¼ miles SW) (4.319).
Morro de Humacao (30 m high) (6 miles SW) a prominent, rocky, bluff point, which has higher land close W of it.
El Morrillo (4¾ miles WSW) (4.321).

3 Cayo Santiago (50 m high) (2¾ miles WSW) which is steep–to on its E side and connected to Punta Santiago, 6 cables NW, by a shallow bank. The N end of the cay is low and is joined by a low neck to a rocky knob (over 18 m high) to the E.
A black chimney (4¼ miles WNW).
Punta Lima (4.316).

4 Cayo Algodones (1¼ miles NE) which is small and covered with grass; its SE side consists of a rocky bluff (10 m high). Some buildings stand on the cay.

5 A group of prominent hills (2 miles NE) which rises close to the coast, N of Cayo Algodones, with low land E and W of it.
A black chimney (2½ miles N).

Controlling depths

4.312

1 The fairway through the strait has been swept to a depth of 8·5 m and is recommended for vessels with a maximum draught of 7·3 m.

Fishing

4.313

1 Fishing marks (4.6).

Traffic regulations

4.314

1 **Restricted areas** are situated on both sides of Pasaje de Vieques, at its NE end (4.182).

Cautionary areas. Anchoring, dredging or trawling in the coastal waters in the approach to, and in the vicinity of, Passaje de Vieques is unwise owing to the presence of unexploded ordnance, as shown on the chart.

Natural conditions

4.315

1 **Tidal streams** off the SE coast of Puerto Rico attain rates of 0·7 kn. Owing to the effect of a slight NE current which is usually present, the NE–going flow runs for 7 hours and the SW–going flow runs for 5 hours; with the stream turning from S–going to N–going about 5½ hours after HW Bermuda.

A strong SW current is frequently experienced N of Escollo Arenas (18°08′N 65°35′W) and the bank itself is usually indicated by tide–rips.

2 **Overfalls.** When the North–east Trade Wind blows, there is a heavy surf on the N coast of Isla de Vieques, making landing impracticable on the open coast.

Local weather. General comments at 4.7.

Principal marks

4.316

1 **Landmarks:**
Tower on Monte Pirata (18°06′N 65°33′W) (4.190).
Punta Lima (18°11′N 65°42′W) a salient point rising to a rounded, wooded hill (80 m high) connected to the mainland by a low neck of land.

2 Church spire (18°13′N 65°44′ W) at Naguabo.

Directions

US Chart 25664 (see 1.22)

4.317

1 From the vicinity of 17°59′N 65°43′W, about 10 miles E of Punta Tuna (4.387), the track leads NNE to the alignment of the leading lights.

2 **Vieques South–west Channel Leading Lights:**
Front light (white column with red stripe, on framework tower, 16 m in height) (18°13′N 65°36′W), situated on the E end of Isla Cabras.
Rear light (white column with red stripe, on a tower, elevation 43 m) (1 mile NNE of front light), situated on Punta Puerca (4.265).

3 The alignment (025½°) of these lights leads through Pasaje de Vieques, passing (with positions from the front light):
ESE of a dangerous wreck (10½ miles SW). A buoy (special) is moored about 6 cables SSW of the wreck. Thence:

4 ESE of a detached shoal, with a least depth of 7·6 m (25 ft) over it, (7¼ miles SW), thence:
WNW of shallow patches, with depths of 7·3 to 9·1 m (24 to 30 ft) over them, extending 3 miles WNW from Punta Boca Quebrada (7 miles SSE) which is low and wooded, and terminates in a beach of white sand from which a reef extends a short distance offshore. A mooring buoy is positioned 8 cables WNW of the point. Thence:

5 ESE of detached shoals, with a least depth of 6·4 m (charted as 19 ft) over them, which extend up to 2 miles SSE and SE from Arrecife Lima (5¼ miles WSW) which is very shallow and on which the sea often breaks, thence:

6 Between a shallow patch, which has been swept to a depth of 8·8 m (29 ft) (3¼ miles SSW) marked off its E side by No 1 Light–buoy (port hand); and a shallow patch, with a charted depth of 8·5 m (28 ft) (3 cables E of the first patch) which is marked off its SW side by No 2 Buoy (starboard hand), thence:

7 WNW of the NW extremity of Escollo de Arenas (2¾ miles S), extending about 3¼ miles NNW

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from Punta Arenas, low and covered with scrubby growth, terminating in a white spit. This point, consisting of sand and small shells, is constantly changing shape. At times the outer coconut trees are in the water. Thence:

(Directions continue for Ensenada Honda at 4.347. Directions for passages E of Puerto Rico are given at 4.272 and 4.273)

Puerto Humacao

US Chart 25663 (see 1.20)

General information

4.318

1 **Description.** Puerto Humacao, situated W of Cayo Santiago (18°10′N 65°44′W) affords good anchorage for coasters with a draught of 4·9 m; but it is exposed to winds from the S and SE, which sometimes send a heavy sea into the bay. Puerto Humacao was formerly the port of Humacao but it now has no commercial importance and the piers are in ruins. Humacao, 6 miles inland, is a customs port of entry.

Directions

4.319

1 **Inshore approach from south–west.** From a position 5 miles SSW of Cayo Santiago (18°10′N 65°44′W), the alignment (026°) of the summit of Cayo Santiago (4.311), with a round–topped peak (2½ miles NNE) (being the second high point on the skyline from E), leads towards Puerto Humacao, in a least depth of 7·3 m (24 ft) (3½ miles SSW), passing (with positions from the summit of Cayo Santiago):

2 ESE of a reef, on which lie a number of rocks, extending 3 cables SE from Punta Fraile (5¾ miles SW), close off which stands a high, barren islet. Palmas del Mar Breakwater Lights (lateral) are situated close S of the point. Thence:

3 ESE of a sunken reef, on which the sea breaks, and the shoals extending up to 5 cables SE from Punta Candelero (5 miles SW), low, covered with bushes a few palm trees, thence:

4 ESE of a reef awash, extending 2 cables SE from Cayo Batata (12 m high) (3 miles SW) which is covered with grass, thence:

Close ESE of a patch, with a depth of 5·2 m (17 ft) over it (2 miles SW), thence:

ESE of a coral patch, with a charted depth of 5·2 m (17 ft) (1¾ miles SW).

4.320

1 When a prominent tank (8 cables NW) situated near the root of a ruined pier (close E of some warehouses), bears 358°, the track leads along the line of bearing in a least depth of 7·3 m (24 ft) (6½ cables WSW) passing:

2 W of Bajo Parse, with a least depth of 4·0 m (13 ft) over it (1 mile S), thence:

E of a shoal, with a least depth of 3·7 m (12 ft) over it (9 cables WSW), thence:

3 W of Bajo Evelyn, with a least depth of 4·1 m (14 ft) over it (4½ cables WSW).

4.321

1 **Approach from south–east.** From a position about 3 miles SE of Cayo Santiago (4.311), the line of bearing, more than 295°, of a white mark on the rocks at El Morillo (2 miles WSW), which is a small but prominent hill (33 m high), which rises abruptly from the sea and the low land around it, leads towards Puerto Humacao, passing:

2 SSW of a detached coral shoal, with a least depth of 4·1 m (14 ft) over it (1¼ miles SE), which is situated 3 cables SW of 2 dangerous wrecks. The E wreck, the position of which is doubtful, has a reported depth of 5·5 m (18 ft) over it; the position of the W wreck is approximate. Thence:

SSW of Bajo Parse (1 mile SSW) (4.320).

3 When the prominent tank (8 cables NW) (4.320), bears 358°, the track leads along this line of bearing, as at 4.320.

Anchorages

4.322

1 Anchorage is available in a depth of 7 m (24 ft), 6 cables SW of Cayo Santiago, positioned by the following bearings:

Prominent tank (8 cables NW) (4.320), 358°.

Summit of Cayo Santiago (4.311), 057°.

Anchorage is available for larger vessels, within 2¼ miles S of Cayo Santiago, as draught permits.

Anchorages

Puerto de Naguabo

4.323

1 **Description.** An open bay situated about 1½ miles W of Punta Lima (18°11′N 65°42′W), is available for coasters with a draught of 5·5 m.

The village of Playa de Naguabo stands on the N side of the bay and its buildings are clearly visible from seaward. On the W side of the village stand two houses, each with a prominent cupola.

2 **Local knowledge** is required.

4.324

1 **Directions for entering harbour.** From a position S of Punta Lima (4.316), the line of bearing, between 338° and 020°, of Punta Lima leads towards Puerto de Naguabo, passing (with positions from Punta Lima):

2 Over or clear of a number of detached shoals, with a least charted depth of 7·6 m (25 ft) (3¼ miles S), thence:

W of a detached shoal, with a depth of 3·6 m (21 ft) over it (2½ miles SE), thence:

E of a rocky shoal, with a depth of 3·6 m (12 ft) over it (1½ miles SSW), lying 1¼ miles E of Cayo Santiago (4.311).

3 When Punta Lima is about 1 mile distant, the track alters to a NW direction into the bay.

When the two houses with cupolas (4.323), bear 340°, the track leads along this line of bearing towards the anchorage.

4 **Anchorages:**

In a depth of 7 m (22 ft), sticky bottom, with the houses with cupolas (4.323) bearing 340° and the extremity of Punta Lima bearing 095°; clear of the cable and pipeline area given at 4.325.

Explosives anchorage

4.325

1 An explosives anchorage is established within a radius of 1 mile, centred on a position about 2 miles SW of Punta Arenas (18°07′N 65°35′W), clear of a submarine cable laid from Punta Arenas, in a 299° direction, towards Punta Lima; and of a submarine pipeline situated 5 cables NE.

2 For regulations and instructions see 4.183.

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ENSENADA HONDA (PUERTO RICO)

General information

US Chart 25664 (see 1.20)

Position
4.326

1 Ensenada Honda (18°13′N 65°38′W) is situated on the SE side of Puerto Rico, about 10 miles S of Cabo San Juan, to the W of Radas Roosevelt.

Function
4.327

1 Ensenada Honda is the site of Roosevelt Roads United States Naval Station and is closed to the public.

Approach and entry
4.328

1 The port is approached through Pasaje de Vieques or through Sonda de Vieques, as outlined at 4.346; and entered through a dredged channel 7 cables SW of Isla Cabras Light (18°13′N 65°36′W) (4.317).

Port Authority
4.329

1 United States Navy Port Authority.

Limiting conditions

Controlling depth
4.330

1 Entrance channel and turning basin 12·2 m (40 ft) (4.347 and 4.343).

Limiting depth in the approach is in Pasaje Radas Roosevelt (4.278).

Deepest and longest berths
4.331

1 The longest berth is POL pier (4.351).

The deepest berths are POL and No 3 Piers (4.351).

Mean tidal levels
4.332

1 MHW 0·2 m.
MLW 0·0 m.

Maximum size of vessel handled
4.333

1 A vessel with a length of 287 m, width of 32 m and a draught of 10·3 m has used the port.

Flow
4.334

1 A strong SW set is predominant in the entrance channel.

Traffic regulations
4.335

1 **Restricted area.** Ensenada Honda lies within a restricted area, for details see 4.182.

Arrival information

Port operations and information service
4.336

1 Roosevelt Roads Port Control, run by the United States Navy, regulates all movements in and out of harbour, including the allocation of anchorages and berths.

Port radio
4.337

1 There is a port radio station at Ensenada Honda.

Outer anchorages
4.338

1 Outer anchorage areas, each with a radius of 1½ cables, are designated as follows (with centres positioned from Isla Cabras Light (18°13′N 65°36′W)):

Area A, with a least depth of 15 m (49 ft) (8½ cables ESE).

Area B, with a least depth of 13·4 m (44 ft) (1½ miles ESE).

Area E, with a least depth of 15 m (49 ft) (6¾ cables S).

2 Area F, with a least depth of 17 m (55 ft) (8½ cables SE).

Area G, with a least depth of 15 m (50 ft) (1¼ miles SE).

These anchorages are within the restricted area, see 4.335.

Pilotage
4.339

1 Pilotage is compulsory on first entry or after an absence of three months.

Pilots board 1 mile S of Isla Cabras Light and can be embarked by helicopter if required.

Tugs
4.340

1 Available.

Regulations concerning entry
4.341

1 A speed restriction of 5 kn exists within the limits of the port.

Quarantine
4.342

1 Quarantine (1.48).

There is a quarantine station at Ensenada Honda, which includes agricultural quarantine.

Harbour

General layout
4.343

1 An open bay, well protected by the surrounding shore and the reefs which constrict the entrance to 3 cables. The head of the harbour is foul for a distance of 3 cables offshore.

2 A dredged entrance channel leads to a dredged turning basin, about 6 cables in diameter, in the centre of the harbour. The main berthing area is on the E and NE side of the turning basin.

Natural conditions
4.344

1 **Tide.** HW and LW occur about 20 minutes after the predicted times for San Juan.

Flow. A strong SW flow predominates in the entrance channel.

Principal mark
4.345

1 **Landmark:**

Radio tower (18°14′N 65°37′W).

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Directions for entering harbour

Approaches

4.346

1 Ensenada Honda can be approached through any of three main routes, which have been previously described in this text, as follows:

Route suitable for vessels with a draught of 6·7 m or less:

From N, via the inner route, which is approached through Pasaje de San Juan (18°24′N 65°38′W) (4.267).

2 Route suitable for vessels with a draught of 7·3 m or less:

From S, through Pasaje de Vieques (18°10′N 65°37′W) (4.310).

Route suitable for vessels with a draught greater than 6·7 m:

3 Through Pasaje de Radas Roosevelt (18°10′N 65°33′W) (4.278) which can be approached:

From N, via the outer route (4.272) which is approached through Pasaje de San Juan.

From E through Sonda de Vieques (18°11′N 65°15′W) (4.205).

4 The recommended route, with the deepest water in the channel, is through Sonda de Vieques and Pasaje de Radas Roosevelt.

Entrance channel

(continued from 4.280, 4.285, 4.317)

4.347

1 The entrance channel (18°12′N 65°36′W) has a dredged width of 305 m and a controlling depth as given at 4.330.

Initial position about 1 mile S of Isla Cabras Light, near the seaward end of the entrance channel.

Ensenada Honda leading marks (4.347)

(Original dated 1999)

(Photograph – H.M.S. Marlborough)

2 **Ensenada Honda Leading Lights:**

Front light (red column, with a white stripe, on a framework tower, on piles, elevation 11 m) (18°14′N 65°38′W), situated in the shallows at the head of the bay.

Rear light (red column, with a white stripe, on a white tower, elevation 20 m) (4 cables NW of the front light).

3 The alignment (315°) of these lights (see view) leads through the centre of the dredged channel, which is marked on both sides by light–buoys and buoys (lateral) and by No 7 Light–beacon (port hand) (1¼ miles W), passing (with positions from the light on Isla Cabras (18°13′N 65°36′W)):

NE of a detached shoal, with a depth of 5·0 m (17 ft) over it (1¼ miles SW), thence:

4 Close NE of a detached shoal, with a charted depth of 5·5 m (18 ft) (1 mile WSW), lying about 1 cable NE of the coastal bank which extends about 8 cables SE from Punta Cascajo (below), thence:

5 SW of the coastal bank, with charted depths of less than 5·5 m (18 ft), extending about 1¼ cables SW from Cabra de Tierra (11 m high) (6½ cables W) which is the S extremity of a low peninsula covered with mangroves and palms, thence:

6 Close NE of the coastal bank, with a depth of 3·3 m (11 ft) over it, extending 5 cables NE from Punta Cascajo (21 m high) (1¾ miles WSW) cleared and developed except for a fringe of trees near the shoreline and rocky cliffs which rise on the S side of the point.

4.348

1 **Clearing bearing:**

The line of bearing, 029°, of the SE extremity of Isla Cabeza de Perro (2½ miles NNE) (4.265), just open SE of Isla Cabras, passes SE of the dangers extending SE from Punta Cascajo.

4.349

1 **Useful mark:**

A tower (1¼ miles NW) at the head of No 3 Pier, on which stand 2 lights.

Anchorage and berths

Anchorage

4.350

1 The harbour provides good anchorage but affords little protection in a hurricane when the Port Authority recommends vessels to leave as the holding ground is soft mud which may allow vessels to drag anchor.

2 Designated anchorage area is as follows (with area centre positioned from the head of No 3 Pier (1¼ miles NW of the light on Isla Cabras (18°13′N 65°36′W)) and controlling depths established in 1965):

Area C (3½ cables SW), depth 12·3 m (40·5 ft), within a radius of 1½ cables.

Alongside berths

4.351

1 Pier No 3 (1¼ miles NW of Isla Cabras Light), with a length of 366 m and depths of 10 to 12 m alongside, projects into the E side of the turning basin.

POL Pier (3 cables NW of No 3 pier), projects into the W side of the turning basin with a length of 823 m and a depth of 12·1 m alongside.

2 These piers, with one other pier and adjoining quays, providing a total of nine berths, are situated on the NE side of the harbour. These berths are approached from the turning basin through areas with a controlling depth of 12·1 m (40 ft). Close SW of the turning basin is a stranded wreck with visible mast.

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3 A small pier (2¼ miles WNW of Isla Cabras Light), with a depth of 8·5 m alongside its head, projects into the NW corner of the harbour.

4 **Landing** steps for boats, with a depth of about 4·5 m alongside, are situated at the inshore end of the E side of No l Pier (1¾ miles NW of the light on Isla Cabras).

4.352

Repair facilities are available.

Other facilities: United States Naval Hospital; oily waste can be disposed into barges.

Supplies: fuel; fresh water and provisions.

PUERTO RICO—SOUTH PART

GENERAL INFORMATION

Chart 3408, US Chart 25666 (see 1.20)

Area covered

4.353

1 This section describes the coastal passage S of Puerto Rico from a position SE of Puerto Yabucoa (18°03′N 65°50′W) to a position SW of Cabo Rojo (17°56′N 67°12′W), a distance of about 90 miles, and includes the following harbours:

2 Puerto Yabucoa (18°03′N 65°50′W) (4.357).
Laguna de las Mareas (17°56′N 66°10′W) (4.398).
Bahía de Jobos (17°56′N 66°14′W) (4.407).
Bahía de Ponce (17°58′N 66°38′W) (4.445).
Bahía de Guayanilla (18°00′N 66°46′W) (4.485).
Bahía de Tallaboa (18°00′N 66°44′W) (4.499).
Bahía de Guánica (17°58′N 66°55′W) (4.518).

3 Also included is the inshore route, along the coast passing N of Isla Caja de Muertos (17°54′N 66°31′W) and inside the outer reefs, (4.438).

Topography

4.354

1 Puerto Rico (4.3). The S coast of Puerto Rico, from Punta Tuna (17°59′N 65°53′W), extends in an almost W direction for 75 miles to Cabo Rojo. The coast is very irregular with projecting brush–covered points between shallow coves and bays. Fringing reefs close to shore make landing difficult and often dangerous in most places. Except at the E and W ends of Puerto Rico, the land is generally low near the shore with prominent high hills in the interior.

Depths

4.355

1 General information (4.4).

Many reefs and islands are situated from 2 to 5 miles offshore, whereafter depths increases rapidly, making soundings of little use to indicate danger or distance from shore. To ensure safety it is necessary to pass at least 3 miles from the coast and from Isla Caja de Muertos 17°52′N 66°31′W.

Current

4.356

1 A definite W–going current has been found near the 200 m (100 fm) depth contour off the S coast of Puerto Rico from Isla Caja de Muertos to Cabo Rojo.

PUERTO YABUCOA

General information

Chart 478, plan of Puerto Yabucoa

Position

4.357

1 Puerto Yabucoa (18°03′N 65°50′W), on the SE side of Puerto Rico, lies in the N part of an open bay which is entered between Punta Guayanés (1½ miles ENE of the harbour) and Punta Quebrada Honda (1¼ miles S).

Function

4.358

1 Puerto Yabucoa is an oil terminal, privately maintained by Puerto Rico Sun Oil Company, which provides berthing facilities for deep draught tankers and for barges.

Approach and entry

4.359

1 The harbour is approached from the SE and entered through a dredged channel, which is reported to present no difficulties.

Traffic

4.360

1 In 2004, 246 vessels, with a total dwt of 4 715 350 tonnes, used the port.

Port Authority

4.361

1 Details at 4.10.

Local rules and regulations are enforced by a Commonwealth Captain of the Port.

The port is operated by the Puerto Rico Sun Oil Company.

Limiting conditions

Controlling depth

4.362

1 The channel is dredged to a depth of 14·93 m and alongside to a depth of 15·2 m

Deepest and longest berth

4.363

1 The deepest and longest berth is the T–headed pier (4.380).

Mean tidal levels

4.364

1 MHW 0·1 m.
MLW 0·0 m.

Density of water

4.365

1 1·025 g/cm^3.

Maximum size of vessel handled

4.366

1 Vessels with a dwt up to 123 000 tonnes, length of 262 m and draught 12·4 m have used the port.

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Arrival information

Port radio
4.367

1 See *Admiralty List of Radio Signals Volume 6(5).*

Notice of ETA
4.368

1 Required 48 hours and 24 hours before arrival.

Outer anchorages
4.369

1 Outer anchorage suitable for large vessels can be found SE of Punta Guayanés; this was reported in 1988 to be in a depth of 18 to 45 m (60 ft to 25 fm) 3½ miles E of the Breakwater Light (18°03′N 65°50′W). However it was also reported in 1988 that there were no safe anchorages for large vessels in the vicinity of Puerto Yabucoa.

Temporary anchorage, for vessels waiting to enter Puerto Yabucoa is available off the S coast of Isla Vieques, as given at 4.204.

2 **Anchorage** close W of Bajo Luckenbach (1 mile E of Breakwater Light, in a depth of 6 m (21 ft) which is exposed and close to depths of less than 4 m (14 ft), is available for coasters. The approach to this anchorage is about ½ cable wide and passes N of Bajo Luckenbach, as shown on the chart. Local knowledge is required.

Pilotage
4.370

1 Compulsory and available day and night, see 1.34.

Pilots board from a tug 2½ miles ESE of the Breakwater Light. See *Admiralty List of Radio Signals 6(5).*

Tugs
4.371

1 Tugs are compulsory for arrival and departure.

Quarantine
4.372

1 Regulations given at 1.48.

Harbour

General layout
4.373

1 Puerto Yabucoa consists of a dredged basin which is protected by a breakwater and approached through a dredged channel.

Natural conditions
4.374

1 General information on weather (4.7).

Wind. East and NE winds predominate over the port area being strongest from January to March and weakest from September to November.

2 **Wave action** in the vicinity of the entrance channel is generally from E or SE, causing the sea to break on some of the shoal patches in the approach to harbour and creating a swell in the basin most of the time.

Principal marks
4.375

1 A hill (147 m (483 ft) high) (1¼ miles SSW of Breakwater Light) with sides which are strewn with large white boulders.

A tank farm and tall chimneys NW of the harbour.

Punta Guayanés (110 m (361 ft) high) (1½ miles ENE of the harbour) which is covered with scrub and has rocky bluffs at the water's edge.

Aids to Navigation
4.376

1 All aids to navigation are privately maintained.

Directions for entering harbour

Approaches
4.377

1 The area seaward of the dredged channel is relatively open and free from danger but it is recommended that vessels be positioned on the channel leading line (4.378) about 3 miles seaward of the channel entrance as depths decrease rapidly at the entrance to the channel. It is also reported that the depths in the shallow waters off the SE end of Puerto Rico were affected by hurricanes in 1982.

Chart 478, plan of Puerto Yabucoa

Entrance channel
4.378

1 A dredged channel, with a minimum width of 152 m and a depth as given at 4.362 leads into the harbour.

Initial position: 3 miles ESE of Breakwater Light (18°03′N 65°50′W).

2 **Leading lights:**

Front light (red column with white stripe on tower, elevation 23 m) (5 cables WNW of Breakwater Light).

Rear light (red column with white stripe on tower, elevation 43 m) (4½ cables from the front light).

3 The alignment (296¾°) of these lights leads in the centre of the dredged channel, passing (with positions from Breakwater Light):

4 SSW of No 2 Light–buoy (starboard hand) (1¼ miles ESE) moored off the S end of a bank, on which there are isolated shoals with a least depth of 4 m (13 ft) over them, 3 cables N of the light–buoy, thence:

NNE of No 3 Light–buoy (1 mile ESE) marking the S side of the dredged channel, thence:

5 Between No 5 Light–beacon (port hand, elevation 5 m) (8 cables WSW), positioned 3 cables NE of an extensive reef, parts of which are awash, on which the sea breaks; and No 6 Light–beacon (starboard hand, elevation 5 m), positioned 3½ cables SW of a shoal patch with a least depth of 2·4 m (8 ft) over it, thence:

6 Between No 7 Light–beacon (port hand, elevation 5 m) (3½ cables WSW) and No 8 Light–beacon (starboard hand, elevation 5 m) which is positioned off the S side of the coastal bank, 3 cables SSW of a shoal patch with a depth of 1·2 m (4 ft) over it, thence:

7 SSW of the breakwater, extending 1 cable from the shore on the NE side of the entrance to the basin, on the head of which stands a light (elevation 16 m), thence:

Between No 9 Light–beacon (port hand, elevation 5 m) (2 cables SW) and No 10 Light–beacon (starboard hand, elevation 5 m).

Basin and berths

Basin
4.379

1 At the head of the dredged channel lies a basin, 2½ cables in extent. See view 4.379.

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Puerto Yabucao berths from N (4.379)

(Original dated 1993)

(Photograph – Puerto Rico Ports Authority)

Alongside berths

4.380

1 A T–headed pier (4 cables WNW of Breakwater Light), projecting from the NW side of the basin which, with flanking dolphins, provides a berth with a length of 137 m for vessels up to 100 000 tonnes deadweight, and a depth alongside of 15·2 m, is used for the transfer of oil and liquid chemicals.

2 There are two other berths for barges within the harbour.

Port services

4.381

1 **Repairs:** at Ponce (4.472) and San Juan (4.69).

Other facilities: medical; oily waste reception; salvage. Tugs for long distance towing.

2 **Supplies:** fuel oil, marine diesel; fresh water is available in limited quantities (reported to be 100 tonnes); provisions with 48 hours notice.

Communications: airport at San Juan.

PUERTO YABUCOA TO BAHÍA DE JOBOS

General information

Chart 3408, US Charts 25650, 25677 (see 1.20)

Route

4.382

1 From a position SE of Punta Yeguas (18°01′N 65°50′W) the route leads WSW for about 34 miles to a position SSE of Ponta Arenas Light (17°56′N 66°17′W).

Topography

4.383

1 Puerto Rico (4.354). Other features worthy of note along this stretch of coast are given below (with positions from Punta Tuna (17°59′N 65°53′W)):

2 Punta Toro (153 m high) (1¾ miles NE) which is the termination of a mountain spur which rises to 427 m about 1½ miles NNW.

Punta Viento (5½ miles WSW) which is low and fringed with coconut palms and mangroves.

3 Punta Figuras (Figuera Point) (9½ miles WSW) which is covered with bushes and mangroves and, a little inland, has groves of coconut palms extending E and W.

4 Between Punta Figuras and Laguna de las Mareas (16 miles WSW) the coast is low and backed from 1½ to 2 miles inland by the foothills of mountains which rise abruptly. An oil refinery (15 miles WSW), with chimneys and flare structures, is situated about 7 cables from the coast.

5 At night the lights of Guayama (13 miles W) can be seen above the lights on the coast.

Depths

4.384

1 General information 4.355. In the following text positions are given from Punta Tuna Light (17°59′N 65°53′W).

2 **The coastal bank,** with charted depths of less than 100 m (55 fm), lies within about 1 mile of the coast between Puerto Yabucoa (5 miles NE) and Punta Viento (5½ miles WSW). Continuing W the bank deviates from the coast, gradually at first, then ever more steeply, until it is 6½ miles off Bahía de Jobos (20 miles WSW). A series of reefs and shallow banks, which lie near the outer edge of the coastal bank between Punta Yeguas (3 miles NE) and Punta Figuras (9½ miles WSW), are generally steep–to. In places there are greater depths between these banks and the coast.

3 From Punta Tuna (4.387) to Punta Viento (5½ miles WSW) the coast is fringed with reefs, making landing

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difficult and often dangerous. Between Punta Figuras (9½ miles WSW) and Luguna de las Mareas (16 miles WSW) the coast is bordered by reefs and shoals extending as much as 3 miles offshore.

4 **Offshore banks**:

Grappler Bank (12 miles S), the E extremity extending into the W of two adjoining explosives dumping grounds as shown on the chart; a buoy (special) lies on the N edge of the E dumping ground.

Investigator Bank (23 miles SW).

Fishing

4.385

1 Fishing marks (4.6).

Natural conditions

4.386

1 Sea state (4.8). Current (4.356). Flow (4.9). Local weather (4.7).

Principal marks

4.387

1 **Landmarks** (with positions from Punta Tuna Light (17°59′N 65°53′W):

Punta Tuna (21 to 30 m high) has a cliff face. From this point the land rises to a prominent hill (122 m high) about 5 cables inland, near the summit of which are some trees. The mountains are about 1 mile farther inland.

2 Large church (two square towers at the W end and a cupola at the E end) in Guayama (13 miles W) is prominent in a town which is visible for some distance seaward.

Two chimneys (E higher than the W) of a sugar mill (13 miles WSW), situated near the coast, 4 cables N of Punta Barrancas, are prominent.

4.388

1 **Major light:**

Punta Tuna Light (15 m in height) stands near the end of Punta Tuna.

Directions

(continued from 4.199)

4.389

1 From a position SE of Punta Yeguas (18°01′N 65°50′W) the track leads WSW, passing (with positions from Punta Tuna Light (17°59′N 65°53′W)):

2 SSE of Punta Yeguas (3¼ miles ENE) which is low with a rocky bluff at its extremity, from which the land rises gradually in a smooth grassy ridge to the mountains inland, thence:

3 SSE of Arrecife Sargent (1 mile E). On the N side of the reef lies a rock (0·6 m high), which has the appearance of a rowing boat, and a can buoy. The sea rarely breaks on some parts of the reef and the breakers on it do not show up well unless there is a considerable sea running. Thence:

4 SSE of a shallow bank, with least charted depths of 10 m (33 ft), lying about 1 mile S of Cabo Mala Pascua (2 miles SW) (the termination of a mountain range) from which the land rises steeply to a peak (323 m (1060 ft) high), thence:

NNW of Grappler Bank (12 miles S) (4.384), thence:

5 SSE of Arrecife Guayama (8½ miles WSW), nearly 3 miles long, the E end of which is awash. The middle part, has patches awash. This reef is steep–to on its S side and dangerous to approach. A stranded wreck, position approximate, lies on the S side of this reef. Thence:

6 SSE of shoals with a least depth of 4·3 m (14 ft) over them (14½ miles WSW), extending SE from the E extremity of Arrecife Mareas, a reef extending about 1¾ miles E from Punta Ola Grande (4.398), thence:

7 SSE of a dangerous wreck (18 miles WSW) position approximate. LM Light–buoy (safe water), marking the approach to Laguna de las Mareas (4.398), marks the NE side of the wreck.

8 From this position the track continues WSW for about 5½ miles to a position SSE of Ponta Arenas Light (17°56′N 66°17′W).

Clearing bearing

4.390

1 The line of bearing, 066°, of Punta Tuna Light, just open S of Cabo Mala Pascua, leads close S of Arrecife Guayama.

(Directions continue for Bahía de Jobos at 4.422, and for passage S of Puerto Rico at 4.436)

Puerto Arroyo

Chart 3408 (see 1.20)

General information

4.391

1 **Position.** Puerto Arroyo is an open anchorage entered between Punta Figuras (Figuera Point) (17°57′N 66°03′W) and Punta Barrancas (4 miles W).

Function. Of some commercial importance it is the anchorage for Arroyo, the port of Guayama, the principal town in the SE part of Puerto Rico.

Port Authority. Details at 4.10.

Local rules and regulations are enforced by a Commonwealth Captain of the Port.

Limiting conditions

4.392

1 **Controlling depth.** The anchorage can be used by vessels with a draught of 7·3 m.

Local knowledge is required.

Mean tidal levels:

MHHW 0·25 m.

MLLW 0·00 m.

2 **Sea state.** Puerto Arroyo is exposed to the S and the prevailing sea, from the SE, is always felt in the anchorage. However, its force is somewhat broken by the reefs S and SW of Punta Figuras and under normal conditions it is possible to work cargo by means of lighters.

Arrival information

4.393

1 **Pilotage.** Compulsory and available day and night (1.34).

Pilots, obtained from Bahía de Ponce (4.456) or San Juan (4.48), board from a small launch about 3 miles seaward of the bay.

Directions

4.394

1 **Initial position.** SSW of the tower on Punta Figuras (17°57′N 66°03′W).

Leading marks:

Front mark, iron chimney (1¾ miles NNW of the tower on Punta Figuras).

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Rear mark, Cerro Range (Range Hill) (280 m high) (3¼ miles) which is a distinct, isolated, sharp, conical hill.

2 The alignment (014°) of these marks leads into the anchorage, passing (with positions from the tower on Punta Figuras):

WNW of the SW extremity of shoal patches, with depths of 3·6 m (12 ft), extending SW from Arrecife Guayama (about 1 mile SSE) (4.389), thence:

ENE of isolated shoal patches, with depths of 1·8 to 5·5 m (6 to 18 ft) over them, which extend up to 2 miles offshore S of Punta Barrancas (4 miles W).

3 **Useful mark:**

A white round tower (12·8 m in height) situated on Punta Figuras.

Anchorages and berths

4.395

1 **Anchorage** is available as draught permits, with the best position E of the approach line (4.394), about 1 mile WSW of Punta Figuras, in a depth of 7 to 9 m (23 to 30 ft), clear of the following (with positions from the tower on Punta Figuras):

2 Arrecife Corona (1½ miles W) with a least depth of 1·5 m (5 ft) over it and shoal patches with depths of less than 6·1 m (20 ft) over them which extend 6 cables S of the reef.

Arrecife Algarrobo (2½ miles W) which dries.

3 **Alongside berths.** There are two small wharves, inside a protected harbour at Arroyo, the larger has a depth of about 1·8 m alongside its head.

Port services

4.396

1 **Facilities:** hospitals at Arroyo and Guayama.

Supplies: fresh water, provisions in small quantities and marine supplies.

Inshore channel

4.397

1 **Description**. The channel between Punta Figuras and Arrecife Guayama is 3 cables wide and suitable for coasters.

Local knowledge is required.

Laguna de Las Mareas

Chart 3408, US Chart 25677 (see 1.22)

General information

4.398

1 **Position.** Laguna de Las Mareas (17°56′N 66°10′W) is situated at the head of a dredged basin, entered W of Punta Ola Grande, from which a breakwater extends about 1 cable SSW.

2 **Function.** Laguna de Las Mareas is an oil terminal and large tankers call here to deliver crude petroleum products and load petro–chemicals. The town of Guayama (4.391) is about 4 miles NE of the port.

Traffic In 2001, 38 vessels, with a total dwt of 193 009 tonnes, used the port.

3 **Port Authority.** Details at 4.10. Local rules and regulations are enforced by a Commonwealth Captain of the Port who also issues berthing permits.

Limiting conditions

4.399

1 **Controlling depth** in the channel was reported (1988) to be 10 m (33 ft) at the channel entrance, shoaling to a depth of 9·7 m (32 ft) near the seaward end of the breakwater.

2 **Caution.** Both the basin (4.404) and the approach channel are subject to silting which may be accelerated in the wake of a hurricane. The Pilot should be consulted for the latest depths.

3 **Deepest and longest berth** is at the jetty (4.404).

Mean tidal range is reported to be 0·25 m.

Density: 1·025 g/cm^3.

Maximum size of vessel handled is reported to be 50 000 tonnes deadweight with a length of 208 m.

Arrival information

4.400

1 **Notice of ETA** is required 48 hours and 24 hours before arrival.

Pilotage is compulsory and available day and night, for regulations and information, see 1.34. Pilots board about 2 miles SSW of the entrance, in the vicinity of LM Light–buoy.

2 **Tugs.** Compulsory.

See *Admiralty List of Radio Signals Volume 6(5).*

Quarantine: regulations at 1.48.

Current

4.401

1 A set across the entrance has been reported.

Aids to Navigation

4.402

1 All aids to navigation are privately maintained.

Directions

4.403

1 **Channel.** A dredged channel, with a minimum width of 73 m (abreast the breakwater head) and depths as given at 4.399, leads into the harbour.

Initial position: 17°54′N 66°10′W, in the vicinity of LM Light–buoy and clear of the dangerous wreck SW of the buoy, for details see 4.389.

2 **Leading lights:**

Front light (red column with white stripe on tower, elevation 26 m) (17°56′N 66°09′W) standing at the root of the pier.

Rear light (red column with white stripe on tower, elevation 38 m) about 3 cables from the front light.

A light (dolphin, elevation 3 m) standing on the head of the pier, is also in the line of the leading lights.

3 The alignment (025°) of these lights leads in the dredged channel and through the basin, passing (with positions from the front light):

Between No 1 Light–buoy (port hand) (9 cables SSW) and No 2 Light–buoy (starboard hand) moored 2 cables ESE of No 1 Light–buoy, thence:

4 WNW of the breakwater head (6 cables SSW), marked by No 4 Light–beacon (starboard hand, on a tower, elevation 15 m), thence:

ESE of the coastal bank (5 cables SSW), marked on its S side by No 3 Light–beacon (port hand, elevation 8 m), thence:

5 WNW of the W extremity of Arrecife Mareas (5 cables SSW) which extends ½ cable NW from the root of the breakwater, thence:

ESE of No 5 Buoyant Light–beacon (port hand) (4 cables SSW), thence:

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6 WNW of No 6 Light–beacon (starboard hand, elevation 8 m) (3½ cables SSW), marking the inner end of the channel.

Basin and berths
4.404

1 At the head of the dredged channel lies a turning basin, with a length of 335 m, a width of 323 m and a charted depth of 10 m (33 ft) in 1980, confirmed by reports in 1981.

2 A jetty, approximately 300 m in length, has a berth on each side and a reported depth alongside of 11·5 m.

Port services
4.405

1 **Repairs:** at Ponce (4.472) and San Juan (4.69).

Other facilities: Oily waste disposal; hospital is at Guayama.

Supplies: fresh water: marine supplies on 48 hours notice; fuels.

Anchorages

Chart 3408 (see 1.20)

Puerto Maunabo
4.406

1 **Description.** Puerto Maunabo (17°59′N 65°53′W) is a small cove on the W side of Punta Tuna (4.387). It affords little shelter from the wind and is a poor anchorage; but is protected from the force of the SE swell by Arrecife Sargent (4.389).

2 Maunabo Village, with a population of about 3000, is situated in the valley about 1 mile inland from the cove. There is a sugar mill close W of the village.

3 **Directions.** There are depths of 7·3 m (24 ft) at the entrance to the cove, decreasing to 3·7 m (12 ft) from 1 to 3 cables from its N shore. The recommended approach is along a line of bearing, between 047° and 060°, on Punta Tuna Light (4.389). At night the line of bearing, 059°, is recommended.

Local knowledge is required.

4 **Anchorages:**

By day the recommended anchorage is with Punta Tuna Light bearing 047° and the warehouse bearing about 357°.

At night the recommended anchorage is with Punta Tuna Light bearing 059°, in a depth of 8 m (26 ft).

5 **Landing.** There is always some swell and surf in the cove but landing can usually be effected on the sandy beach SE of a warehouse on the E side, near the head of the cove.

BAHÍA DE JOBOS

General information

Chart 478 plan of Bahía de Jobos, 3408

Position
4.407

1 Bahía de Jobos (17°56′N 66°14′W) is situated on the S coast of Puerto Rico, about 20 miles W of Punta Tuna and 22 miles E of Puerto Ponce.

Central Aguirre, the principal town, is situated on the N side of the harbour and Jobos, a small settlement, stands on the N shore at the E end of the harbour.

Function
4.408

1 Bahía de Jobos is a good, landlocked hurricane harbour but see 4.427 for holding ground.

The port, which is a customs port of entry, serves the town of Central Aguirre, with a population of about 5800 and a large sugar mill one of the largest Puerto Rico.

2 Puerto Jobos is a Customs port of entry.

Topography
4.409

1 General topography (4.354).

The shores of Bahía de Jobos and the surrounding islands are low but covered with bushes and mangroves. Two wooded hills rise near Central Aguirre which are prominent from E and W but not from S; they help to identify this harbour.

Approach and entry
4.410

1 Bahía de Jobos is approached from the S and entered between Cayos de Ratones and Cayo Morrillo, which then leads via a dredged channel into harbour.

Traffic
4.411

1 In 2004, 209 vessels totalling 962 500 dwt used the port.

Port Authority
4.412

1 Puerto Rico Ports Authority (4.10).

Local rules and regulations are enforced by a Commonwealth Captain of the Port, stationed at Laguna de las Mareas (4 miles W) (4.398).

Limiting conditions

Controlling depth
4.413

1 The main entrance channel is dredged to a least depth of 8 m (26 ft).

Deepest and longest berths
4.414

1 The deepest and longest berth is the fuel handling berth (4.428).

Mean tidal levels
4.415

1 MHHW 0·25 m.
MLLW 0·00 m.

Maximum size of vessel handled
4.416

1 Vessels with a draught of 6·9 m can use this harbour.

Arrival information

Pilots
4.417

1 Pilots, provided from Bahía de Ponce, board vessels off Cayos de Ratones (4.423) as shown on the chart. Vessels are taken in and out by day and by night.

Quarantine
4.418

1 Quarantine regulations (1.48).

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Harbour

General layout

4.419

1 Bahía de Jobos is formed between the coast and Punta Pozuelo (4½ miles E of Cayos de Ratones Light (17°56′N 66°17′W) and the chain of islands extending SW and W from Punta Pozuelo. The harbour E of Punta Rodeo (the NW extremity of Punta Pozuelo) is landlocked but is rarely used as it is shallow with depths decreasing from 5 to 2 m (17 to 7 ft) from W to E.

Swell

4.420

1 With S winds a swell enters the harbour through Boca del Infierno, a narrow shallow channel separating Cayos de Barca (4.425) from Cayos Caribes. A wreck lies in the channel on the SW extremity of Cayos Caribes.

Principal marks

4.421

1 **Landmarks:**

Two high and distinctive chimneys (one white, the other yellow) (3¼ miles ENE of Cayos de Ratones Light) are situated in the sugar mill to the W of Central Aguirre. The main buildings of the mill can be seen from 6 to 8 miles offshore and the lights are distinctive from February to June.

Directions for entering harbour

(continued from 4.390)

Approaches

4.422

1 From a position on the coastal route SSE of Cayos de Ratones Light the line of bearing, between 345° and 026°, of the light, leads NNW towards the harbour entrance, passing (with positions from Cayos de Ratones Light (17°56′N 66°17′W)):

ENE of a pinnacle rock, with a depth of 11 m (36 ft), reported 1967 (5½ miles SSW), thence:

2 WSW of an isolated shoal patch with a depth of 7·3 m (24 ft) over it (1½ miles SE).

US Chart 25687 (see 1.20)

Main entrance channel

4.423

1 From a position 5 cables S of Cayos de Ratones Light the track leads NE in mid–channel passing (with positions from Cayos de Ratones Light):

2 NW of Cayo Morrillo, a wooded cay situated at the W end of the chain of islands forming the S side of Bahía de Jobos, thence:

SE of the bank extending 2 cables SE from Cayos de Ratones, on the E extremity of which stands Cayos de Ratones Light (red and white chequered diamond on a white framework tower, elevation 14 m), thence:

3 SE of a detached shoal, with a depth of 6·4 m (21 ft) over it (3 cables E).

4.424

1 From a position close NW of No 2 Light–buoy (starboard hand) marking the N extremity of of the bank surrounding Cayo Morrillo (4.423), the track leads E passing S of a patch with a depth of 6·4 m (21 ft) over it. Thence the track leads ESE in mid–channel passing:

SSW of No 3 buoy (port hand) (1 mile E), marking the S side of a patch with a depth of 4·6 m (15 ft) over it, thence:

SSW of a two wrecks (1¼ miles E) lying on a group of submerged rocks, thence:

SSW of detached rock (1½ miles ESE), with a depth of 5·5 m (18 ft) over it, and:

NNE of Cayos de Pájaros (1½ miles ESE), wooded.

4.425

1 From this position the track leads E for about 1¼ miles to a position S of Cayo Puerca (17°56′N 66°14′W) passing:

2 N of the W group of Cayos de Barca (2 miles ESE) which consist of numerous wooded islands, with narrow openings between them but connected on their S side by a reef awash, steep–to on its S side. Thence:

3 SE of No 5 Buoy (port hand) (2½ miles ESE), marking the S extremity of Cayo Puerca which is the S of a group of islands extending S from the coast.

4 From this position the track leads NNE in the mid–channel passing:

Close ESE of the reef fronting Punta Colchones (3 miles E), thence:

5 ESE of a light (pile, elevation 4 m) (3¼ miles E) at the seaward end of a discharge pipe.

6 From this position the track leads N into the turning basin and towards G1 Light–buoy (port hand) at the entrance to the buoyed channel approaching the port.

Inner channel

4.426

1 From a position 1 cable N of Punta Rodeo, the NW extremity of Punta Pozuelo forming the E side of the turning basin, the channel leads E, along the N side of Punta Pozuelo, has a least depth of 4·3 m (14 ft) in the fairway and is marked on both sides by buoys (privately maintained). This channel leads to a dredged channel, with a depth of 2·7 m (9 ft) in 1975, which serves an oil jetty.

Anchorages and berths

Anchorages

4.427

1 Bahía de Jobos is a good hurricane anchorage but considerable dragging may be experienced as the bottom is soft:

Anchorage exists just inside the main entrance channel (4 cables E of Cayos de Ratones Light) to await daylight.

2 In the middle of the channel (from 1½ to 2½ miles ESE of Cayos de Ratones Light) in depths of 8 to 11 m (27 to 36 ft). In 1939 it was reported that the bottom in this area was grassy, giving better holding than the mud farther E. This is a good anchorage but the shelter is not quite so good.

3 Off Central Aguirre, in depths of 6 to 7 m (20 to 23 ft), soft mud. The usual anchorage is off Punta Rodeo, on the line of the pier at Central Aguirre.

Alongside berths

4.428

1 A fuel handling berth (8 cables WNW of Punta Rodeo), situated on the NW side of the turning basin, with a length of 193 m.

There is one berth (6 cables WNW), rarely used.

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Port services

4.429

1 **Repairs:** emergency repairs above the waterline.
Other facilities: hospital.
Supplies: fresh water on the pier; fresh provisions.
Communications: international airport at San Juan.

BAHÍA DE JOBOS TO BAHÍA DE PONCE

General information

Chart 3408

Route

4.430

1 **Coastal route.** From a position SSE of Ponta Arenas Light (17°56′N 66°17′W) the route leads W for about 22 miles to a position S of Isla de Cardona Light (17°57′N 66°38′W).

2 **Inshore route** (4.438), passing N of Isla Caja de Muertos, is suitable for coasters with a draught of less than 5·2 m.

3 **Local knowledge** is required.

Topography

4.431

1 General topography (4.354).

The shores of Bahía de Rincon (17°57′N 66°20′W) are mostly low and wooded, backed some distance inland by the foothills of the mountains. Several small streams flow into the bay.

2 Punta Petrona (17°56′N 66°23′W) is low and is covered with bushes and mangroves. It shows up from E and W but not from the S.

3 From Punta Petrona to Bahía de Ponce (13 miles W) the coast consists of a low plain, backed by higher land several miles inland. There are a number of small settlements with sugar mills along this part of the coast, the largest of which is at Santa Isabel (2 miles NW of Punta Petrona). The only prominent features are the chimneys and water tanks of the various sugar mills.

Depths

4.432

1 General information (4.355).

The coastal bank, with charted depths of less than 20 m (60 ft) near its S edge, extends as much as 10 miles from the coast between Bahía de Jobos and Bahía de Ponce, as shown on the chart.

2 The bay between Punta Petrona and Bahía de Ponce is obstructed by islands and shoals extending up to 5 miles offshore. A bank with depths of less than 9 m (30 ft) over it extends about 10 miles WSW from Punta Petrona to a position close SW of Isla Caja de Muertos.

Fishing

4.433

1 Fishing marks (4.6).

Natural conditions

4.434

1 Sea state (4.8). Current (4.356). Flow (4.9). Local weather (4.7).

Principal mark

4.435

1 **Landmark:**
Isla Caja de Muertos (Ilsa de la Muertos) (17°54′N 66°31′W). A light–house (grey round tower on dwelling, 19 m in height) stands on its summit. The SW part of the island is low except its SW extremity which rises to a steep, rounded hill (52 m high) which, when viewed from a distance appears to be a separate island.

Directions

(continued from 4.390)

4.436

1 From a position SSE of Ponta Arenas Light (17°56′N 66°17′W) the track leads W, passing (with positions from Isla Caja de Muertos Light (17°54′N 66°31′W)):
S of a pinnacle rock, (12 miles ESE) with a least depth of 11 m (36 ft) (reported 1967), thence:

2 S of a shallow bank on which lie Cayos de Caracoles (9¼ miles ENE) which are low, wooded and covered with mangroves, and Cayo Alfeñique, which is above water and on which the sea breaks, thence:

3 S of Cayos Cabezazos (8 miles ENE), three low islets, covered with bushes and mangroves, situated on the S end of foul ground extending 1¼ miles S of Punta Petrona (4.431), thence:

4 S of an isolated shoal, with a least depth of 2·4 m (8 ft) over it (4 miles E), situated among several shoals, with depths of less than 5·5 m (18 ft) over them, up to 2 miles S of Cayo Berbería (4½ miles ENE), which is low and covered with bushes and mangroves, thence:

5 S of a detached shoal, with a least depth of 12·2 m (40 ft) over it (2 miles SSW), situated 1½ miles SSW of Isla Morrillito, a flat topped islet (9 m high) situated about 1 cable SW of Isla Caja de Muertos.

6 From this position the track continues W for about 6 miles to a position S of Isla de Cardona Light (17°57′N 66°38′W).

Useful mark

4.437

1 Cayos de Ratones Light (14 miles ENE) (4.423).

(Directions continue for passage S of Puerto Rico at 4.516.
Directions for Bahía de Ponce are given at 4.463, for Bahía de Guayanilla at 4.491, and for Bahía de Tallaboa at 4.503)

Inshore route

Chart 3408 (see 1.20)

General information

4.438

1 The route from Punta Petrona to Bahía de Ponce passing inshore of Isla Caja de Muertos (17°54′N 66°31′W) and Cayo Berbería (4 miles NE), has several shoals with depths of 4·2 to 5·2 m (14 to 17 ft) along the route. The sea is generally smooth, there is little current and this route is used by day for coasters with a draught of up to 5·2 m.

Directions

4.439

1 From a position about 2 miles S of Punta Petrona (17°56′N 66°23′W) (4.431) the inshore route leads NW

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then W and SW, passing (with positions from Isla Caja de Muertos (17°54′N 66°31′W)):

At least 2 cables SW of the SW end of the reef fringing Cayos Cabezazos (8 miles ENE) (4.436), thence:

2 Over the ridge which extends 3½ miles SW from Punta Petrona on which there are depths of 4·3 to 6·7 m (14 to 24 ft) in the NE–part and 7·0 to 9·1 m (23 to 30 ft) in the SW–part, thence:

NE of the reef fringing the E side of Cayo Berbería (3½ miles ENE) (4.436) and extending 3 cables S from it, thence:

3 N then NW of the bar, with a least depth of 1·8 m (6 ft) over it, connecting Isla Caja de Muertos with Cayos Berbería. The sea seldom breaks on this bar, which is steep–to on its NW side and dangerous to approach. And:

4 Clear of several shoals, with depths of 4·2 to 5·2 m (14 to 17 ft) over them, which lie between the bar (above) and the coast, thence:

SE of Cayos Fríos (4½ miles NNW), three small islets covered with bushes, lying 3½ cables offshore, which are fringed by a steep–to reef on the S side.

(Directions continue for Bahía de Ponce at 4.463. Directions for Bahía de Guayanilla are given at 4.491, and for Bahía de Tallaboa at 4.503)

Bahía de Rincon

General information

4.440

1 **Description.** Bahía de Rincon (17°57′N 66°20′W), entered between Punta Arenas (to the E) and Punta Petrona (about 5½ miles W) is used mainly by local fishing craft which anchor off Playa de Salinas (about 1 mile N of Punta Arenas).

2 The shores of the bay are bordered by a bank, which, with a depth of 9·1 m (30 ft) over it, extends as much as 1 mile offshore. Information on Cayos Cabezazos, Cayos de Caracoles and Cayo Alfeñique is given at 4.436.

Directions for entering harbour

4.441

1 From the vicinity of 17°55′N, 66°18′W, about 1 mile SW of Cayos de Ratones (4.423), with the W extremity of the group bearing 010° and Cayos de Ratones Light bearing 055°, the recommended approach leads 325°, passing (with positions from Cayos de Ratones Light):

2 SW of Cayos de Ratones, thence:

NE of the drying part of Arrecife Media Luna (2¼ miles W) which is fairly steep–to and on which the sea always breaks, thence:

SW of a detached shoal, with a charted depth of 3·0 m (10 ft) (1½ miles W).

Anchorages

4.442

1 The best anchorage is N of the W of Cayos de Ratones, in depths of 8 to 10 m (25 to 33 ft), with Punta Arenas bearing about 094° and the W extremity of Cayos de Ratones bearing between 179° and 212°, which affords good shelter during normal weather.

2 Good anchorage, in a depth of 7 m (24 ft), is also available at the N end of the bay, at least 4 cables from the E shore and 8 cables from the N and W shores.

Anchorages and landings

Isla Caja de Muertos

4.443

1 **Anchorage** is available in normal weather to the W of Isla Caja de Muertos (17°54′N 66°31′W), (used as a reference object in this text) in the lee of the island, where there is less swell than in Bahía de Ponce (4.469).

2 The best anchorage, in depths of 11 to 22 m (36 ft to 12 fm), is from 4 to 5 cables W of the S half of the island. Depths change rapidly in the vicinity and the anchorage should be approached with caution.

Anchorage is also available, in depths of 27 m (15 fm) with good holding, 2¾ miles WNW of the light.

3 **Landing** can be made in normal weather on the NW side of the island, near a boathouse. There is a small pier at the SW end of the island.

Bay north of Isla Caja de Muertos

4.444

1 **Anchorage**, suitable for coasters with a draught of 4·6 m, can be obtained in the bay N of Isla Caja de Muertos, in comparatively smooth water during normal weather, in depths of 5 to 9 m (15 to 30 ft), 5 cables offshore, anywhere along the coast between Playa Santa Isabel (Landing) (7 miles ENE) and Cayos Fríos (4½ miles NNW).

2 **Anchorage** exists in depths of 12 to 18 m (40 to 60 ft) 1 mile NW of Cayo Berbería (4½ miles NE).

BAHÍA DE PONCE

General information

Charts 478 plan of Bahía de Ponce, 3408 (see 1.20)

Position

4.445

1 Bahía de Ponce (17°58′N 66°38′W), situated near the middle of the S coast of Puerto Rico, is about 115 km from San Juan (4.34). The bay is entered between Punta Carenero, to the E, and Punta Cuchara (4.447) (3½ miles W).

Function

4.446

1 Bahía de Ponce is the most important commercial port on the S coast and one of the three most important commercial harbours in Puerto Rico. The port at Playa de Ponce, is the port for Ponce (2 miles N of the port) which, with an estimated population of 189 988 in 1996, is the second city in population and commercial importance in Puerto Rico. It is a customs port of entry.

Topography

4.447

1 General topography (4.354).

Punta Carenero (1½ miles ENE of Isla de Cardona Light (17°57′N 66°38′W)) is low and covered with mangroves.

2 Punta Cuchara (2¼ miles WNW of Isla de Cardona Light) is low and backed for about 5 cables inland by low land.

Two rivers, Río Portugués and Río Matilde, discharge into the head of the bay.

3 **Caution.** There are several radio towers within 1½ miles N and NW of the port in addition to the towers mentioned at 4.462 and 4.467. Care is necessary to avoid confusion between these features.

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Approach and entry
4.448

1 Bahía de Ponce is approached from the S and entered by a marked channel through the shoals and reefs which extend across the entrance to the bay.

Traffic
4.449

1 In 2004, 81 vessels, with a total dwt of 977 898 tonnes, used the port.

Port Authority
4.450

1 The port is owned by the municipality of Ponce and is administered by the Port of Ponce Administration Board, PO Box 125, Playa Station Ponce, Puerto Rico 00731. This is the only commercial port in Puerto Rico not controlled by the Commonwealth of Puerto Rico Ports Authority.

2 The pilotage organization is controlled by the Puerto Rico Ports Authority. A Commonwealth Captain of the Port, with an office in Playa de Ponce, enforces the local rules and regulations.

Limiting conditions

Controlling depth
4.451

1 The principal entrance channel was dredged to 11·6 m (38 ft) (2004) with depths of 10·7 m (35ft) (2004) available in the turning basin.

Maximum Size of Vessel
4.452

1 34 000 tonnes dwt, 183 m LOA.

Deepest and longest berths
4.453

1 Deepest berth is No 6, at the Container Terminal (4.471).

Longest berth is the quay along the N side of Punta Peñoncillo (4.471).

Mean tidal levels
4.454

1 MHHW 0·2 m.
MLLW 0·0 m.

Local weather
4.455

1 Bahía de Ponce affords shelter from the prevailing winds but it is exposed to the S and is dangerous during a hurricane. The nearest hurricane harbours are:
Bahía de Guayanilla (4.476) 8 miles W.
Bahía de Guánica (4.518) 16 miles W.
Bahía de Jobos (4.407) 28 miles E.

Arrival information

Pilotage
4.456

1 Pilotage, available day and night, is compulsory for merchant vessels from foreign ports. (See 1.34).

Pilots come alongside small boats, weather permitting, and board vessels at the entrance light–buoy (1½ miles S). See *Admiralty List of Radio Signals Volume 6(5).*

Tugs
4.457

1 Entrance and departure is normally made without assistance. Tugs are available for use in emergency and may be contacted by calling the Coast Guard Station at Ponce. It is reported (1994) that the tugs are shared with other ports nearby.

Regulations
4.458

1 **Quarantine** is enforced in accordance with the regulations and information given at 1.48.

Safety Zone. A safety zone has been established in Ponce, see 4.10.

Harbour

General layout
4.459

1 The port (17°58′N 66°37′W) lies in the E part of a wide, open bay, surrounded by shoals and reefs and protected from the prevailing E winds by Punta Peñoncillo (4.465) and Isla de Gata (4.465). The harbour is exposed to the S and is not safe in a hurricane.

2 At the head of the harbour depths of less than 5·5 m (18 ft) extend up to 4 cables from the shore.

Development
4.460

1 Works to link Ponce with Guayanilla to create The Port of the Americas are expected to be completed in 2006 providing additional container berthing length of 7 500 ft of deepwater quay focussing primarily on the transhipment business when, it is hoped, to handle 2·3 m TEU annually. The development will also include Industrial Zone facilities.

Natural conditions
4.461

1 **Local weather.** The tropical climate of Bahía de Ponce features an average rainfall of less than 1000 mm annually, a small diurnal and annual temperature range and a pleasant summer sea breeze. Most of the rain is in the form of showers or thunderstorms which are frequent from May to November.

2 **Winds** usually blow from SE and E from Spring to Autumn and from NE and E the remainder of the year. The heaviest gales are to be expected in the summer and autumn; S gales do most damage and are dangerous.

3 **Swell.** There is always a swell in the anchorage but this does not prevent the working of cargo.

Principal marks
4.462

1 **Landmarks:**
Isla Caja de Muertos (17°54′N 66°31′W) (4.435) is the most prominent feature in the approach to Bahía de Ponce.
Isla de Ratones (17°57′N 66°41′W) is a prominent, low islet that is covered with bushes and mangroves.

2 Radio tower (elevation 101 m (332 ft) (17°59′·5N 66°37′·8W)), marked by lights, is a prominent feature. (4.447).

Directions for entering harbour
(continued from 4.439)

Approach from south
4.463

1 From a position S of Bahía de Ponce, the recommended approach is made on the line of bearing, 005°, of Isla de Cardona Light (17°57′N 66°38′W) (4.465) until the leading lights for the entrance channel (4.465) are in line.

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Principal entrance channel

4.464

1 The principal entrance channel (1½ miles S of Isla de Cardona Light), which is marked by leading lights (4.465) and buoys, has a depth of 11·6 m (38 ft) (2004).

Entering harbour

4.465

1 **Initial position:** About 2½ miles S of Isla de Cardona Light (17°57′N 66°38′W).

2 **Leading lights:**

Front light (red column with a white stripe, on a framework tower, elevation 15 m) (1½ miles NNE of Isla de Cardona Light).

Rear light (red column with a white stripe, on the roof of a building, elevation 23 m) (1½ cables from the front light).

3 It is reported (1994) that the leading lights are conspicuous at night, but during the day they can be difficult to distinguish until close to the berths.

4 The alignment (015°) of these lights leads through the entrance channel, passing (with positions from Isla de Cardona Light):

ESE of a bank, with a least depth of 7·3 m (24 ft) over it (1¼ miles S), the S edge of which is marked by No 1 Light–buoy (port hand). This bank extends 2 miles ESE from Arrecife Ratones (2 miles W), the greater part of which dries and has a few scattered mangroves on it. And:

5 WNW of No 2 Light–buoy (starboard hand) (1½ miles SSE) marking the W edge of a bank, extending 1½ miles E, with a least depth of 6·7 m (22 ft) over it, thence:

6 Close WNW of the W edge of Bajo Tasmanian (1 mile SSE) an extensive shoal which is marked on its NW side by No 4 Light–buoy (starboard hand). A wreck with 6·4 m (21 ft) of water over it lies ¾ cable NNE of the buoy: Thence:

7 ESE of a bank, with depths of less than 9 m (30 ft) over it (5 cables SSW), which extends 9 cables SE from Cayo Viejo and has on it two patches with a depth of 5·2 m (17 ft) over them, thence:

WNW of an isolated rock, with a least depth of 5·2 m (17 ft) over it (9 cables ESE), thence:

8 Close ESE of Bajo Cardona (4 cables SE), the SE extremity of which is marked by No 5 Light–buoy (port hand), which extends SE from Isla de Cardona, a low islet in the centre of which stands a light (white round tower and dwelling, 11 m in height), thence:

9 ESE of a shallow bank extending 1 cable E from a reef (3 cables NE) which dries in places and on which the sea always breaks, extending about 3 cables NE from Isla de Cardona, thence:

10 WNW of a steep–to reef (9 cables NE), which dries and on which the sea always breaks, which is marked by No 6 buoy (starboard hand). This reef extends about 1½ cables W from Isla de Gata which is connected by a dyke to Punta Carenero situated 3 cables E. It is reported that, with an E wind of 25 kn or more, the mud from this reef discolours the water across the main channel, as far as Isla de Cardona and beyond, making the channel off the piers at Peñoncillo (4.471) appear shallow. Thence:

11 ESE of Las Hojitas (6 cables N), which is awash at its SW end, thence:

WNW of Municipal Pier (1 mile NE) extending SW from Punta Peñoncillo, a low projection on which stands a group of prominent tanks, thence:

12 WNW of a shallow bank, with a depth of 4·3 m (14 ft) over it, extending ½ cable SW from the SW end of the quay fronting the N side of Punta Peñoncillo. A light (white square structure) (privately maintained) stands on the corner.

4.466

1 **Alternative track.** The line of bearing, 355°, of Isla de Cardona Light, leads through the entrance channel, passing between the outer shoals (4.465).

When the light is distant 1¼ miles, the line of bearing, 022°, of the Municipal Pier (near Punta Peñoncillo), leads between the inner shoals.

2 When Isla de Cardona Light is abeam the track leads 357° for the anchorage.

Useful marks

4.467

1 Radio tower (elevation 63 m (208 ft)) (2 miles NE). General remarks on radio towers are given at 4.447.

A light (white square framework structure on piles, elevation 4 m) (1½ miles N) (privately maintained), situated on the seaward end of a sewer outfall.

Approach and entry from east

4.468

1 A channel (1½ miles E) which leads into the harbour from the E, is frequently used for vessels with a draught of 5·2 m. There are a number of shoal patches in its approach and local knowledge is required.

From a position 2¾ miles E of Isla de Cardona Light (17°57′N 66°38′W) the channel leads generally WNW passing (with positions from Isla de Cardona Light:

2 SSW of Isla de Jueyes (2½ miles E), one of three islets which are situated near the SW extremity of a reef (extending 4 cables WSW from Punta Cabullónes) which is steep–to and on which the sea breaks, thence:

NNE of a detached shoal, with a least depth of 6·1 m (20 ft) over it, (2¼ miles E), thence:

3 SSW of Roca Ahogado (2 miles E) which is small and bare with a bank extending about 2 cables SE from the rock, and:

NNE of a detached shoal, with a least depth of 8·8 m (29 ft) over it (1¾ miles ESE), thence:

NNE of Bajo Tasmanian (1¼ miles ESE) (4.465), thence:

4 NNE of an isolated rock, with a least depth of 5·2 m (17ft) (9 cables ESE), thence:

SSW of a light (1 mile ENE) standing close to the S edge of the reefs extending 1½ cables S of Isla de Gata (4.465).

Basins and berths

Chart 478 plan of Bahía de Ponce (see 1.20)

Anchorages

4.469

1 The usual anchorage is to the W of the leading line as follows (with positions from Isla de Cardona Light):

NE of Isla de Cardona, in depths of 9 to 15 m (30 to 50 ft) (as shown on the chart).

NW of Las Hojitas (6 cables NW), in depths of 10 to 12 m (33 to 40 ft), clear of the following dangers:

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2 An isolated rock (1¼ miles NNW), with a depth of 3·4 m (11 ft) over it, which lies on the edge of the coastal bank.

A sewer (1 mile NNW) as shown on the chart.

3 Two obstructions (1 mile NW) with 8·8 m (29 ft) and 9·1 m (30 ft) of water over them.

A spit (1½ miles WNW), with a depth of less than 5·5 m (18 ft) over it, which extends 4½ cables S from the entrance to Laguna de las Salinas (Chart 3408), a lagoon close NE of Punta Cuchara (4.447).

Manoeuvring basin

4.470

1 An irregular–shaped turning basin (1¼ miles NE) extending about 1½ cables NNW of Punta Peñoncillo, has a turning diameter of 290 m and a dredged depth of 10·7 m (35 ft) (2004). The NW corner of the basin is marked by No 7 Light–buoy (port hand). The Port Authority should be contacted for current depth information.

Alongside berths

4.471

1 Following are the principal berths in each part of the port area (with positions from Isla de Cardona Light):

Municipal Pier (1 mile NE), berths 1 and 1a, extends SW from Punta Peñoncillo with a length of 137 m and depths of 7·9 to 9·1 m alongside; pipelines for molasses and cement are installed on the pier.

2 A Ro–Ro ramp, at the root of the Municipal Pier on its N side, has a width of 19·2 m and slopes to about 0·3 m above the water.

3 T–shaped pier lies on the S side of Punta Peñoncillo 1½ cable E of the Municpal Pier with a length of 106 m and a reported depth alongside of 9·1 m, handles bulk tuna.

4 A concrete quay (1¼ miles NE), known locally as Alcoa Pier, fronts the N side of Punta Peñoncillo for a length of 578 m, with depths of 5·1 to 8·5 m alongside. This quay, which handles general cargo, has numbered berths as shown on the chart.

5 Container Terminal, known as Pier 8, (1½ miles NE) has a large container park and berth No 6, which has a length of 185 m and reported depths of 11·0 m alongside. It was reported in 1988 that this terminal was to be extended.

Port services

Repairs

4.472

1 Above the waterline, minor electrical repairs and small engine repairs by various marine contractors.

Other facilities

4.473

1 First–aid station; hospitals.

Supplies

4.474

1 Fuel oil; marine diesel; fresh water; provisions.

Caleta de Cabullónes

General information

4.475

1 **Description.** Caleta de Cabullónes (2 miles E of Isla de Cardona Light (17°57′N 66°38′W)), entered between Punta Carenero and Punta Cabullónes (about 1½ miles E) (Chart 3408), is protected from the SE by Isla de Jueyes (4.468) and in the centre by Roca Ahogado (4.468).

2 **Entry** is best made between Roca Ahogado and Isla de Jueyes, favouring the E side of the channel.

Anchorage, suitable for coasters with a draught of 5·2 m can be obtained in the E part of the bay in a depth of about 7 m (23 ft) in the following position:

The alignment (about 260°) of Roca Ahogado with Isla de Cardona Light (4.465) and:

3 The line of bearing, about 136°, of Isla Caja de Muertos Light (17°54′N 66°31′W) Chart 3408 (4.435) seen between Isla de Jueyes and the adjacent islet ENE.

4 From this position depths decrease regularly towards the coast and there are no dangers in the vicinity.

5 **Alongside berths.** Two jetties, situated at the mouth of Río Bucana, near the head of the bay, marked by a privately maintained light (tripod, elevation 6 m).

BAHÍA DE GUAYANILLA AND BAHÍA DE TALLABOA

General information

Charts 478 plan of Bahía de Guayanilla and Bahía de Tallaboa, 3408, US Chart 25681 (see 1.20)

Description

4.476

1 Bahía de Guayanilla (18°00′N 66°46′W) and Bahía de Tallaboa (2 miles E) are both situated on the S coast of Puerto Rico, about 9 miles W of Bahía de Ponce (4.445). These two bays, which contain private berths and moorings, share certain facilities such as pilotage and are subject to the same regulations. Such common factors are presented first, followed by the details specific to each bay, including entering harbour, as follows:

Bahía de Guayanilla 4.485.

2 Bahía de Tallaboa 4.499.

Topography

4.477

1 General topography (4.354).

Topography in the vicinity of the bays is given below, with positions from Punta Gotay (17°59′N 66°46′W).

2 Both bays are protected at their entrance by extensive reefs which extend 1 mile or more offshore. Cayo María Langa (1 mile SSE), Cayo Palomas (1 mile ESE) and Cayo Caribe (1¾ miles ESE) are three of the several low islands, covered with mangrove and bushes, which lie S and E of Punta Gotay. When approaching from S or W these islands are difficult to distinguish until close–to.

3 Punta Guayanilla (4 cables E), a low wooded projection, has numerous oil tanks on its S end, which are prominent from seaward and are reported to give a good radar response.

4 Punta Verraco (1¼ miles W) is a narrow promontory extending about 1½ miles NE from the vicinity of Cerro Toro (2 miles WSW) (4.516). The NE extremity is formed by a ridge which is about 24 m high at its NE end and nearly level for about 1 mile, with numerous low bluffs on its SE side.

5 Some very bright lights (about 7½ miles N) situated in a village with an elevation of about 730 m, have been seen from a distance of 39 miles but the village is difficult to identify by day.

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Port Authority
4.478

1 Puerto Rico Ports Authority (4.10).

Guayanilla and Tallaboa are both in the administrative district of Ponce (4.450). Local rules and regulations are enforced by a Commonwealth Captain of the Port, whose office is in Playa de Guayanilla.

Mean tidal levels
4.479

1 MHHW 0·15 m.
MLLW 0·00 m.
The tide is usually diurnal.

Local weather
4.480

1 General information on weather is given at 4.7.

The reefs and islands off the entrance break the sea but give no shelter from the wind; vessels are liable to drag.

Arrival Information

Notice of ETA
4.481

1 At least 4 hours before arrival if a Pilot is required.

Pilotage
4.482

1 Pilotage, available day and night, is compulsory for all merchant vessels of more than 1000 gt. For regulations and information see 1.34. It is reported that vessels may depart but seldom berthed at night.

2 The pilot boarding areas are as follows:
For Guayanilla, 2 miles S of Punta Gotay (17°59′N 66°46′W).
For Tallaboa, 1½ miles S of the Tallaboa entrance channel (2 miles SE of Punta Gotay).
See *Admiralty List of Radio Signals* Volume 6(5).

Tugs
4.483

1 Available throughout the 24 hours from the South Puerto Rico Towing Company. They monitor VHF.

Regulations
4.484

1 **Quarantine.** Pratique is not necessary. Contagious diseases or high fever must be notified to the ship's agents.

Safety Zone. A safety zone has been established in Guanayilla, see 4.10.

Bahía de Guayanilla

General information
4.485

1 **Position.** Bahía de Guayanilla (18°00′N 66°46′W) lies between Punta Guayanilla (to the E) and Punta Verraco (to the W).

2 **Function.** Bahía de Guayanilla is the largest and one of the best hurricane harbours in Puerto Rico, providing protected anchorage for medium sized vessels. The harbour serves the town of Guayanilla, with a population of 1434, standing 1½ miles NW of the bay. The E part of the bay is a continuation of the industrial complex in Bahía de Tallaboa and medium sized vessels call to deliver and load petroleum and bulk chemical products.

3 **Approach and entry.** Bahía de Guayanilla is approached from the S and entered by a marked channel between the reefs.

4 In 2004, 426 vessels, with a total dwt of 7 687 539 tonnes, used the port.

Limiting conditions
4.486

1 Controlling depth is reported to be 12·5 m (42 ft) in the entrance channel as far as the dredged channel in the N part of the bay (1¼ miles NNW of Punta Gotay (17°59′N 66°46′W)).

2 The maximum draught at the anchorage is 12·8 m (42 ft).
Deepest and longest berth is the Commonwealth Oil Refining Company Refinery Dock (4.497).

Maximum size of vessel handled
4.487

1 About 80 000 dwt.

Harbour
4.488

1 **General layout.** A large natural bay with deep water in the centre and shallow areas generally within 2 and 5 cables of the shore including as follows:
E of a line drawn N from Punta Gotay (17°59′N 66°46′W).
W of a line drawn N from Punta Verraco (1¼ miles WNW of Punta Gotay)

2 The main berths, which are generally grouped in the NE part of the bay, are approached through dredged channels.

3 **Natural conditions:**
Tidal streams are negligible in the bay.
Surf is usually evident on the shore at the head of the bay.

Principal marks
4.489

1 **Landmarks** (with positions from Punta Gotay (17°59′N 66°46′W)):
A large, elevated water tank (1¾ miles NE).
Two tall towers of a refinery (1¾ miles NNE) which, with an elevation of between 60 and 90 m and a red flare burning from the top, are conspicuous and stated to be the most prominent features in the approach.

2 Two oil tanks (one black and the other white) (1¼ miles N) standing on a hill (40 m (131 ft) high) which rises about 2 cables E of Punta Pepillo, on the NE side of the bay.
Monte Membrillo (Calderon Mountain) (18°10′N 66°50′W) (Chart 3408) (4.515) is easily identified when approaching the bay.

4.490

1 **Aids to navigation.** All navigation lights in Bahía de Guayanilla are privately maintained.

Directions for entering harbour

Approach
4.491

1 When approaching from E or W the reefs on both sides of the entrance (17°58′N 66°46′W) should be cleared by about 1 mile as there is very deep water close to them in places and the sounding gives no warning of approach. It is recommended that, especially at night, the leading lights or the outer buoy (4.492) should be identified before closing the coast, as it has been reported that several deep draught vessels have grounded on the banks off the SE end of Arrecife Guayanilla while approaching the harbour entrance.

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Entrance channel

4.492

1 Between the outer reefs and extends for about 1½ miles N with a least width of 2 cables.

Initial position: From a position on the coastal route S of Isla de Cardona Light (17°57′N 66°38′W) the track leads NNW to a position on the leading line about 3 miles S of Punta Guayanilla (17°59′N 66°45′W).

Leading lights:

2 Front light (red column with white stripe on a dolphin, elevation 5 m) (2½ cables SSW of Punta Gotay).

Rear light (red column with white stripe on a tower on piles, elevation about 11 m) (5 cables N of the front light).

3 The alignment (358°) of the leading lights, or, if these cannot be identified, the line of bearing, 003°, of the conspicuous black tank (1¼ miles N of Punta Gotay) (4.489), leads through the entrance, passing (with positions from Punta Gotay):

4 E of Arrecife Guayanilla (2 miles SW) which has a length of about 7 cables in an E/W direction and is the S of the reefs lying S of Punta Verraco (4.477). The sea always breaks on this reef, which dries in most places and is reasonably steep–to on its S side. Thence:

5 E of a shoal, with a least charted depth of 4·2 m (14 ft) (1 mile SSW), which extends S from the SE end of Arrecife Unitas and is marked off its E side by No 1 Light–buoy (port hand), thence:

6 W of Arrecife Fanduco (9 cables SSE) the SW of the shoals extending S from Punta Guayanilla. This reef, which dries in parts and on which the sea always breaks, is marked off its SW extremity by No 2 Light–buoy (starboard hand). Thence:

7 E of a rock (8 cables SSW) with a least depth of 7·9 m (26 ft) over it, lying near the centre of the fairway and marked on its E side by No 3 Light–buoy (port hand). This rock lies about 2½ cables E of Arrecife Unitas (1 mile SW), which dries in most places and on which the sea always breaks.

4.493

1 From a position S of the front leading light and E of No 3 Light–buoy (4.492) the track leads NNW into the bay, passing (with positions from Punta Gotay):

2 WSW of an L–shaped pier (4½ cables S) extending 525 m SW from the S extremity of Punta Guayanilla. At the seaward end there is a wharf lying N/S, 108 m in length with mooring extension piers at each end. Thence:

3 WSW of a shoal, with a depth of 4·2 m (14 ft) over it (2¼ cables SSW), which is marked by the front leading light, thence:

ENE of the N end of the coastal reef (5½ cables W), which dries in places and on which the sea usually breaks, marked off its E side by No 5 Light–buoy (port hand), thence:

4 WSW of a shallow shoal (4 cables NNW) marked by No 6 Light–buoy (starboard hand). Cayo Mata (4 cables N) lies on the shoal. Thence:

ENE of an isolated patch, with a least charted depth of 1·5 m (5 ft), (1 mile WNW) marked close off its E side by No 7 Buoy (port hand), thence:

5 WSW of an isolated patch, with a least depth of 8·2 m (27 ft) over it, (7 cables N) marked by No 8 Buoy (starboard hand), thence:

WSW of the Commonwealth Oil Refining Company Refinery Dock (8 cables NNW) on which stands a light, thence:

6 ENE of an isolated patch, with a least charted depth of 0·3 m (1 ft), (1¼ miles NW) marked close off its E side by No 9 Buoy (port hand).

4.494

1 **A privately dredged channel,** ½ cable wide, with a reported controlling depth of 10·0 m (33 ft) (2001) (1¼ miles NNW) which leads to Pittsburgh Plate Glass (PPG) Industries Pier, is marked on both sides by light–buoys

2 **Leading lights**:

Front light (on the roof of a building on the pier, elevation 6 m) (1½ miles NNW of Punta Gotay)

Rear light (with an elevation of 12 m) (145 m from the front light).

A light (dolphin) also stands at the head of the pier.

The alignment (014°) of the leading lights leads through the centre of the channel, passing (with positions from Punta Gotay):

3 WNW of the Commonwealth Oil Refining Company Petrochemical Dock (1 mile N) on which stands a light (mast).

4.495

1 **Useful marks:**

Cayo María Langa Light (red and white chequered diamond on framework tower, elevation 13 m) (1 mile SSE).

Prominent container–lift structure (pale green) on the berth at Punta Gotay.

Anchorages

4.496

1 Good holding in thick mud, exists about 4 cables off the N shore but it is recommended that larger vessels should be anchored in Bahía de Guayanilla rather than Bahía de Tallaboa. The following anchorage areas are positioned from Punta Gotay Pier:

2 The usual anchorage area is between 5 cables and 1 mile NE of Punta Verraco (1¼ miles WNW) in a depth of 11 to 15 m (35 to 50 ft), providing protected anchorage for up to five vessels.

3 Anchorage is also available, for vessels with a draught of less than 5·5 m, at the head of the harbour between Punta Pepillo (1¼ miles N) and the village of Playa de Guayanilla (1½ miles NNW). Small fishing vessels anchor at the N end of this bay.

Berths

4.497

1 The largest berth in each separate location within the harbour is as follows (with positions from Punta Gotay):

Puntilla Dock (at Punta Gotay) consisting of a pier with a dolphin berth at its head, with a depth of 11·6 m alongside in 1972. A light (dolphin) stands at each end of the berth.

2 Commonwealth Oil Refining Company Refinery Dock (8 cables N), which extends SW from the W end of a causeway, has two berths alongside (No 5 on the S side and No 4 on the N side). Both berths can accommodate vessels of 80 000 dwt, with a draught of 12·0 m and a length overall of 253 m. There are pipelines on the pier for water and petroleum products.

3 Commonwealth Oil Refining Company Petrochemical Dock (1 mile N), which extends NW from the W

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Guayanilla Jetties (4.497)

(Original dated 1993)

(Photograph – Puerto Rico Ports Authority)

end of a causeway, has three berths and can accommodate vessels of 50 000 grt and a maximum draught of 11·1 m.

4 Texaco Terminal Wharf (1¼ miles N) which consists of a pier extending 160 m WSW from Punta Pepillo, flanked by dolphins positioned ½ cable to the W and E of the pierhead. The length of the berth is about 200 m, with a reported depth of 11·0 m alongside. The pier and the outer dolphins each exhibit a light. A channel, which is privately dredged, leading from the entrance of the PPG Industries channel (1 mile NNW) (4.494) to the wharf had a controlling depth reported (2001) to be 10·0 m (33 ft).

5 Pittsburgh Plate Glass (PPG) Industries Pier (1½ miles N), which extends 335 m from the head of the bay, has berths on both sides with a length of about 244 m and a depth of 10·7 m alongside.

A pier (4¼ cables S) extends about 3 cables SW from Punta Guayanilla, with a N/S jetty, about 400 m in length, at the head.

6 There are two other small piers in this vicinity.

Port services

4.498

1 **Repairs** can be carried out at Ponce.

Other facilities: hospital at Ponce (4.473); medical services; salvage tugs.

Supplies: fuel; fresh water; provisions from Ponce (4.474).

Bahía de Tallaboa

General information

4.499

1 **Position.** Bahía de Tallaboa (17°59′N 66°44′W) lies between Punta Guayanilla (4.477), to the W, and a prominent cliff (about 30 m high) about 3¼ miles E.

Function. Bahía de Tallaboa is used by medium sized vessels loading and discharging petroleum and chemical products.

2 **Topography.** The shoreline is heavily industrialized and the W end of the N shore contains a refinery with numerous oil tanks.

Approach and entry. Bahía de Tallaboa is approached from the S and entered through a marked channel between the reefs.

3 **Traffic.** In 2004 2 vessels used the port totalling 18 574 dwt.

Limiting conditions

4.500

1 **Controlling depth.** There is deep water in the entrance channel. The approach to Cayo Río Dolphin Berth (1 mile NE of Cayo María Langa Light (17°58′N 66°45′W)) (4.508) has been dredged to 13·4 m (44 ft) and is reported to be subject to a draught limitation of 12·5 m (41 ft).

2 **Deepest and longest berths:**

Deepest berth is Cayo Río Dolphin Berth (4.508).

Longest berth is the Commonwealth Oil Refining Company pier (1¾ miles NE of Cayo María Langa Light).

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3 **Maximum size of vessel handled.** Vessels of 109 000 tonnes displacement can be handled at the Cayo Río Dolphin Berth.

Arrival information

4.501

1 **Local knowledge** is required.

Regulations concerning entry. US Regulations prohibit the berthing or unberthing of LPG carriers at night unless the incoming/departing vessel is moving to or from another (storage) vessel.

Safety Zone. A safety zone has been established in Tallabao, see 4.10

Harbour

4.502

1 **General layout.** Bahía de Tallaboa is open but is partly protected by islands and surrounding reefs.

2 **Principal marks** are given at 4.489.

Directions for entering harbour

Approach

4.503

1 The recommendations concerning the approach to Bahía de Guayanilla, given at 4.491 are relevant to Bahía de Tallaboa.

Entrance channel

4.504

1 Passing between the outer reefs the channel has a length of about 1 mile, with a least width of 1¼ cables and depths as given at 4.500.

From the vicinity of 17°57′N 66°44′W, the track into harbour leads generally N, passing (with positions from Cayo María Langa Light (17°58′N 66°45′W)):

2 W of an isolated shoal patch with a depth of 7 m (23 ft) over it (1¾ miles SE), which is the W extremity of a bank which extends 3 miles W from Isla de Ratones (Chart 3408) (4.462), thence:

3 Between No 2 Buoy (starboard hand) (1 mile ESE), marking the W extremity of a shallow bank, and No 1 Light–buoy (port hand) (8½ cables ESE) marking the SE extremity of the shoal extending E from Cayo María Langa, thence:

W of No 4 Light–buoy (starboard hand) (9 cables E) marking the SW extremity of the reef extending SW from Cayo Caribe.

4 From a position in mid channel (W of No 4 Light–buoy (starboard hand)) the track leads towards No 7A Light–beacon (port hand) (1¼ miles NE) (4.506), to avoid being set on to the W bank of the channel by strong prevailing E winds, passing:

5 E of No 5 Light–buoy (port hand) (8 cables ENE) marking the E extremity of the bank extending E from Cayo Palomas.

4.505

1 **Channels between Cayo Rio and Cayo Palomas** pass either side of foul ground 1 mile NNE of Cayo María Langa Light. The channel to the NE of the foul ground is marked by a buoy (port hand) privately maintained.

NE channel:

From a position 9 cables ENE of Cayo María Langa Light the track leads NW passing (with positions from Cayo María Langa Light):

2 SW of No 6 Light–buoy (starboard hand) (1 mile ENE) moored on the NW side of an isolated rocky patch with a charted depth of 2·7 m (9 ft), thence:

Between Cayo Río Dolphin Berth (1 mile NE) (4.508) and No 7 Buoy (port hand) moored off the NE side of the isolated shoal (9 cables NNE) (above).

4.506

1 **Channel to the Commonwealth Oil Refining Company Pier.** From a position 1 mile NE of Cayo María Langa Light the approach track leads NE passing (with positions from Cayo María Langa Light):

NW of No 6 Light–buoy (starboard hand) (1 mile ENE) (4.505), thence:

2 SE of Cayo Río (1¼ miles NE) consisting of two islands close together. The SE side is bordered by a reef which is marked on its SE side by No 7A Light–beacon (port hand, elevation 5 m), thence:

NW of No 8 Buoy (starboard hand) (1½ miles NE) marking the NW extremity of a shoal patch with a depth of 7·3 m (24 ft) over it.

Basins and berths

4.507

1 **Anchorage** with fair shelter is available for small vessels behind some of the islands. However the holding ground is poor and dragging should be expected in winds greater than 25 kn. For secure anchorage in Bahía de Guayanilla see 4.496.

2 Anchorage should not be attempted inshore of the Cayo Río Dolphin Berth (4.508) owing to the proximity of the submarine pipeline shown on the chart.

3 **Mooring buoy** (2¼ miles NE), in a depth of about 4 m (13 ft), is positioned just outside and to the E of a channel leading to a harbour for small craft.

4.508

1 **Alongside berths** (with positions from Cayo María Langa Light (17°58′N 66°45′W)):

Cayo Río Dolphin Berth (1 mile NE), situated close off the SW end of Cayo Río, is an offshore tanker loading terminal for LPG carriers, able to accommodate vessels of 109 000 tonnes, with a length overall of 294 m and a draught of 11·5 m. This berth, which has a light on each corner, is connected to the shore by a submarine pipeline.

2 Commonwealth Oil Refining Company pier (1¾ miles NE), has berths available along the outer 335 m of its length. A dredged depth off its E side of 11·6 m (38 ft) (1971), has a width of 130 m which is marked to the W by the line of the pier, which has a light (mast) at its head; and to the E by No 10 Light–buoy (starboard hand) at the S end, and by No 12 Buoy (starboard hand) at the N end.

3 A dolphin berth (1½ miles NNE) for barges is situated on the E bank, close within the entrance to an outlet canal, the mouth of which is subject to silting. This berth is approached through a dredged channel, entered between No 1 Buoy and No 2 Buoy (1¼ miles NNE), with a depth of 6·1 m (20 ft) over a mid channel width of 61 m in 1977.

Port services

4.509

1 **Supplies:** fuel by advanced arrangement; fresh water Cayo Río Dolphin Berth.

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BAHÍA DE GUAYANILLA TO CABO ROJO

General information

Charts 3408, 472 (see 1.20)

Route

4.510

1 From a position S of Isla de Cardona Light (17°57′N 66°38′W) the route leads W for about 40 miles to a position WSW of Cabo Rojo (17°56′N 67°12′W).

Topography

4.511

1 General topography (4.354).

Topography in the vicinity of Guayanilla (4.477).

From Punta Ventana (17°58′N 66°49′W) (4.516) to Punta Meseta (5¼ miles W) the coast is backed by a level ridge covered with bushes.

Topography in the vicinity of Guánica (4.519).

2 Between Punta Jorobado (17°56′N 66°58′W) (4.516) and Cabo Rojo (13½ miles W) (4.165) the coast includes numerous cays, islets and reefs, some of which extend up to 4 miles offshore. A range of hills (from 45 to 155 m high) are visible inland for virtually the whole distance; the highest points being (with positions from Punta Jorobado):

3 Cerro Vertero (4½ miles NW).

Cerro Mariquita (301 m (charted as 991 ft) high) (10 miles WNW).

Depths

4.512

1 General information (4.355).

The coastal bank with depths of less than 200 m (100 fm), extends about 2 miles except between Punta Jorobado and Cabo Rojo (13½ miles W) where it extends as much as 5 miles from the coast.

Fishing

4.513

1 Fishing marks (4.6).

Natural conditions

4.514

1 Sea state (4.8). Current (4.356). Flow (4.9). Local weather (4.7).

Principal marks

4.515

1 Guayanilla (4.489) and Guánica (4.525).

Landmark:

Monte Membrillo (Calderon Mountain) (18°10′N 65°50′W), is easily identified from the S.

2 **Major light**:

Cabo Rojo Light (17°56′N 67°12′W) (4.164)

Directions

(continued from 4.437)

4.516

1 From a position S of Isla de Cardona Light (17°57′N 66°38′W) the track leads W passing (with positions from Punta Jorobado (17°56′N 66°58′W)):

2 S of Punta Ventana (9 miles ENE), a high, rocky bluff situated at the E end of the coastal ridge (4.511). About 5 cables NE, separated by a low break, stands Cerro Toro, about 30 m high at its W end and sloping NE. This hill has a bright yellow patch on the bluffs on its SE side making it easy to distinguish. Thence:

3 S of Punta Brea (2¼ miles E), the SE extremity of a high promontory, which is bordered by rocks with low bluffs in places, thence:

4 S of Arrecife Baul, a reef which dries in places and on which the sea always breaks, lying about 7 cables SE of Punta Jorobado, a small projecting point with a hummock (28 m high) which is the SW extremity of a high peninsula, thence:

5 S of Turrumote Islet (Terremoto) (9 cables W) a low sandy islet, 1½ cables wide on which there is some grass, surrounded by reefs extending 1½ cables offshore, thence:

6 S of Arrecife Margarita (9 miles W), a reef on which there are rocks awash and on which the sea breaks, lying parallel with the coast about 1¾ miles S of Punta Tocón, thence:

S of Cabo Rojo (13½ miles W) (4.165).

7 From this position the track continues W for about 8 miles to a position WSW of Cabo Rojo (17°56′N 67°12′W).

Useful mark

4.517

1 Cayo María Langa Light (17°58′N 66°45′W) (4.495).

(Directions for passage W of Puerto Rico are given at 4.165, and for Mona Passage at 2.36)

Bahía de Guánica

Chart 478 plan of Bahía de Guánica, 3408 (see 1.20)

General information

4.518

1 **Position.** Bahía de Guánica (17°58′N 66°55′W) is situated on the S coast of Puerto Rico, 16 miles E of the SW extremity (Cabo Rojo).

2 **Function.** Bahía de Guánica is a small commercial harbour which is one of the best hurricane harbours for small vessels in Puerto Rico. The harbour contains the port of Guánica, with a population of 1900, and the commercial port of Ensenada.

3 Guánica is a customs port of entry for Puerto Rico.

4.519

1 **Topography.** The shores of the harbour are high, steep and wooded, except for the N shore, between Playa de Guánica (9 cables N of Punta Meseta (17°57′N 66°54′W)) and the mouth of Río Loco (1½ miles NNW of Punta Meseta), which flows into the NE corner of Bahía Noroeste, through a mangrove swamp.

2 Bahía de Guánica is fronted by a reef, which dries in places, extending 1½ miles WSW from Cayos de Caña Gorda (2 miles ESE of Punta Meseta).

4.520

1 **Approach and entry.** Bahía de Guánica is approached from the S and entered through a buoyed gap at the W end of the reef which extends across the entrance.

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2 **Traffic.** In 2001, 9 vessels, with a total dwt of 28 382 tonnes, used the port.

3 **Port Authority.** Details of the Puerto Rico Ports Authority are given at 4.10.

Local rules and regulations for Bahía de Guánica are enforced by a Commonwealth Captain of the Port, whose office is near Playa de Guánica.

Limiting conditions

4.521

1 **Controlling depth** in the entrance channel (2 cables W of Punta Meseta (17°57′N 66°54′W) (4.527)) was 7·9 m (26 ft) in 1970.

Deepest and longest berth is the fertilizer wharf (4.532).

2 **Controlling height**. An overhead power cable, with a clearance of 45·7 m (150 ft) above HW, spans the entrance 4½ cables NNW of Punta Meseta.

Mean tidal levels

MHHW 0·2 m.
MLLW 0·0 m.

Arrival information

4.522

1 **Notice of ETA.** Several hours notice is necessary if a Pilot is required.

Pilotage is compulsory and available day and night; for regulations and information see 1.34.

Pilots, obtained from Guayanilla (4.482), meet ships 2½ miles S of Punta Meseta, as shown on the chart.

2 **Tugs.** (4.483).

Quarantine. Regulations (1.48).

Harbour

4.523

1 The harbour is formed by a natural indentation in the coast at the mouth of a river. There are two main berthing areas (with positions from Punta Mesetat):

2 At Guánica (8 cables N), at the N end of the entrance channel.

At Ensenada (1½ miles NW), in the NW corner of the harbour.

Natural conditions

4.524

1 **Current** is not evident in the harbour.

Local wind. Prevailing wind usually blows freshly by day and draws into the harbour. At night the North East Trade Wind usually dies down giving way to a light land breeze.

Principal marks

4.525

1 **Landmarks** (with positions from Punta Meseta):

Abandoned lighthouse (close N).

Towers at both ends of the overhead power cable (4½ cables NNW).

4.526

1 **Approach.** From the vicinity of 17°53′N 66°55′W, outside the 200 m (100 fm) depth contour, the line of bearing, 006½°, of the tower (3½ cables NNE of Punta Meseta (17°57′N 66°54′W)) which supports the E end of the overhead cable, leads towards the entrance, passing (with positions from Punta Meseta):

2 Over a series of ridges which lie up to 2¼ miles ESE of Punta Brea (1½ miles SSW) (4.516), keeping W of No 2 Light–buoy (starboard hand) (2 miles S) in a least depth of 8·5 m (28 ft), thence:

Between two isolated patches, with depths of 8·2 m (27 ft) over them, in the vicinity of a position 1¾ miles S, thence:

3 E of a shoal, with a least depth of 3·4 m (11 ft) over it (1½ miles SSW), extending about 2 cables SE from Punta Brea, thence:

Through the deep channel (9 cables SSW) (which divides the ridge, with depths of 6 m (20 ft) over it, extending W from Corona La Laja) marked by No 3 Buoy (port hand) and No 4 Light–buoy (starboard hand), thence:

4 Close W of an isolated patch, with a least charted depth of 7·5 m (25 ft) (6 cables S), close E of the track.

4.527

1 **Entrance channel.** A privately dredged channel leads from the entrance in a N direction to a turning basin inside the harbour, then NW to the pier at Punta Pera (1½ miles NW). In 1970 the controlling depths were as follows:

2 Outer section (leading N), as given at 4.521, over a width of 61 m.

Inner section (leading WNW):

8·2 m (27 ft) in the S half of the channel.
6·1 m (20 ft) in the N half of the channel.

4.528

1 **Directions for the outer section.** Initial position: 6 cables SSW of Punta Meseta.

Playa de Guánica Leading Lights:

Front light (red column with a white stripe on a framework tower, elevation 8 m) (9 cables NNW of Punta Meseta).

Rear light (as for the front light, elevation 15 m) (2¾ cables N of the front light).

2 The alignment (354½°) of these lights leads through the outer section of the entrance channel, passing (with positions from Punta Meseta):

E of the coastal bank, extending about 4½ cables SSE from Punta Pescadores (3 cables W), marked on its S side by No 5 Buoy (port hand), thence:

3 E of Punta Pescadores, a bluff which rises to an elevation of 110 m, about 7 cables NW, thence:

W of Punta Meseta, which rises to an elevation of 141 m, on which stands an abandoned lighthouse (4.525), thence:

Under the power cable (4½ cables NNW) (4.521), thence:

4 W of No 6 buoy (starboard hand) (4½ cables NNW) marking the SE point of the turn towards the berths at Guánica (4.532), thence:

E of No 7 Buoy (port hand) (5½ cables NNW) marking the SW point of the turn towards Punta Pera.

4.529

1 **Directions for the inner section.** From a position 4 cables S of the front leading light the track alters WNW towards Punta Pera, passing (with positions from Punta Meseta):

NNE of No 9 Buoy (port hand) (6 cables NNW) marking the S side of the channel, thence:

2 SSW of No 10 Buoy (starboard hand) (7 cables NNW) marking the edge of the coastal bank

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which, with depths of less than 5·5 m (18 ft) over it, extends 2¼ cables S from the coast, thence:

3 Between the coastal banks lying N and S of the dredged channel to the berth at Dominican Dock.

4.530

1 **Useful marks** (with positions from Punta Meseta):

A pair of chimneys (1¾ miles NW) situated in the sugar mill.

A cupola (1½ miles NW) on a large house near the sugar mill.

Fixed crane (5¾ cables N) standing on the fertilizer wharf.

Anchorages and moorings

4.531

1 Anchorage is available in the harbour, as convenient according to draught, outside the dredged channel. The bottom is soft with good holding except in the entrance.

Recommended anchorages for smaller vessels are as follows (with positions from Punta Meseta):

2 Clear of the channel to the E or WNW of No 10 Buoy (starboard hand) (7¾ cables NNW), if waiting for an alongside berth.

Close W of No 12 Buoy (starboard hand) (1¼ miles NW), if proceeding direct to the wharves.

In Bahía de Noroeste (1½ miles NW), coasters with a draught of less than 4 m (13 ft).

3 **Moorings:**

A mooring buoy (1½ miles WNW) is situated in the entrance to Caleta Julia, 1½ cables SSW of the wharf on the S side of of Punta Pera.

Alongside berths

4.532

1 **At Guánica:**

Fertilizer wharf (4½ cables N) with a length of 135 m and a reported depth of 8·5 m alongside.

There is a chemical berth (7 cables N) with a reported depth alongside of 7·6 m.

2 These berths are approached, in depths of 7·6 to 9·1 m (25 to 30 ft), through a narrow channel (extending 60 m off the berths) which continues N from the N end of the outer section of the entrance channel (4.527).

3 **At Ensenada:**

Dominican Dock (1½ miles NW), a pier which extends ¾ cable E from Punta Pera, has depths of 7·6 m alongside and lights (privately maintained) on each corner at the seaward end. Vessels are usually berthed port–side–to on the S side of the pier using an anchor to assist the manoeuvre.

4 There are two small wharves, also for the sugar mill.

Port services

4.533

1 **Repairs:** emergency repairs at the machine shop of the sugar central at Ensenada.

Other facilities: hospital in Guánica and another in Ensenada.

Supplies: fuel from the sugar mill in emergency; also by road tanker from Guayanilla (4.476); fresh water; fresh provisions; chandlery.

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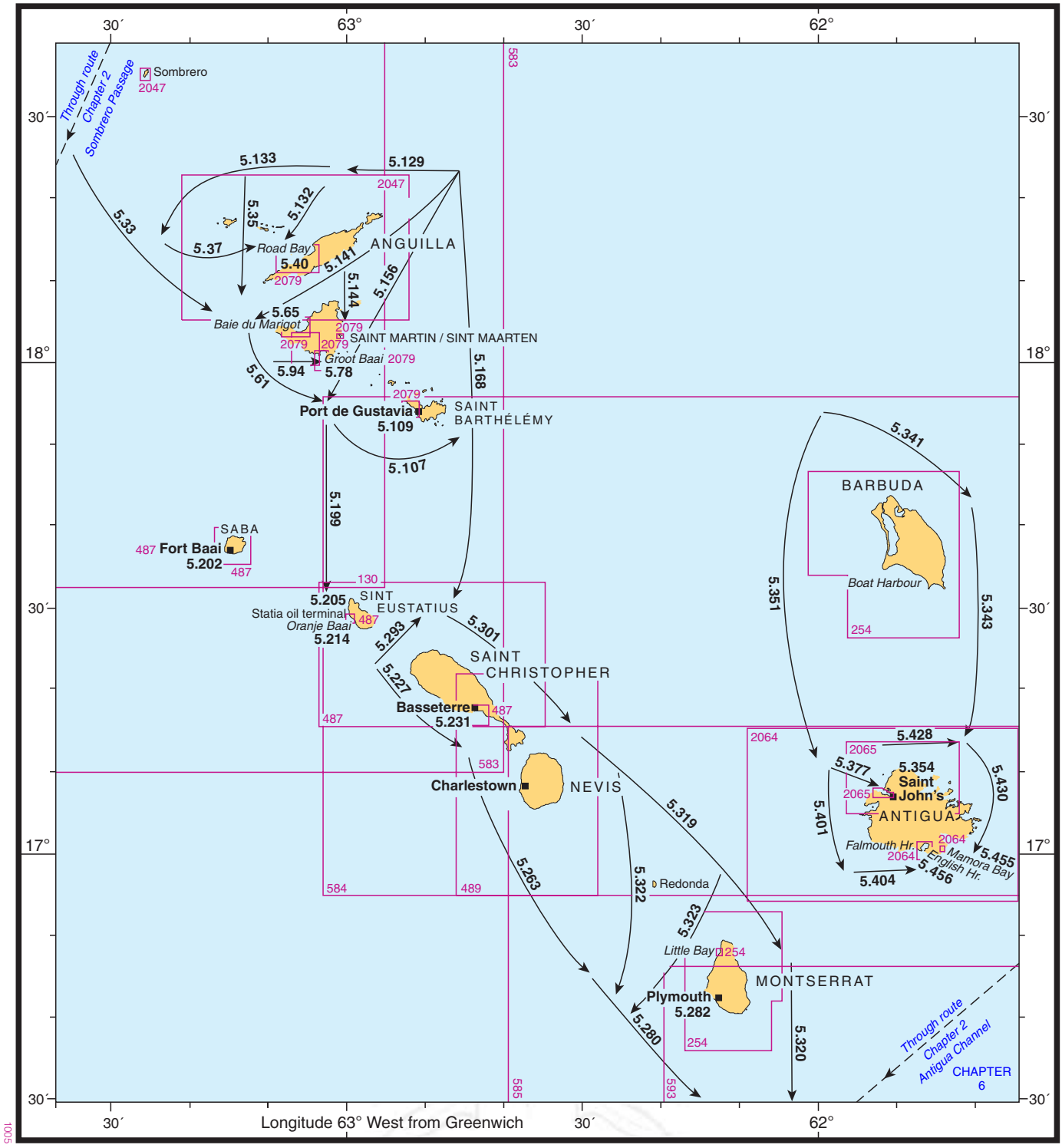
Chapter 5 - Leeward Islands - Anguilla to Antigua



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CHAPTER 5

LEEWARD ISLANDS — ANGUILLA TO ANTIGUA

GENERAL INFORMATION

Charts 1025, 2600

Scope of the chapter

5.1

1 This chapter describes the N part of the Leeward Islands, presenting the coastal and inter–island waters from 18°25′N 63°35′W) (WNW of Anguilla) to a position S of Montserrat (130 miles SE), including Barbuda and Antigua.

International boundary

5.2

1 Most of the islands mentioned in this chapter are either independent or administered by different foreign powers. Saint Martin/Sint Maarten, is administered, in part, by two foreign powers.

Harbours

5.3

1 **Principal harbours** described in this chapter, in order of presentation, are:

Groot Baai, Sint Maarten (18°01′N 63°03′W) (5.78).
Basseterre, Saint Christopher (17°18′N 62°43′W) (5.231).

2 Saint John's Harbour, Antigua (17°08′N 61°52′W) (5.354).

Statia Oil Terminal (Sint Eustatius) (17°30′N 63°00′W) (5.205).

5.4

1 **Minor harbours** of importance described in this chapter, in order of presentation, are:

2 Road Bay (Anguilla) (18°12′N 63°06′W) (5.40).
Baie du Marigot (Saint Martin) (18°04′N 63°06′W) (5.65).
Port de Gustavia (Saint Barthélémy) (17°54′N 62°51′W) (5.109).
Fort Baai (Saba) (17°37′N 63°15′W) (5.202).

3 Orange Baai (Sint Eustatius) (17°29′N 62°59′W) (5.214).
Charlestown (Nevis) (17°08′N 62°38′W) (5.266).
Long Point (Nevis) (17°06′N 62°37′W) (5.270).
Plymouth (Montserrat) (16°42′N 62°13′W) (5.282) (*Port closed*).

4 Little Bay (Montserrat) (16°48′N 62°12′W) (5.283)
Parham Harbour (Antigua) (17°08′N 61°46′N) (5.443).

Topography

5.5

1 Eight of the ten major islands presented in this chapter are high and mountainous whilst two, Barbuda and Anguilla, are low and flat.

2 Anquilla (18°13′N 63°03′W) at 5.17.
Saint Martin/Sint Maarten (18°03′N 63°03′W) at 5.21.
Saint Barthélémy (17°54′N 62°50′W) at 5.24.
Saba (17°38′N 63°14′W) at 5.181.

3 Sint Eustatius (17°30′N 63°00′W) at 5.183.
Saint Christopher (17°20′N 62°45′W) at 5.185.
Nevis (17°10′N 62°35′W) at 5.187.
Montserrat (16°45′N 62°12′W) at 5.189.

4 Barbuda (17°37′N 61°47′W) at 5.331.
Antigua (17°05′N 61°50′W) at 5.333.

Depths

5.6

1 The islands described in this chapter lie on six separate banks, in addition to Saba Bank (17°30′N 63°30′W) (5.192), over which there are depths of less than 200 m. Deep water passages pass between the banks at varying distances from the island coasts. More detailed information is given as follows:

N group of islands and the Anguilla Bank (18°20′N 63°00′W) at 5.12.

2 NW group of islands, around Saint Christopher (17°20′N 62°45′W), at 5.176.

NE group of islands, N of Antigua (17°05′N 61°50′W), at 5.327.

3 **Incomplete surveys** Mariners are cautioned that in the vicinities of Saint Martin, Saint Barthélémy, Saint Christopher and Anguilla uncharted coral heads, some of which may dry, exist within the areas indicated on the chart.

Caution

5.7

1 Numerous reports and some recent surveys indicate that shoal patches, of small extent but with considerably less water than charted, may be encountered on the banks in the area of this chapter.

2 Mariners are advised to exercise caution and deep draught vessels, particularly those with a draught greater than 12 m, should be navigated outside the 200 m depth contour.

Weather

5.8

1 Lying between the Equator and the Tropic of Cancer, the group overall has a fairly equable but potentially hot and humid climate (1.227). The extreme heat is, however, tempered by the North–east Trade Winds blowing from the Atlantic.

2 These islands lie in the path of hurricanes (1.235).

Flow

5.9

1 The current in the region normally sets W or NW throughout the year at rates of ¾ to 1 kn; but mean speeds can be as high as 1½ kn, especially in summer. Constancy is generally moderate over the area with a tendency to be high at times to the S and E of Saint Martin (18°03′N 63°03′W) and often low to the N and W of the island.

2 The banks on which the islands lie afford some shelter from the South Equatorial Current so that both currents and tidal streams are diminished in their vicinity.

3 General remarks (1.209).

Navigational aids

5.10

1 It is reported that aids to navigation, such as buoys, beacons and lights, are notable for their absence and unreliability.

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NORTHERN GROUP OF LEEWARD ISLANDS ANGUILLA TO SAINT BARTHÉLÉMY

GENERAL INFORMATION

Charts 583, 584, 1025

Area covered

5.11

1 This section describes an area at the N end of the Leeward Islands, in the vicinity of 18°N, 63°W, which extends SE from Sombrero Passage (2.14) and encompasses the N group of islands including:

Anguilla (18°13′N 63°03′W) (5.16).

Saint Martin or Sint Maarten (18°03′N 63°03′W) (5.19).

Saint Barthélémy (17°54′N 62°50′W) (5.23).

Depths

5.12

1 General remarks (5.6).

The N group of islands lie on the SW edge of a large bank, comprised chiefly of shells, sand and coral, the N part of which is known as Anguilla Bank. Depths on the bank are relatively shallow, with many isolated patches, as shown on the chart.

2 To the N of Anguilla depths of less than 40 m lie within 9 miles of the coast, and the bank extends to 19 miles N with recorded depths of 37 m. To the E of Anguilla the bank extends 26 miles offshore with numerous patches of 27 m or more, including a 27 m patch 23 miles E of Scrub Island (18°17′N 62°57′W). An isolated pinnacle with 17·7 m of water over it, the position of which is approximate, has been reported (1971) to lie 34 miles ENE of Scrub Island.

3 To the SE the bank extends 17 miles from Saint Barthélémy, with depths of 23 m or more near the outer edge.

4 Three isolated banks, with depths of 38 to 100 m (18°30′N 63°17′W), 58 to 100 m (6 miles NE) and 60 m (10 miles ENE), lie between the main bank and Sombrero Island (18°35′N 63°26′W) (2.16).

5 **Caution**. On the banks in the vicinity of Saint Barthélémy and Saint Martin, and to the SE of Anguilla, shoal patches may be encountered. See caution at 5.7.

Fishing

5.13

1 Lobster pots, marked by small floats which are difficult to see, may be found anywhere on the bank N and E of Anguilla and between Anguilla and Saint Martin.

Local weather

5.14

1 Although hot, the climate is remarkably healthy as the average mean temperature of 27°C is tempered by the North–east Trade Wind. January and February are the coolest months, whilst September is the hottest month. The average rainfall is just over 1000 mm, falling mainly in November and December.

Flow

5.15

1 General information (5.9).

Principal islands

Anguilla

Chart 2047

General information

5.16

1 **Position.** Anguilla (18°13′N 63°03′W) (1.72) is the N of the Leeward Islands, situated 30 miles SE of Sombrero and about 50 miles NNW of Saint Christopher.

2 **Function**. For industry and trade see 1.79.

The island offers a number of good anchorages for small craft and has some of the finest beaches and clearest waters in the Caribbean. It is reported that Anguilla does not have the swamps, infested by flies and mosquitoes, which exist in the islands farther S. The population was recorded as 11 561 in the census of 2001.

Tourism is the island's major industry. There is a small airport.

3 **Ports of entry:**

Road Bay (5.40).

Blowing Point Harbour (5.149).

Topography

5.17

1 Anguilla, 14 miles long by 3 miles wide, is low and flat; unlike its towering neighbours Saint Martin, and Saint Barthélémy.

2 The N part of the island is the more elevated and, in the vicinity of Crocus Bay (near the middle of its NW side), it is over 60 m high, but there are no prominent hills. The SW part of the island decreases gradually in elevation and, at its extreme, is about 9 m high. The SE side of the island is much lower than the NW side.

Marine parks

5.18

1 In order to conserve the marine environment around Anguilla, six areas have been designated Marine Parks: Dog Island (5.37); Prickly Pear Cays (18°16′N 63°11′W) and Seal Island Reef (5.37); Island Harbour (18°15′N 63°00′W); Rendezvous Bay (5.150); Little Bay (5.54); and Sandy Island (5.37). These areas are shown on chart 2047 and chart 2079, plan of Crocus Bay and Road Bay.

2 Various regulations apply in these areas including no anchoring in the coral. A network of white mooring buoys has been established for vessels under 55 ft (16·8 m) in length for use with a Marine Park Mooring Permit. Red mooring buoys have been established both inside the park areas and outside, specifically for the use of diving boats.

3 Further details are available from the Department of Fisheries and Marine Resources, South Hill, Anguilla; see also 1.53.

Charts 2079 plans of Simson Baai, Baie du Marigot, Groot Baai, 2047, 583

Saint Martin (Sint Maarten)

General information

5.19

1 **Position**. Saint Martin or Sint Maarten (18°03′N 63°03′W) stands on the Anguilla Bank, in the Leeward Islands, between Anguilla and Saint Barthélémy.

2 **Nationality.** The island is divided between the French, in the N part (16 square miles), and the Dutch, in the S part (21 square miles).

3 **Name.** The French name for the island is "Saint Martin"; the Dutch name is "Sint Maarten". These names

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have been used in this text to refer to the N or S part respectively.

5.20

1 **Function**. The combined population of about 59 672 (2001) is largely dependent on fishing, salt and tourism for its economy. An offshore fishing industry processes and exports fish. Salt, as an export commodity, has decreased in value over the years but is still produced.

2 Tourism is rapidly expanding, with many hotels and other facilities. The N part of the island is already a popular resort for visitors from the United States and France, entering through an international airport situated in Sint Maarten.

3 **Ports of entry:**

Baie du Marigot, Saint Martin (5.65)
Groot Baai, Sint Maarten (5.78)

Topography

5.21

1 The NE end of the island is high and precipitous; it is separated from the central mountains by a deep valley, so that when seen from WNW or ESE it has the appearance of a separate island. Near the centre of the island there is a chain of mountains running N and S, of which Pic de Paradis 411 m high (18°05′N 63°03′W) is the highest summit.

2 It can be considered as the centre of the hill country from which various ridges descend to the sea. In addition, there are several important hills:

Mornes Rouges (78 m high) (18°04′N 63°08′W), situated near the W end of the island, is prominent from the NW.

3 Mont Fortune (65 m high) (18°03′N 63°06′W) with a pointed summit, is situated on a small peninsula on the E side of Grand Étang de Simsonbaai.

4 Mont Diamant (18°04′N 63°05′W), the N peak of the short W chain of the central mountains, is a prominent hill. Mont de Marigot stands 3 cables NW of Mont Diamant and could be mistaken for it.

5 Koolbaaiberg (215 m high) (18°02′N 63°05′W) the S peak of the short W chain of the central mountains, is prominent, bare and rocky; seen from NW or SE, its outline resembles a colossal face, the back turned SW.

Fortheuvel (18°02′N 63°04′W), situated near the NW side of Groote Baai, is a prominent conical hillock.

6 Oostenberg (18°02′N 63°02′W) (Chart 583) situated on the SE side of the island, rises to a distinctive conical peak.

Nature Reserve

5.22

1 Two areas have been established as nature reserves, within which fishing with nets or traps, and underwater fishing, are forbidden (see 1.53). These areas lie within the territorial waters of Saint Martin as follows:

(1) A circle, radius 250 m, centred on Rocher Crole, (18°07′N 63°03′W) (5.140) as shown on chart 2047;

2 (2) An area extending from Pointe des Froussards (5.145) around the N and E coasts to Oyster Pond (18°03′N 63°01′W), including Basse Espagnole, Île Tintamarre (5.141), but excluding Baie Orientale (5.162), as shown on charts 2079 and 583.

3 **The coast** is indented by many bays and creeks, some of which afford good anchorage. There are also a number of large lagoons, separated from the sea by a narrow reef or low beach. These lagoons are used as salt–pans or fish–ponds.

4 **At night**, fixed or flashing red obstruction lights are occasionally exhibited on the tops of several hills in the S part of the island.

Saint Barthélémy

Chart 2079 plan of Port de Gustavia, 583

General information

5.23

1 **Position.** Saint Barthélémy (17°54′N 62°50′W) is situated in the Leeward Islands, 10 miles SE of Saint Martin and 110 miles NW of Guadeloupe.

2 **Function**. This French island with a population of 6 852 (2001), has an economy predominantly based on tourism and trade through the capital town and free port of Gustavia.

3 Port de Gustavia (5.109) is a first port of entry.

Topography

5.24

1 Saint Barthélémy is a rocky island of some 10 square miles, protected against erosion from the sea by a chain of reefs and cays. The coast is very irregular and indented by many small bays separated from one another by precipitous rocky promontories.

2 The major portion of the island is hilly and it may be identified by a group of three prominent hills which stand close together near its E end. These hills, which are so situated that on certain bearings only two are visible, are as follows:

3 Morne du Vitet (282 m high) (17°54′N 62°48′W) the E and highest hill in the island, is more pointed than the others.

The N hill (250 m high) is more rounded than the others.

The S hill is 274 m high.

Nature reserves

5.25

1 Five areas have been established as nature reserves, within which fishing with nets or traps, and underwater fishing, are forbidden (see 1.53). These areas lie within the territorial waters of Saint Barthélémy and are marked with unlit buoys.

2 (1) The triangular area including the bays of Marigot (17°55′N 62°48′W), and Cul–de–Sac and Petit Cul–de–Sac (4 and 7 cables ESE of Baie du Marigot) and the area around La Tortue (5.168), from Pointe Mangin (17°55′N 62°48′W) to the N point of the Grenadins (17°55′N 62°48′W) (5.168), thence to the E point of Anse de Petit Cul–de–Sac (17°55′N 62°47′W).

3 (2) The area around Île Toc Vers (5.168) and Île Frégate (5.171) at a maximum distance of 500 m from the coast line as follows:

17°57′N 62°49′W
17°57′N 62°51′W
17°56′N 62°51′W
17°56′N 62°49′W

4 (3) The rectangular area 500 m from each point N,S,E and W around Île Fourchue (5.107), and marked by buoys, as follows:

17°58′N 62°54′W
17°57′N 62°55′W
17°57′N 62°54′W
17°57′N 62°53′W

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5 (4) The triangular area around Le Pain de Sucre (5.107) and Les Gros Îlets (5.114), as shown on Chart 2079, plan of Port de Gustavia.

6 (5)The Anse de Colombier (5.172), aligned as follows:

S point of the Anse Gascon (1 mile NE of Le Pain de Sucre (5.107) in line with the N side of Grand Groupers (5.156), to the line of;

N points of Île Chevreau (5.170), Frégate (5.171) and Toc Vers (5.168) to the line of;

W point of Île Pelé (5.168) in line with the NE point of La Petite Anse (17°55′N 62°52′W).

Caution

5.26

1 Mariners are cautioned that navigating the coasts of Saint Barthélémy during the hours of darkness, requires extra vigilance, particularly its N side, off which there are a number of islets and rocks.

2 Although the majority of dangers are visible by day the N side should always be approached with the greatest caution.

SOMBRERO PASSAGE TO ANGUILLA

General information

Charts 2047, 583

Route

5.27

1 From a position SE of Barracuda Bank (18°20′N 64°11′W) the route leads ESE for about 49 miles to a position SW of Anguillita Island (18°09′N 63°11′W).

2 Mariners are recommended to pass W of Dog Island unless the sea is calm. A recommendation for deep draught vessels is given at 5.7.

Topography

5.28

1 General topography of Anguilla (5.17).

Anguilla, and the islands and cays adjacent to it, are so low in comparison with Saint Martin (4 miles S) (5.21) that, when approaching the former from N at night, it is extremely difficult to estimate the distance from them as they are backed by the high land of the latter island.

2 Dog Island and the other islands and reef NW of Anguilla are reported to be difficult to see at night.

Depths

5.29

1 General remarks (5.12).

See caution on the chart regarding uncharted coral heads off the W and N coasts of Dog Island.

Seal Island Reef (18°16′N 63°08′W) is dangerous to approach from the N at night as the bottom does not shelve sufficiently to indicate its proximity, there being depths of 22 to 29 m close to the edge of the reef and also within 4 miles to the N of the reef.

Natural conditions

5.30

1 Flow (5.9). Swell (1.220). Local weather (5.14).

Principal mark

5.31

1 **Major light**:

Sombrero Light (18°35′N 63°26′W) (2.19).

Aids to navigation

5.32

1 Availability and reliability (5.10).

Directions

(continued from 2.20

5.33

1 From a position SE of Barracuda Bank (18°20′N 64°11′W) the track leads ESE passing (with positions from Dog Island (18°17′N 63°15′W)):

2 SSW of West Cay, (8 cables W) which forms the W extremity of a broken ledge of rocks. West Cay may be passed in safety, by day, at a distance of about 3 cables, but it should be noted that soundings give little warning, as the 200 m depth contour approaches within 2 miles of the cay). Thence:

SSW of Mid Cay, (3 cables NW) lying on a rocky ledge, thence:

3 SSW of a shoal area (3 miles SSW) with a least depth of 12·6 m over it.

4 From this position the track continues ESE for about 5½ miles to a position SSW of Anguillita Island (18°09′N 63°11′W), a small, rocky cay covered with brushwood and almost connected by coral heads to the SW extremity of Anguilla (2 cables NE). The cay is bold and steep–to on its SW side. Anguillita Light (metal framework tower, red lantern, 8m in height) is exhibited on the NW side of the cay.

Side channel

Dog Island Channel

5.34

1 **Description**. Dog Island Channel, between the E end of Dog Island (18°17′N 63°15′W) (5.37) and Prickly Pear Cays (2½ miles E) is wide and clear of dangers, with depths of 13 to 19 m in the fairway.

Recommended only when the sea is calm.

Directions

5.35

1 From the vicinity of 18°22′N 63°13′W the track leads S passing (with positions from the E end of Dog Island):

E of East Cay (1 cable N) a small, low, rocky islet covered with brushwood, lying on a rocky ledge that is steep–to on its N side, thence:

2 E of the E end of Dog Island (5.37) with a black perpendicular cliff on its NE side, thence:

W of Flirt Rocks (3 miles E) comprising two rocks lying on a reef N of Prickly Pear Cays. The W rock is 5 m high and steep–to, the E rock is only 1 m high and difficult to distinguish except in calm weather. Thence:

3 At least 5 cables W of Prickly Pear West (2½ miles WSW) (5.37). Within this distance the bottom becomes so irregular that in strong winds, especially when accompanied by rollers (1.6), seas frequently break. Thence:

E of shoal area (4 miles SW).

4 From this position the track continues S for about 3½ miles to a position W of Anguillita Island (8 miles SSE) (5.33).

(Directions continue for passage SW of Saint Martin at 5.61.

Directions for the W approach to Road Bay passing N of Dowling Shoal are given at 5.37.

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Road Bay and Crocus Bay—West approaches

Charts 583, 2079 plan of Crocus Bay and Road Bay, 2047

General information

5.36

1 **Routes.** Road Bay and Crocus Bay are approached from the W passing N of Dowling Shoal (18°13′N 63°07′W) (5.37), the recommended route.

Directions

5.37

1 **North of Dowling Shoal.** From the vicinity of 18°17′N 63°27′W, the line of bearing, 095°, of Flat Cap Point (18°14′N 63°04′W), which terminates in a small flat–topped rock, leads towards Crocus Bay, passing (with positions from Sandy Island (18°13′N 63°07′W)):

N of a shoal area (9 miles W), thence:

2 S of Dog Island (8½ miles WNW) a barren islet covered with brushwood and grass with a perpendicular cliff at its W end, the S extremity of which is a bluff, rocky point, thence:

S of Prickly Pear West (5 miles NW), a long, narrow cay, covered with brushwood, thence:

3 S of Prickly Pear East (1 cable E of Prickly Pear West) which is also covered with brushwood, thence:

S of North Wager (3½ miles NW), a small dark rock lying on the edge of the bank 7 cables SW of Seal Island (4 m high). A 10·4 m patch lies 1¼ miles SE of North Wager. Thence:

4 N of a wreck, with a depth of 6·8 m over it (1¼ miles WNW), thence:

S of detached shoals and coral heads (3 miles N) extending up to 6 cables S from Seal Island Reef, which extends unbroken for about 3½ miles E from Seal Island.

5 From this position the track continues E for about 5 cables in the white sector of Road Point Light (white concrete triangular structure, 5 m in height) to a position N of Dowling Shoal, extending 1½ miles SW from Sandy Island, an island 1 cable in length and 3 m high, which is surrounded by a drying reef. The island's tree cover was destroyed by a hurricane in 1995, but it is reported that trees have been replanted.

(Directions continue for Road Bay and Crocus Bay at 5.44)

Marine parks

5.38

1 The areas surrounding Dog Island, Sea Island Reef and Prickly Pear Cays, as well as Sandy Island, as shown on charts 2047 and 2079, have been designated Marine Parks. See 5.18 for anchoring and other regulations.

Anchorage

5.39

1 Good anchorage can be obtained in depths of 15 to 25 m, sand, anywhere between Prickly Pear Cays (5.37) and Crocus Bay (5.49), S of the latitude of North Wager (5.37). See 5.18 (Marine Parks—including anchorage restrictions).

Road Bay

Chart 2079 plan of Crocus Bay and Road Bay

General information

5.40

1 **Description.** Road Bay (18°12′N 63°06′W) lies S of a heavily wooded peninsula which terminates in Road Point (5.44). At the head of the bay there is a sandy beach, behind which lies Sandy Ground Village, a busy settlement of small hotels and restaurants fronting Road Salt Pond.

2 **Function.** Road Bay is the principal port of the island and port of entry. Several trading schooners will usually be found at anchor about 2 cables offshore.

Traffic. In 2004 87 vessels, with a total dwt of 143 659 tonnes, used the port.

3 **Port Authority** is known as the Anguilla Port Authority.

Limiting conditions

5.41

1 **Depths**. Apart from Road Ground (6 cables WSW of Road Point), depths of 5 m or more extend into the bay until Road Point bears 013°, whence depths shoal gradually towards the beach. The deepest water is in the S end of the bay.

2 **Mean tidal levels:**

MHHW 0·4 m.

MLLW 0·2 m.

The tide is usually diurnal.

3 **Local weather.** It is reported that Road Bay is well sheltered from the prevailing wind. It is only exposed to the W wind, which is said to be very uncommon in this area.

4 **Sea state.** Seal Island and its reef affords the harbour some protection from the N swell and rollers (1.222).

Arrival information

5.42

1 Pilots and tugs are not available.

Harbour

5.43

1 **Description.** Road Bay is an open anchorage with two jetties.

Hazard. Schooners at anchor do not generally exhibit lights at night. It has been reported that heavy floating but partly submerged objects, which are unmarked, have been encountered in the vicinity of these schooners.

Directions for entering harbour

(continued from 5.37 and 5.131)

5.44

1 From a position (18°14′N 63°06′W), with Flat Cap Point (5.37) bearing 095° and Road Point, a bluff salient point on which stands Road Point Light (5.37), bearing 165°, the recommended track leads S towards the anchorage, passing:

2 E of the reef and shoal water extending 4 cables NE from Sandy Island (5.37). A white sector, 116° to 218°, of Road Point Light, passes close NE of Sandy Island and the surrounding reef but over charted depths of less than 4 m, lying NE of Sandy Island. Thence:

3 W of Road Point.

5.45

1 **Useful marks:**

Church (18°12′N 63°05′W) with a white roof and a small, darker spire, situated in South Hill Village, on the hill at the S end of the bay.

Hotel (18°11′N 63°06′W), a white building with turreted edges to its roof.

Anchorages

5.46

1 The anchorages are subject to an unpleasant swell when the wind is NE.

2 Anchorage exists in the approach to Road Bay in a depth of 18 m, good holding in sand, about

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5 cables WNW of Road Point, as shown on the chart. The track for entering harbour (180°) (5.44), leads towards this position, anchoring when the church (5.45) bears 118° and Flat Cap Point (5.37) bears 047°.

HMS *Glasgow* (3150 tonnes) found good holding ground (1987) in position 296°, 3·15 cables from Road Point Light.

3 HMS *Campbeltown* found good holding ground (1996) 5 cables NNW of Road Point.

Smaller vessels can find good anchorage in Road Bay.

4 Anchorage is charted in the N part of the bay (1½ cables SSE of Road Point), but depths of less than 2 m extend 1½ cables from the coast.

Berths

5.47

1 Of the two jetties at the head of the bay the largest, which is the S (4 cables SSE of Road Point), built on reinforced concrete piles in 1987, projects 100 m from the shore with a berthing platform of 64 m at its head, providing three berths for vessels of up to 1800 tonnes, with a reported maximum draught of 4 m.

2 Ro–Ro vessels can be accommodated.

Port services

5.48

1 **Repairs** including a machine shop, available to smaller vessels. Local schooners are constructed at Road Bay.

Other facilities: hospital**.**

Crocus Bay

General information

5.49

1 **Description**. Crocus Bay (18°13′N 63°05′W) is entered between Flat Cap Point (5.37), to the N, and Road Point (2 miles SW) (5.44).

2 **Topography**. The shores of the bay are steep–to and heavily wooded; on the NE and S sides there are high cliffs which stand out clearly. At the head of the bay there is a sandy beach from which a broad road, clearly visible from the W, leads to the principal settlement (The Valley) (1.72).

3 **Depths.** There are isolated depths of about 9 m within 1 mile SW of Flat Cap Point, but apart from a 6·1 m coral patch (7 cables SW of Flat Cap Point) and a dangerous wreck (4½ cables NNE of Road Point), the bay is clear of dangers and depths of 5 m extend to within 1 cable of the shore.

Natural conditions

5.50

1 **Current.** A strong NE–going current is sometimes experienced in the bay.

Wind and sea. This bay is exposed to W winds and rollers (1.222). The former seldom occur and usually give sufficient warning for mariners to depart in time. The latter frequently set–in with violence and render the anchorage uncomfortable and landing difficult.

Principal mark

5.51

1 **Landmark:**

High tree (18°13′N 63°04′W) standing S of the road (5.49), enables Crocus Bay to be identified from seaward.

Directions for entering Crocus Bay

(continued from 5.37)

5.52

1 From the vicinity of 18°13′N 63°06′W the line of bearing, 090°, of the high tree (5.51) leads to a position close S of the charted anchorage and clear of dangers, passing (with positions from Flat Cap Point (5.37):

2 N of a dangerous wreck (1¾ miles SW), thence:

S of a shoal with a depth of 9·8 m over it (9 cables SW), thence:

S of a 9·1 m shoal (7 cables SW).

Marine parks

5.53

1 At the N end of Crocus Bay, between Flat Cap Point (5.37) and Pelican Point, (6 cables SSE).

See 5.18 for anchoring and other regulations.

Anchorages

5.54

1 Anchorage exists in a depth of 10 m, white sand, 7 cables SSW of Flat Cap Point (5.37) and clear of a buoy (special) at SW edge of the Marine Park at Little Bay, as shown on the chart.

SINT MAARTEN — SOUTH–WEST SIDE

General information

Charts 583, 130 (see 1.24)

Route

5.55

1 From a position W of Anguillita Island (18°09′N 63°11′W) (5.33) the route leads SE of for about 15 miles to a position SW of Pointe Blanche (18°00′N 63°03′W).

Note. A recommendation for deep draught vessels is given at 5.7.

Topography

5.56

1 General topography (5.21).

The S coast of Sint Maarten consists of bays with sandy beaches, separated by precipitous, wooded bluffs.

Depths

5.57

1 General remarks (5.12).

Natural conditions

5.58

1 **Flow.** General remarks (5.9).

The general direction of flow to the S of Sint Maarten is W or NW with moderate to high constancy; however, in March 1972, a SSE set of 3½ kn was observed in position 18°03′N 63°15′W, (about 5 miles W of Sint Maarten), probably in association with an eddy.

2 **Swell.** General remarks (1.222).

Local weather. General remarks (5.14).

Charts 2079 plans of Simson Baai and Groot Baai, 583

Principal marks

5.59

1 **Landmarks:**

Prominent mountains are described at 5.21.

A small radio tower, elevation 16 m, with an aero light (18°02′·5N 63°06′·7W) situated on top of the control tower in the airport, was reported to be prominent. A small, white radar dome, about 3 cables W of the control tower was also reported

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to be prominent and there are several radio masts in the vicinity.
Fuel tanks (18°01′·5N 63°04′·9W).
Dish aerial (18°01′·6N 63°02′·8W).

2 **Major light:**
Fort Amsterdam Light (wooden post 1 m in height) (18°01′N 63°04′W) attached to the wall of Fort Amsterdam (5.93).

Other navigational aids

5.60

1 See 5.10.

Directions

(continued from 5.35 and 5.142)

5.61

1 From a position W of Anguillita Island (18°09′N 63°11′W) (5.33) the track leads S passing (with positions from Witte Kaap (18°00′N 63°03′W)):

2 SW of a shallow bank (8 miles WNW) extending 6 cables W from Pointe du Canonnier (Pointe Basse Terre), a low sandy spit strewn with rocks and a number of low dunes, which is the W extremity of the island. By day, the edge of the spit is easily distinguished in clear weather but not if it is cloudy; it is reported to break in periods of ground swell (1.6), from November to April. At night the high land of the interior makes this point appear farther off than it really is. Thence:

3 SW of a bank with a least depth of 5 m (16 ft), extending 7 cables S from Pelikaan (Pelican) Point (3¾ miles WNW), the SE point of Simson Baai, which is low and sandy. Thence:
SW of Proselyte Rif (Rock) (1¼ miles SW) (5.94).

4 From this position the track continues SE for about 5 cables to a position SW of Witte Kaap (Pointe Blanche) which, when seen from seaward, has a prominent, steep, white bluff.

Clearing marks

5.62

1 To clear Pointe du Canonnier (Pointe Basse Terre), the line of bearing, 110° or less, of the peak of Île Fourchue (17°57′N 62°54′W) (5.107), open S of Witte Kaap (8 miles WNW) (5.61) passes SSW of the spit extending W from Pointe du Canonnier (Pointe Basse Terre).

(Directions continue for Groot Baai from S at 5.94, for passage SW of Saint Barthélémy at 5.107, and for route between Saba and Sint Eustatius at 5.199. Directions for Groot Baai from W are given at 5.94)

Western approach to Baie du Marigot

Charts 2047, 583

Directions

5.63

1 From the vicinity of 18°06′N 63°16′W the W approach to Baie du Marigot leads E, into Anguilla Channel (5.135) passing (with positions from Pointe Plum (18°04′N 63°09′W)):

2 S of Anguillita Island (5 miles NNW) (5.33), thence:
S of Blowing Rock (4¾ miles N) (5.141), thence:
N of a bank extending about 1 mile N from the coast between Pointe Plum, the NW extremity of Péninsule des Terres Basses, and Pointe du Bluff (Pointe Falaise) (2 miles E) (5.65).

(Directions continue for Baie du Marigot at 5.70. Directions for the E approach to Baie du Marigot are given at 5.141)

Approach from south of Sint Maarten

5.64

1 The recommended track around Pointe du Canonnier (Pointe Basse Terre) (18°04′N 63°09′W) (5.61) keeps well clear of the point, using the clearing marks at 5.62. This line should be maintained until the point bears 065°, when the track may be altered N.

Baie du Marigot

Charts 2079 plan of Baie du Marigot, 583

General information

5.65

1 **Position.** Baie du Marigot (18°04′N 63°06′W) is entered between Pointe du Bluff (Pointe Falaise), at the N end of a small peninsula dominated by bluffs to the W, and Pointe Arago 1¾ miles ENE.

2 **Function.** This bay provides the anchorage and ferry terminal for Marigot, the capital and port of entry for the French part of Saint Martin; and Port de Galisbay (5.73).

3 **Traffic.** In 2004, 11 vessels, with a total dwt of 9728 tonnes, used the port.

Limiting conditions

5.66

1 **Depth**. In the greater part of the bay the depths are generally less than those shown on the chart. The area to the W of Pointe du Bluff (5.65) is unsurveyed, as indicated on the chart.

2 **Swell.** The bay is open to the N and NW and is exposed to the ground swell (1.222) which enters from the N and breaks on the SW part of the beach, creating a heavy, dangerous surf.

Arrival information

5.67

1 **ETA** message is required.
Pilotage. The Harbour Master will act as pilot, if required.

Harbour

5.68

1 **Baie du Marigot** is an open roadstead divided into three bights, by headlands, as follows:
Baie de la Potence, to the NE.
Baie de Marigot, in the centre.
Baie Nettlé, to the SW.

Principal marks

5.69

1 Positions from Fort de Marigot (ruins) (18°04′N 63°05′W)):
Marigot Light–tower (white tower, 10 m in height) (1 cable W) which stands at an elevation of 20 m close to the root of the pier. This is a prominent mark for entering the bay by day but it has been reported that the light is difficult to distinguish against the lights of the town at night.

2 Ruins of Fort de Marigot, standing on a hill (62 m high) on the NW projection into the bay.
La Belle Créole tower (25 m in height) (1¾ miles W).
Le Morne Rond (8 cables SW) a prominent hillock, forming the SW projection into the bay.
Mont Diamant, 274 m high, (9 cables SSE) (5.21).

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Directions for entering harbour

(continued from 5.63 and 5.142)

5.70

1 From the vicinity of 18°06′N 63°07′W, the white sector (126° to 132°) of Marigot Light (5.69) leads into the bay, passing (with positions from Fort de Marigot (18°04′N 63°05′W)):

NE of Pointe de Bluff (1¾ miles WNW) (5.65). Thence:

SW of Banc de Médée (1 mile NNW), an isolated coral patch, marked by a buoy (W cardinal).

2 **Approach to Marigot Pier.** The recommended track is along the line of bearing, 143°, on Marigot Light (5.69). This track will avoid the foul ground, with irregular depths of less than 3 m, extending up to 5 cables offshore in Baie du Marigot.

3 **Approach to Galisbay Pier.** From about 1 mile WNW of the pier the white sector of Galisbay Pier Light (5.73) leads between 100° and 106° passing 2 cables S of Banc de Médée (5.70).

4 **At night**, direct approach can be made as follows:

From the N: after Marigot Light bears less than 155°.

From the W: after Marigot Light bears more than 120°.

Clearing marks

5.71

1 Banc de Médée:

To the NW: the alignment (230°) of the SE side of Pointe du Bluff (5.65) with the highest point of Mornes Rouges (1 mile SW) (5.21), passes 2 cables NW.

2 To the SW: the alignment (150°) of Fort de Marigot (5.69) with Mont Diamant (9 cables SE) (5.21) passes 1½ cables SW.

3 At night: Banc de Médée is in the green sector (132° to 185°) of Marigot Light.

Chart 2079 plan of Baie du Marigot

Anchorage

5.72

1 Baie de la Potence (5 cables N of Marigot Light) affords good shelter to coasters from all but W winds, which rarely blow with strength. This bay is clear of dangers in its N part, with depths of over 4 m from 1 to 1½ cables offshore. In the S part a shoal with a depth of 2·4 m over it lies 3 cables N of Marigot Light. A stranded wreck, height 13 m, lies 2¼ cables NNE of the light

2 There are a number of mooring buoys in the N part of the bay, as shown on the chart.

There are two mooring buoys 5 cables E and ENE of Pointe du Bluff (5.65).

Berths

5.73

1 A concrete pier, protected by a curved breakwater extending about 280 m W, and able to accommodate small vessels with a draught of 3·5 m on its NE side, projects 110 m NW from the central projection close W of Fort de Marigot. A small jetty lies ¾ cable S, and works are in progress (2002) in the area.

2 An offshore platform with two mooring dolphins lies 2 cables N of the pier.

In the N part of Baie de la Potence and 2 cables S of Pointe Arago (5.65) there is a pier at Port de Galisbay, which extends approximately 200 m WSW from the shore, and reportedly can accommodate vessels of 170 m in length in 5·5 m of water. The seaward end of the pier is marked by a sector light.

Port services

5.74

1 **Facilities:** hospital.

Supplies: fresh produce.

Cole Bay Tanker Terminal

Charts 2079 plan of Simson Baie, 583

General information

5.75

1 **Position**. Cole Bay Tanker Terminal is situated in Kool Baai (18°01′N 63°05′W), an exposed bay on the S coast of Sint Maarten, about 1½ miles W of Groot Baai. This bay can be identified by its conspicuous fuel tanks (5.59) and a power/desalination plant.

2 **Approach and entry** is from SW, in deep water clear of Proselyte Rif (17°59′N 63°04′W) (5.94). A current was reported in November 1989 to set strongly to the W, accompanied by a swell in E winds.

3 **Controlling depth** was reported (1989) to be 9·5 m in the W berth.

Port radio. See 5.87.

4 **Pilotage,** which is optional, is recommended for the first visit. Pilots are available from Groot Baai (5.89) for berthing vessels in daylight only.

See *Admiralty List of Radio Signals 6(5).*

5 **Berths.** The terminal consists of two mooring berths situated across the mouth of the bay, in an E/W direction, as follows:

W berth, of three mooring buoys, with a depth as given above, is connected to the shore by submerged pipelines.

E berth, of four mooring buoys, is situated closer inshore.

6 It is reported (1997) that good holding ground for anchoring exists from 5 cables to 1 mile S of the mooring buoys.

Anchorages on the south coast of Sint Maarten

Chart 2079 plan of Simson Baai, 583 (see 1.20)

Mahó Baai

5.76

1 **Restricted area.** Vessels are prohibited from entering or being at anchor in Mahó Baai (18°02′N 63°08′W) during the period of operation (0700 to 2100) of Luchthaven Prinses Juliana, an airport on the S side of Grand Étang de Simson baai.

Simson Baai

5.77

1 Simson Baai (18°02′N 63°06′W) is entered between Pelikaan Point (5.61), to the E, and a narrow peninsula (1 mile WNW). The shores are low and sandy.

2 **Directions.** The alignment (049°) of the boat channel in the NE corner of the bay, with a mast (red light) on a hill 5 cables inland, leads into Simson Baai, passing (with positions from Pelikaan Point (18°02′N 63°06′W)):

NW of Pelikaan Key (about 1 m high) (2 cables NW), thence:

NW of the dangerous wreck of a barge (2 cables N), which is unmarked and reported to be difficult to see.

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3 **Anchorage** exists in the bay, the best position being midway between the entrance points, in depths of about 8 m. This anchorage is reported to be exposed to the ground swell from the N (1.222).

Anchorage is prohibited close to the 049° alignment as shown on the chart.

GROOT BAAI

General information

Charts 2079 plan of Groot Baai, 583

Position

5.78

1 Groot Baai (18°01′N 63°03′W) is situated on the SE side of Sint Maarten. Philipsburg stands on a narrow bank of sand which separates the head of the bay from a salt pond, inland.

Function

5.79

1 Groot Baai forms the principal anchorage and harbour in Sint Maarten, serving Philipsburg, the capital and seat of government of the Dutch part of the island and of the islands of Sint Eustatius and Saba.

Approach and entry

5.80

1 Groot Baai is open to the S and is entered between Witte Kaap, the E entrance point, and a peninsula 1 mile WNW.

Traffic

5.81

In 2001, 4 vessels, with a total dwt of 19 025 tonnes, used the port. These figures do not include visiting cruise liners.

Port Authority

5.82

1 There is a Harbour Master at Philipsburg.

Limiting conditions

Controlling depth

5.83

1 The approach to the deepest berth has charted depths of over 10 m.

Deepest and longest berth

5.84

1 **A.C. Wathey Pier** (4 cables NNW of Witte Kaap) is the deepest and longest berth (see 5.99).

Maximum size of vessel handled

5.85

1 Vessels up to 150 m in length can be berthed.

Local weather

5.86

1 **Wind.** The bay is open S and is exposed to winds S of E.

Swell. A heavy ground swell from the N (1.222) is apt to make the bay uncomfortable as it sometimes sweeps all round the island and enters Groot Baai from the S.

Arrival information

Port radio

5.87

1 See *Admiralty List of Radio Signals Volume 6(5).*

Notice of ETA

5.88

1 Required 24 hours in advance.

Pilots and tugs

5.89

1 **Pilotage,** compulsory, is undertaken by the Harbour Master and is available day and night. See *Admiralty List of Radio Signals Volume 6(5).*

Pilot boards vessels 1½ miles W of Witte Kaap.

A tug is available.

Harbour

General layout

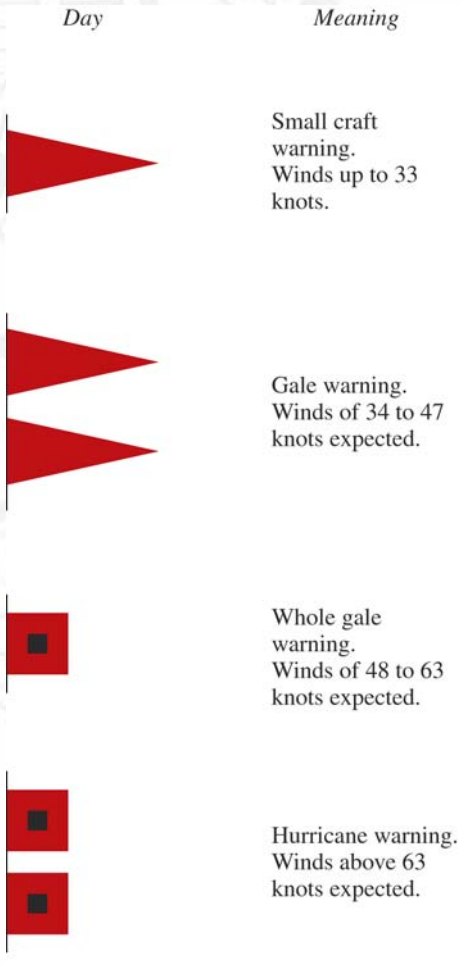
5.90

1 The E side of the bay is formed by a high peninsula which terminates in Witte Kaap (5.61). On the W side is a narrow, rocky peninsula (25 m in height), connected to the mainland by a low, narrow isthmus.

Storm warning signals

5.91

1 Visual storm warning signals are displayed by day only.



Netherland Antilles storm warning signals (5.91)

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Local wind
5.92

1 Prevailing winds blow from ENE and ESE.

Principal marks
5.93

1 **Landmarks** (with positions from Fort Amsterdam Light (18°01′N 63°04′W):
Ruins of Fort Amsterdam standing on the summit of the W entrance.
Hotel with green roof (8 cables NE).
Dish aerial (1 mile NE).
Tank (1 mile ESE).

2 **Major light:**
Fort Amsterdam Light (5.59)

Directions for entering harbour
(continued from 5.62 and 5.156)

Approaches to Groot Baai
5.94

1 **From south**. From the vicinity of 17°55′N 63°05′W the approach leads NE then NW passing, with positions from Witte Kaap (18°00′N 63°03′W):
SE of a bank with a least charted depth of 11·6 m (1·6 miles S).

2 From this position the track leads NW on the line of bearing, 325°, of Fort Amsterdam Light (5.59) (1 mile WNW) passing:

3 NE of Proselyte Rif (Man of War Reef) (1·2 miles SW), a coral reef on which the sea always breaks in a strong breeze. A shoal, with depths of less than 10 m, extends 2 cables ENE and ½ cable SW from the reef. Proselyte Rif is marked by a light–buoy (isolated danger) 2 cables WSW. A wreck, with 12·7 m over it, lies 2½ cables NNW of the reef Thence:
SW of Witte Kaap.

4 **From west.** From the vicinity of 18°00′N 63°10′W, the approach leads E passing, with positions from Witte Kaap:
S of Pointe du Canonnier (5.61) 7¼ miles WNW, thence:
S of a bank with a least depth of 5 m extending 7 cables S from Pelikaan Point (5.61) (3¼ miles WNW), thence:
N of a wreck (1¾ miles WSW) with 10·9 m of water over it, thence:

5 S of Fort Amsterdam (5.93) (1 mile WNW), and:
N of Proselyte Rif (1¼ miles SW) and the wreck with 12·7 m over it 2½ cables NNW.
(Directions for Groot Baai continue at 5.95)

Chart 2079 plan of Groot Baai

Entering Groot Baai
(continued from 5.94)
5.95

1 From a position N of Proselyte Rif, the track leading NNE into the bay towards Philipsburg Directional Light (5.96), is clear of danger, with depths of more than 10 m until between Witte Kaap and Fort Amsterdam, passing:

2 WNW of A.C. Wathey Pier (5.99) (4 cables NNW of Witte Kaap), and:
ESE of a light–buoy (special) (1½ cables SE of Fort Amsterdam Light), and:
Clear of mooring buoys (2¾ cables SE and 5½ cables ESE) of Fort Amsterdam Light (5.93).

3 It is recommended that vessels should not be taken into the bay beyond the bearing of 270° on the W entrance point.

Useful marks
5.96

1 Several tanks (3½ cables NNE of Witte Kaap).
Direction light (1¼ miles N of Witte Kaap) situated near the root of Captain Hodges Pier.

Anchorages
5.97

1 Good anchorage may be obtained, in a depth of about 11 m, midway between the entrance points of the bay, with Witte Kaap bearing about 110°.

2 When there is no swell (5.86) anchorage, in a depth of 8 m, may be obtained about 2 cables farther N, as shown on the chart.

Prohibited areas
5.98

1 Anchorage is prohibited in a restricted area in the vicinity of the white sector of the direction light (5.96) over a width of about ¾ cable, for a distance of 4 cables from the shore, as shown on the chart.

Alongside berths
5.99

1 **A.C. Wathey Pier** (5 cables NNW of Witte Kaap) extends 560 m SW and is the cruise ship terminal.
A quay E of A.C. Wathey Pier provides a container terminal and Ro–Ro facilities, with dredged depth of 10·2 m in the basin between pier and quay.

2 Another quay extends about 1200 m N from the root of A.C. Wathey Pier.
The remains of the previous A.C. Wathey Pier lie close N of Witte Kaap.

Port services
5.100

1 **Facilities:** hospital; Oily waste cannot be received.
Supplies: fresh water; provisions in limited quantities.

Small vessel anchorage
5.101

1 In the NE corner, as close to Bobby's Marina as draught allows, and clear of mooring buoys between Captain Hodges Pier and Bobby's Marina.

SAINT BARTHÉLÉMY — SOUTH–WEST SIDE

General information

Charts 583, 584

Route
5.102

1 From a position SW of Witte Kaap (Pointe Blanche) (18°00′N 63°03′W) the route leads SE for about 15 miles to a position SW of Roches Roubes (17°52′N 62°48′W).
A recommendation for deep draught vessels is given at 5.7.

Topography
5.103

1 General topography (5.24).
The SW coast is cliffy and steep–to; and the rocks which lie off it are easily distinguished.
The S coast is indented by several bays.

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Depths

5.104

1 General remarks (5.12) and Caution at 5.7.

Numerous shoals, with depths of 28 to 37 m over them, have been observed 13 miles SE of the island.

Natural conditions

5.105

1 **Flow.** General remarks (5.9).

Local weather. General remarks (5.14).

Navigational aids

5.106

1 For the availability and reliability see 5.10.

Directions

(continued from 5.62 and 5.156)

5.107

1 From a position SW of Witte Kaap (Pointe Blanche) (18°00′N 63°03′W) the track leads SE passing (with positions from Grande Point 17°53′N 62°50′W):

SW of Petites Groupers (8 miles WNW) (5.156), thence:

2 SW of Île Fourchue (6½ miles NW), the largest and highest of the islets NW of Saint Barthélémy, which is generally steep–to. This island is also known as Cinq Îles, as it has five pointed hills which, from a distance, appear as separate islets; the two W hills are about 104 m high, the others are lower. The area within 500 m of the island is a Nature Reserve, see 5.25. Thence:

3 SW of Roche le Bœuf (5 miles NW) a small, square, black rock (5 m high) which is steep–to, thence:

SW of Le Pain de Sucre (Chart 2079 plan Port de Gustavia) (2½ miles WNW) a precipitous, barren, rocky islet, not easily identified from a distance. It is steep–to except on its N side. Thence:

SW of Grande Point, the S extremity of Saint Barthélémy, at the SE end of a coast that is scarped and steep–to, thence:

4 SW of Îlet Coco (38 m high) (1½ miles E) a narrow, steep–to rock with a wooded summit; the islet is in 2 parts, joined by a rocky causeway. It is dangerous to pass between Îlet Coco and Saint Barthélémy owing to a shoal lying about 1 cable N of the islet.

5 From this position the track continues SE for about 2 miles to a position SW of Roches Roubes (6 m high) (2½ miles E) two small rocky heads lying close together; being steep–to, they are very dangerous at night. There is a channel, with deep water in it, between Roche Roubes and Les Fourmis (2 miles ENE) but the recommended track passes seaward of both of these dangers.

Clearing marks

5.108

1 The line of bearing, more than 296°, of Le Pain de Sucre open S of Grande Point passes S of Roches Roubes.

(Directions continue for passage between Sint Eustatius and Saint Christopher at 5.293, and for passage NE of Saint Christopher at 5.301)

Port de Gustavia

Chart 2079 plan of Port de Gustavia

General information

5.109

1 **Position.** Port de Gustavia (17°54′N 62°51′W) is situated on the SW side of Saint Barthélémy, between Les Gros Îlets and the coast.

Function. Port de Gustavia forms the principal anchorage and harbour in Saint Barthélémy, serving Gustavia, the capital and principal town which is built around the inner port. It is a first port of entry for Saint Barthélémy.

2 **Dredging** has improved the commercial use of the port.

Traffic. In 2001, 1 vessel, with a dwt of 19 025 tonnes, used the port. This does not include visiting cruise liners.

Port Authority. The Port Captain, Port de Gustavia, Barthélémy 97133, French West Indies.

St.Barthélémy – Gustavia viewed from WNW (5.109)

(Original dated 2004)

(Photograph – Susan Harland)

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Arrival information

5.110

1 **Notice for a berth** must be placed with the Port Captain at least 48 hours in advance of arrival.

Pilotage is compulsory and should be requested, 48 hours in advance, through the Port Captain. See *Admiralty List of Radio Signals 6(5).*

Entry to the port is authorised on request to the Port Captain.

Harbour

5.111

1 **Outer port.** The roadstead between Les Gros Îslets and the coast forms the outer port. Inshore of Les Gros Îslets there are general depths of 5·1 to 8·5 m with a 4·9 m patch close ESE of G5 buoy.

2 **Inner port**. The Carenage or inner harbour is a basin situated between the peninsula on which stands Fort Oscar (5.115) and the coast SE of Fort Gustave. Depths are very shallow at the head of the inner port.

5.112

1 **Principal marks:**

Le Pain de Sucre (17°53′·8N 62°52′·6W) (5.107) is a good mark for entering Port de Gustavia.

2 The wall enclosing Fort Gustave (17°54′N 62°51′W) can easily be identified and is a good landmark for entering the outer harbour in the morning, when the sun is low.

A white meteorological station at Fort Gustave is a good daymark.

Directions

5.113

1 **Entrance channels.** There are three entrance channels.

Chenal Ouest (5.114), passing N of Les Gros Îlets, is about 3½ cables wide, with depths of 7·3 to 12·8 m in the fairway.

Chenal Sud (5.115), passing S of Les Gros Îlets, is about 2 cables wide with depths of 9·1 to 14·6 m in the fairway.

2 The SE channel, (5.116) between Les Petits Saints and the coast, is narrow with a least depth of 5·5 m in the fairway.

A Nature Reserve (5.25) is located between Chenal Ouest and Chenal Sud as shown on the chart

5.114

1 **Chenal Ouest.** From the vicinity of 17°55′N 62°53′W, the line of bearing, 106°, in the white sector of Fort Gustave Light (white tower with red top, 10 m in height) leads towards the outer port, passing. (with positions from the light):

2 SSW of Île Petit Jean (42 m high) (2 m NW) the principal islet standing on a spit, comprised of islets and rocks, extending 5 cables W from the coast, thence:

3 NNE of Les Baleines du Pain du Sucre (1½ miles W), two rocks (3 m and 0·9 m high) near the NW extremity of a rocky ledge extending 1½ cables N from Le Pain de Sucre (5.107), thence:

4 NNE of a small, detached shoal. with a depth of 5·5 m over it (1¼ miles WSW), thence:

NNE of La Baleine des Gros Îslets (7 cables W), a small drying rock marked by a light–beacon (W cardinal), and:

SSW of G2 Light–buoy (port hand) 6 cables WNW, thence:

5 NNE of a reef, marked at its N edge by G1 Light–buoy (starboard hand), extending N of Les Gros Îslets; the reef is easily distinguished by the colour of the water. A dangerous wreck, position approximate, lies ½ cable E of G1 Light–buoy. Thence:

6 SSW of G4 Buoy (port hand) (4¼ cables NW), thence:

Between G3 Light–buoy (starboard hand) (3 cables W) and G6 Light–buoy (port hand) (2¾ cables NW), thence:

7 NNW of a light–buoy (isolated danger) (2½ cables WNW), marking the N side of a wreck with 5 m of water over it, thence:

N of G7 Light–buoy (starboard hand) (1½ cables W).

5.115

1 **Chenal Sud**. From the vicinity of 17°53′N 62°52′W, the line of bearing, 064°, in the red sector of Fort Gustave Light (5.114) leads towards the outer port, passing (with positions from the light):

SSE of Le Pain de Sucre (1½ miles W) (5.107), thence:

2 SSE of a small, detached shoal (1¼ miles WSW) (5.114), thence:

SSE of a reef extending ½ cable SE and SW from the S of Les Gros Îlets (5½ cables WSW); above–water rocks lie on the reef, and:

3 NNW of the N islet of Les Petits Saints (4½ cables SW) (5.116); a shallow bank extends 1¾ cables NE, thence:

SSE of a 4·9 m patch (2 cables WSW), marked on its NW edge by G5 buoy (starboard hand).

5.116

1 **South–east channel.** From the vicinity of 17°53′N 62°51′W the channel leads N towards the outer port, passing (with positions from the S of Les Petits Saints):

2 E of the S islet of Les Petits Saints, a low rocky islet, connected to the central islet by a rocky reef which dries in places. The N islet, 4 m high, lies about 1 cable NW of the others but there is no safe passage between them. Thence:

3 W of an isolated patch, with a depth of 5 m over it (1¼ cables ENE) lying close to the coast, thence:

E of an isolated patch, with a depth of 4·5 m over it (1¼ cables NNE), thence:

4 Between the bank with depths of 2·5 m extending 1¾ cables NE from the N of Les Saintes and the coast.

Clearing mark. At night, the red sector (340° to 095°) of Fort Gustave Light covers Les Gros Îlets, Les Petits Saints, Chenal Sud and the SE channel.

Fairway to inner port

5.117

1 From G7 light–buoy (starboard hand), 1½ cables W of Fort Gustave Light, the track leads SE, passing close NE of G9 Buoy (starboard hand).

Anchorages

5.118

1 **Anchorage** exists in a depth of 8 m, with Fort Gustave Light (5.114) bearing 119° and with the NW extremity of the N of Les Gros Îlets (5.114), bearing 209°.

Anchorage can be obtained in depth of 8 m with Fort Oscar (2½ cables SW of Fort Gustave) bearing 148° and Les Baleine des Pain de Sucre (5.114) bearing 253°.

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2 Vessels over 1600 grt carrying hydrocarbons or dangerous cargoes must anchor 7½ cables N of Le Pain de Sucre as shown on the chart.

5.119

1 Inner anchorages, with a least depth of 6·0 m, are available to the E of Les Gros Îlets (5.114) as shown on the chart. This anchorage is sheltered from the prevailing winds but is exposed to the SW and W, and is unsafe during the hurricane season. Approach to the anchorage is normally made through Chenal Ouest (5.114) or Chenal Sud (5.115).

5.120

1 **Prohibited anchorage** in the fairway to the inner port (5.117).

Alongside berths

5.121

1 **Outer port.** A privately owned jetty, 80 m in length, with a depth of 5 m alongside, projects N from the S shore of Anse du Public (1½ cables NW of Fort Gustave).

Inner port. On the NE side of the basin, the Main Dock, with a length of 80 m and a depth of about 5 m alongside, provides six berths and a Ro–Ro facility. The Fish Dock is at the SE end of the Main Dock.

2 On the SW side of the basin there is a privately owned quay and two small jetties.

Port services

5.122

1 **Facilities:**

Free port.
Hospital.

2 **Supplies:**

Fuel and fresh water can be obtained at the Main Dock.
Provisions are available.

ANGUILLA — NORTH–WEST SIDE

General information

Charts 2047, 583, 1025

Route

5.123

1 From a position NE of Scrub Island (18°17′N 62°57′W), the route NW of Anguilla leads W for about 26 miles to a position NNW of Dog Island (18°17′N 63°15′W) from whence it leads SSW for about 11 miles to a position SSW of Dog Island passing N and NW of the island and the small islands and reefs which lie within 9 miles N and NW.

Topography

5.124

1 General topography (5.17).

It is reported that approaching Anguilla from the E presents no problem as Saint Martin and Saint Barthélémy can be seen well before Anguilla.

Depths

5.125

1 General remarks (5.12).

The route leads across Anguilla Bank which extends 19 miles N from the island and 25 miles E. Within 9 miles N of Anguilla the depths are less than 40 m; thence to the edge of the bank depths are between 37 and 100 m; the least known depth on this part of the bank being a coral patch with 37 m over it (18°31′N 62°59′W).

Fishing

5.126

1 Lobster pots may be encountered, see 5.13.

Natural conditions

5.127

1 Flow (5.9). Swell (1.220) Local weather (5.14).

Navigational aids

5.128

1 For the availability and reliability of aids to navigation, see 5.10.

Directions

Charts 2047, 583

Graften's Point to Shawl Rock

5.129

1 From a position NE of Graften's Point the E extremity of Scrub Island (18°17′N 62°57′W), the route N of Anguilla leads W passing (with positions from Little Scrub Island (18°18′N 63°57′W)):

N of an isolated shoal patch, with a least depth of 27·5 m over it (8 miles E), thence:

2 N of Graften's Point (2 miles ESE) which is a low and narrow ridge of rocks, from 2·4 to 3·0 m high and steep–to, which extends about 2 cables ENE from Scrub Island. The sea usually breaks heavily over this reef; but, when approaching from E it is difficult to distinguish against the higher part of the island and soundings give no indication of its proximity; making this point dangerous. Thence:

3 N of the N extremity of Scrub Island (5 cables E) which is covered with brushwood and stunted trees and has, near the middle of its N side, a hillock of white rock which is very distinct when the sun is shining on it, thence:

N of Little Scrub Island, which is black, barren, precipitous and steep–to, thence:

4 N of Snake Point (1½ miles SW), situated near the NE end of Anguilla, which is steep–to with a rocky foreshore, thence:

N of a bank extending 2 cables N from Seven Stars Reef (3 miles SW), which is one of a series of reefs fronting the coast and extending up to 6 cables offshore, on which the sea breaks heavily, thence:

5 N of Shawl Rock, (4¼ miles WSW) on which the sea does not always break.

5.130

1 **Useful mark:**

Windward Point Light (framework structure, 10 m in height) (18°16′·5N 62°58′·0W).

(Directions continue for passage N of Seal Island Reef at 5.133. Directions for NE approach to Road Bay and Crocus Bay are given at 5.132)

Side channels

Chart 2047

Shawl Rock to Crocus Bay

5.131

1 **Description.** The N channel (18°15′N 63°05′W) towards Crocus Bay, passing between Seal Island Reef and Anguilla, is reported to be named Seal Island Channel. In 1984 rapid coral growth was reported in the channel and new coral heads were discovered within 2 cables of the S edge of Seal Island Reef. Extreme caution is required.

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2 **Local knowledge** is necessary.

5.132

1 From the vicinity of 18°17′N 63°02′W the recommended route leads SW, passing (with positions from Flat Cap Point (18°14′N 63°04′W) (5.37)):

NW of Shawl Rock (5.129) (3½ miles NE). thence:

2 SE of the E end of Seal Island Reef (2 miles NNW) (5.37), thence:

NW of Middle Bank, a narrow ledge with a least depth of 6·2 m (9 cables N) situated near the middle of the channel. The bottom on Middle Bank can be distinctly seen and the heavy seas, which usually prevail during the winter, frequently break on the bank. Thence:

3 SE of a 12·5 m patch (2 miles NW).

(Directions continue for Road Bay and Crocus Bay at 5.44)

Directions

(continued from 5.129)

Charts 2047, 583

Shawl Rock to Dog Island

5.133

1 From a position N of Shawl Rock (18°16′N 63°02′W) the track N of Seal Island Reef leads W passing, with positions from East Cay (18°17′N 63°14′W) (5.35):

2 N of Seal Island Reef (6 miles E), which is dangerous to approach, see 5.29, thence:

N of Seal Island (5.37) (5 miles E), thence:

N of Flirt Rocks (5.35) (3 miles E), thence:

N of East Cay. The 200 m depth contour lies 1 to 1½ miles from the islands and gives little warning of the approach.

NW of Mid Cay (5.33) (1¼ miles W).

3 From this position the track leads SSW passing:

WNW of West Cay (5.33) (2¼ miles WSW).

From this position the track continues SSW for about 8 miles to a position SSW of Dog Island (18°17′N 63°15′W).

(Directions for passage SW of Anguilla are given at 5.33, and for Dog Island Channel at 5.35)

Scrub Island

5.134

1 **Description.** Scrub Island Channel (18°16′N 62°58′W), between Anguilla and Scrub Island, is 3 cables wide with a least charted depth of 6·3 m in the fairway.

ANGUILLA CHANNEL

General information

Charts 2047, 583

Channel

5.135

1 **Description.** Anguilla Channel (18°09′N 63°05′W), passing between Anguilla and Saint Martin, is 3 miles wide with a least charted depth of 11·0 m in the fairway. This channel is free from charted dangers, with deep water close to shore on both sides; however, the charted depths are based on a lead–line survey of 1846–7 and shoal patches may exist within the channel; see 5.12.

Topography

5.136

1 **Anguilla.** General topography (5.17).

The SE coast of Anguilla, from Windward Point (18°16′N 62°58′W) to Shaddick Point (10 miles SW) is bordered by a steep–to coral reef which dries in many places and extends from 1 to 2 cables offshore.

2 **Saint Martin.** General topography (5.21).

The NW coast of the Saint Martin, from Eastern Point (18°07′N 63°01′W) to Pointe Arago (4 miles SW) is indented by several small bays but, with the exception of Baie de Grand–Case (5.147), they afford little shelter.

3 **Nature Reserves** are located around Rocher Crole (5.140), and from Pointe des Froussards (5.145) to Oyster Pond (18°03′N 63°01′W) including the waters around Île Tintamarre (5.141) as shown on the charts and given in 5.22.

Fishing

5.137

1 For remarks on lobster pots see 5.13.

Hazard

5.138

1 Incomplete surveys See 5.6.

Natural conditions

5.139

1 Flow (5.9). Swell (1.220). Local weather (5.14).

Principal marks

5.140

1 **Landmarks:**

Prominent mountains in Saint Martin are described at 5.21.

Rocher Crole (24 m high) (18°07′N 63°03′W) lying about 2 cables off the coast, is black and rocky, rising perpendicular on its N side to a rounded summit. It is the most conspicuous object on the NW side of Saint Martin.

Directions

(continued from 5.129)

5.141

1 From a position NE of Graften's Point the E extremity of Scrub Island (18°17′N 62°57′W) the track leads SW passing (with positions from Forest Point (18°12′N 63°02′W)):

Clear of an isolated shoal patch (13 miles ENE) (5.129) thence:

2 SE of Graften's Point (8½ miles NE) (5.129), thence:

SE of Scrub Island (7 miles NE) (5.129), thence:

SE then SSE of Savannah Rock (3¾ miles ENE), existence doubtful.

From this position the track leads WSW passing:

3 NNW of Île Tintamarre (5½ miles SSE) the N side of which is a steep cliff, wooded on the summit; the E end of this cliff is nearly vertical, rising to an elevation of about 34 m; the S and W sides are low and sandy, thence:

4 SSE of Forest Point, the E entrance point to a bay of the same name, and:

NNW of Basse Espagnole (Spaniard Rock) (4½ miles SSE) (5.144), thence:

NNW of Rocher Crole (5 miles SSW) (5.140), thence:

5 SSE of the reefs and rocks lying within 2 cables of Blowing Point (3½ miles WSW), thence:

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NNW of a rock with a depth of 1·2 m over it (5¾ miles SSW), lying 2 cables NNE of Pointe Molly Smith, thence:

NNW of Point Arago (7¼ miles SSW), the N entrance point of Baie du Marigot (5.65), thence:

6 SSE of Blowing Rock (8 miles WSW), lying about 8 cables SE of Anguilla. This rock, which is small and steep–to on its seaward side, is so–called from the sea occasionally forcing its way through an aperture in its surface, giving it the appearance of a whale blowing.

7 From this position the track continues WSW for about 2 miles to a position SSW of Anguillita Island (18°09′N 63°11′W). (5.27).

Useful mark:

5.142

1 Windward Point Light (18°16′·5N 62°58′·0W) (5.130).

(Directions continue for crossing Sombrero Passage in reverse at (5.27)
(Directions continue for passage SW of Sint Maarten at 5.61.
Directions for entry into Baie du Marigot are given at 5.70)

Channel between Saint Martin and Île Tintamarre

Route

5.143

1 There are depths of 18 to 21 m in the fairway of the channel between Île Tintamarre and the main island, but this channel should only be used in fine weather owing to the presence of Basse Espagnole in the N approach.

2 The channel lies within a Marine Nature Reserve, see 5.22

Directions

5.144

1 From the vicinity of 18°10′N 63°00′W the track leads S, passing (with positions from Eastern Point (18°07′N 63°01′W)):

2 Well clear of Basse Espagnole (Spaniard Rock) (1 mile ENE), the position of which is approximate, a small coral head nearly awash, on which the sea breaks only when there is a swell running and it may be difficult to distinguish in bad weather. A dangerous rock, the position of which is also approximate, lies 1½ cables SW of Basse Espagnole. Thence:

3 E of Eastern Point, which is bordered by a steep–to reef extending about 2 cables offshore, which is always visible, thence:

W of Île Tintamarre (2 miles E) (5.141), thence:

E of the reef, which breaks in heavy weather, extending 2 cables from Îlet Pinels; it is reported (2003) that the reef has extended, thence:

4 E of a bank with a least charted depth of 5·5 m, lying 6 cables E of Caye Verte (2 miles SSE), a small island 9 m high with reefs extending 2 cables E.

Clearing marks

5.145

1 Clearing marks for Basse Espagnole are as follows, (with positions from Basse Espagnole):

To NNW. The line of bearing 250°, of Rocher Crole (3 miles WSW) (5.140), well open N of Pointes de Froussards (2 miles WSW), passes about 4 cables NNW of Basse Espagnole.

2 To SE. The alignment (210°) of the E extremity of Îlet Pinels (1½ miles SSW) with Fortheuvel (7 miles SSW) (5.21), passes more than 2 cables SE of Bass Espagnole.

Anchorages off the north coast of Saint Martin

Île Tintamarre

5.146

1 **Temporary anchorage** is available in depths of 15 to 16 m, about 5 cables W of Île Tintamarre (18°07′N 62°59′W).

2 This anchorage is in a Marine Nature Reserve, see 5.22

Baie de Grand–Case

5.147

1 **Description.** Baie de Grand–Case (18°07′N 63°04′W) extends 1¼ miles SW from Rocher Crole (5.140). The bay is clear of dangers except for a rock, with a depth of 1·2 m over it (5.141), lying 2 cables NNE of Pointe Molly Smith. Local knowledge is required.

2 **Anchorage** is available for coasters, in depths of 6 to 7 m on a sandy bottom, E of the rock (above).

Supplies: provisions.

Harbours and anchorages off the south–east coast of Anguilla

Chart 2047

Corito Bay

5.148

1 An oil terminal has been established in Corito Bay (18°11′N 63°03′W).

Four oil tanks have been established on the shore and a submarine pipeline extends 244 m SSE from the shore. The seaward end of the pipeline is marked by a floating pontoon (black), and three mooring buoys (red) are situated 122 m further S.

Blowing Point Harbour

5.149

1 **Description.** Blowing Point Harbour (18°10′N 63°06′W) is the terminal for the ferry service maintained with Baie du Marigot (5.65).

The entrance channel is reported to lie between a coral spit, extending ½ cable seaward from Sandy Point, and isolated reefs and rocks awash extending SW from Blowing Point.

2 **Leading marks.** The alignment (about 358°) of two beacons (white diamond topmarks), situated close NE of Sandy Point, is reported to lead between Sandy Point and the reefs to the NE.

3 **Anchorage** is available anywhere in the middle of the harbour in depths of about 3 m.

Rendezvous Bay

5.150

1 **Description.** Rendezvous Bay (18°10′N 63°07′W) affords good shelter for coasters. It is reported that the favoured anchorage is in the NE corner of the bay, on a sandy bottom. This area is a Marine Park; see 5.18 for anchoring and other regulations.

2 **Local knowledge** is required.

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Anguilla – Corito Bay viewed from SW (5.148)
(Original dated 2004)

(Photograph – Susan Harland)

SAINT BARTHÉLÉMY CHANNEL

General information

Charts 583, 1025

Route

5.151

1 **Description.** Saint Barthélémy Channel (18°N 63°W), passing between Sint Maarten and Saint Barthélémy, is 4½ miles wide between the offlying dangers on either side.

2 **Depths.** Many of the depths are based on lead–line surveys of 1810 to 1874. General information on depths is given at 5.12.

Many of the dangers in the channel are steep–to so that sounding gives no indication of their proximity.

3 **Incomplete surveys** See 5.6.

4 **Recommended route** E of Saint Martin lies E of a line joining the E extremity of Île Tintamarre (18°07′N 62°59′W) (5.141) to Molly Beday (Mollibeday) (6¼ miles SSW) (5.156).

Topography

5.152

1 **Sint Maarten.** General topography (5.21).

The E coast is foul, dangerous and frequently battered by a heavy swells.

The area from Pointe des Froussards (5.145) to Oyster Pond (18°03′N 63°01′W) including the waters around Île Tintamarre (5.141) has been designated a Marine Nature Reserve, as shown on the charts; see also 5.22.

2 **Saint Barthélélmy.** General topography (5.24).

Natural Conditions

5.153

1 Flow (5.9). Swell (1.220). Local weather (5.14).

Principal marks

5.154

1 **Landmarks.** Prominent mountains in Sint Maarten are described at 5.21.

Navigational aids

5.155

1 For the availability and reliability of aids to navigation, see 5.10.

Directions

(continued from 5.129)

5.156

1 From a position NE of Graften's Point the E extremity of Scrub Island (18°17′N 62°57′W) the track leads SSW passing (with positions from from the SW extremity of Île Tintamarre (18°07′N 62°59′W)):

Clear of an isolated coral patch (14 miles NE), with a least depth of 27·5 m over it thence:

2 ESE of Île Tintamarre (5.141), the E end of which is prominent from the E, whilst the S side is low and sandy, thence:

3 ESE of Molly Beday (Mollibeday) (5½ miles S), a rocky islet, 30 m in height, with steep, wooded sides. The SE side is foul and, about 2 cables ESE, lie dangerous rocks on which the sea always breaks. Thence:

4 ESE of a shoal patch, with a depth of 9·6 m over it (6 miles S); situated 5 cables E of Poulets (Hen and Chickens), a small group of steep–to rocks, the SW of which is reportedly 6 m high, and the other is 1·2 m high with an outlying islet 2·5 m high lying 1 cable ENE, thence:

5 WNW of Rocher Table (Table Rock) (7 m high) (9 miles SSE), which is steep–to on all sides, nearly barren and, from N or S, resembles a shoe with the heel turned W. This rock is the NW of the dangers off Saint Barthélémy. Thence:

6 ESE of a shoal with a depth of 13·2 m over it (7½ miles S), lying 2½ miles ESE of Witte Kaap (Pointe Blanche) (5.61), thence:

WNW of Grande Groupers (10 miles SSE), the NE and largest of Groupers, which is nearly barren and conical with its steep sides rising to a rounded summit 42 m in height.

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7 WNW of Petites Groupers (3 cables SW of Grande Groupers) a group of bare, black, steep–to rocks, the highest 14 m high.

8 From this position the track leads SSE passing with positions from Grande Groupers (17°57′N 62°57′W):

WSW of Roches le Boeuf (3½ miles ESE) (5.107), thence:

WSW of Ile Petit Jean (4½ miles ESE) (5.114), thence:

WSW of Le Pain de Sucre (5 miles SE) (,5.107), thence:

WSW of Grande Pointe (7½ miles SE) (5.107).

9 From this position the track continues SSE for about 5 miles to a position SW of Roche Roubes (17°52′N 62°48′W).

(Directions continue for passage SW of Saint Barthélémy at 5.107, and for the route between Saba and Sint Eustatius at 5.199. Directions for Groot Baai from SE are given at 5.94)

Side channels

West of Molly Beday

5.157

1 **Description.** A channel (18°01′N 0°01′W), about 6 cables wide and clear of dangers, passes between Molly Beday (5.156) and Cow and Calf (6 cables W), two small rocks, almost awash, on which the sea breaks heavily, which lie about 4 cables NE of Pelican, a rocky, sparsely wooded, islet.

This channel should only be used in case of emergency.

South of Molly Beday

5.158

1 **Description.** A channel (18°01′N 63°01′W), about 8 cables wide with a least depth of 9·6 m in it, passes between Molly Beday (5.156) and Poulets (8 cables SSW) (5.156).

This channel should only be used in case of emergency.

South–east of Rocher Table

5.159

1 **Description.** A channel (17°58′N 62°56′W) passes between Rocher Table (5.156) and Île Fourchue (1¼ miles SE).

South–west of Rocher Table

5.160

1 **Description.** The channel (17°58′N 62°56′W) passing between Rocher Table (5.156) and Grande Groupers (1½ miles SW) (5.156) is clear of dangers and may be safely navigated by day.

Through Groupers

5.161

1 **Description.** A channel (17°57′N 62°57′W) passing between the islets and rocks extending 1 cable SW from Grande Groupers (5.156) and Petites Groupers (2 cables SW) (5.156) is narrow (1½ cables) with considerable depths in it.

Anchorages

Charts 2047, 583

Baie Orientale

5.162

1 **Description.** Baie Orientale (Orient Bay) (18°06′N 63°01′W), lying on the NE side of Saint Martin, affords anchorage for small local craft W of Caye Verte (5.144), as shown on the chart, but it is exposed to the prevailing wind.

2 **Access** is difficult, owing to the coral reefs which extend about 3 cables SE from Îlet Pinels (5.144) (off the N entrance point of the bay); and 3 cables N from a small islet (1 m high) (2 cables N of the S entrance point). Local knowledge is required.

This anchorage lies within the Marine Nature Reserve, see 5.22

SAINT BARTHÉLÉMY — EAST SIDE

General information

Chart 583

Route

5.163

1 From a position NE of Graften's Point the E extremity of Scrub Island (18°17′N 62°57′W) the route leads SSE for about 28 miles to a position E of Pointe à Toiny (17°54′N 62°48′W from whence it leads S for about 18 miles to a position N of Dieppe Bay Town (17°25′N 62°49′W) lying on the N extremity of Saint Christopher.

Topography

5.164

1 General topography (5.24).

The N and E coasts of the island are, in parts, bordered by a narrow coastal reef which is always visible. Off this reef lie a number of islets and dangers, making the N coast particularly dangerous at night, see caution at 5.26.

2 The NE coast is irregular and dangerous with small indentations which enclose reefs.

Depths

5.165

1 General remarks (5.12).

Natural conditions

5.166

1 Flow (5.9). Swell (1.220). Local weather (5.14).

Navigational aids

5.167

1 For the availability and reliability of aids to navigation, see 5.10.

Directions

(continued from 5.129)

5.168

1 From a position NE of Graften's Point the E extremity of Scrub Island (18°17′N 62°57′W) the track leads SSE passing (with positions from Ile Toc Vers (17°56′N 62°49′W)):

ENE of an isolated coral patch (20 miles N), with a least depth of 27·5 m over it), thence:

2 Over an extensive bank with depths between 26 and 57 m, thence:

ENE of Île Boulanger (3 miles WNW), a small, black, precipitous rocky island (36 m high) situated 1½ cables E of Île Pelé a pillar rock which resembles a vessel under sail These two islands are steep–to, and cannot be mistaken for each other. Thence:

3 ENE of Îlot Toc Vers a pointed islet, the N extremity of which consists of a vertical cliff about 37 m high; close to it stands a high pillar rock which is distinctive from E or W; thence:

ENE of the reef extending NE from Les Grenadins (1¾ miles SE) a small island (1 m high). The sea breaks on the reef. Thence:

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4 ENE of La Tortue (2 miles SSE) a flat, rocky islet connected to the NW extremity of Saint Barthélémy by a reef that is above water in places, and:
ENE of Pointe à Toiny (3¼ miles SSE) at the SE extremity of a dangerous stretch of coast, parts of which are comprised of a number of small bays the shores of which are bordered by reefs, thence:
ENE of Roche Roubes (4½ miles SSE) (5.107).

5 From this position the track leads S for about 16½ miles to a position N of Dieppe Bay Town (17°25′N 62°49′W) lying on the N extremity of Saint Christopher.

(Directions continue for route between Saint Eustatius and Saint Christopher at 5.293, and for passage NE of Saint Christopher at 5.301)

Side channels

East of Roche le Bœuf
5.169

1 **Description.** The channel (17°55′N 62°53′W) between Roche le Boeuf (5.107) and Pointe à Colombier (1¼ miles E) has a clear passage, 7 cables wide, passing W of a 7·3 m patch (5 cables W of Pointe à Colombier) and the rocks extending 3 cables W from Île Petit Jean (1¼ miles ESE) (5.114).

South of Île Chevreau
5.170

1 **Description.** The channel (17°55′N 62°51′W) between Île Chevreau, covered with grass and bushes, and the N coast of Saint Barthélémy, between Pointe à Colombier and Pointe Etages (1¼ miles ESE) is about 4½ cables wide, with depths of 12 to 14 m, and reportedly 9 m 2 cables SW of Île Chevreau, in the fairway and clear of dangers. However, this passage should only be attempted in case of absolute necessity, as there is usually a heavy sea running in it.

North–east of Île Chevreau
5.171

1 **Description.** The channel (17°56′N 62°50′W) between Île Chevreau (5.170) and Île Frégate (56 m high), covered with grass and bushes, is not recommended for use.

Anchorages

Anse du Colombier
5.172

1 **Description.** Anse du Colombier (17°55′N 62°52′W) affords good, temporary shelter for coasters, in normal weather. The holding ground of mixed sand and grass is reported to be poor and the bay is subject to a ground swell (1.222).

A shallow patch (5.169) lies in the approach.

It is reported that the bay may be recognised by a large house standing above the beach, in the bay.

2 This anchorage is in a Marine Nature Reserve, see 5.25

Baie de Saint Jean
5.173

1 **Description.** Baie de Saint Jean (17°54′N 62°50′W), entered between two headlands, 7 cables apart, affords anchorage to smaller vessels. The bay is reported to be exposed to the ground swell (1.222).

2 **Anchorage.** Ferries anchor in the E of the bay near to the village of Lorient, which is distinguished by a bell tower and white cross. A zone in which navigation and anchorage are restricted, in order to provide an extension of the airfield runway, is marked by spherical buoys. Vessels are not permitted to anchor in the bay less than 300 m from the beach.

NORTH–WEST GROUP OF LEEWARD ISLANDS—SABA TO MONTSERRAT

GENERAL INFORMATION

Charts 583, 1025, 2600

Area covered
5.174

1 This section describes the NW end of the Leeward Islands, in the vicinity of 17°20′N 62°50′W. The area extends SE from the Sombrero Passage (2.14) and encompasses the following islands:

2 Saba (17°38′N 63°14′W), (5.179).
Sint Eustatius (17°30′N 63°00′W), (5.182).
Saint Christopher (17°20′N 62°45′W), (5.184).
Nevis (17°10′N 62°35′W), (5.186).
Montserrat (16°45′N 62°12′W), (5.188).

Topography
5.175

1 The islands and islets included in this section lie in an almost straight line NW/SE. They are essentially mountain peaks with their peaks in the clouds and no real harbours around the shores.

Depths
5.176

1 General remarks (5.6).

Sint Eustatius, Saint Christopher and Nevis lie on a bank separated from the adjacent islands by channels with depths of more than 400 m. Together they lie on a plateau which is washed by deep ocean on all sides.

Local weather
5.177

1 None of the islands in this section is large enough to block the prevailing wind. The weather is generally sunny all year round but the rainy season brings showers and squalls, rather than the all–day torrents that deluge the high islands to the S.

Current
5.178

1 The range of the tide is not more than 0·3 m throughout the area covered by this section. The resultant flow of water is therefore greatly influenced by the currents. The tidal stream arrows on the charts therefore indicate combined flow.

Principal islands

Saba

Charts 487, 583

General information
5.179

1 **Position.** Saba (17°38′N 63°14′W) is the W of the N group of the Nederlandse Antillen (1.150). It is situated

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150 miles E of Puerto Rico, 23 miles SW of Sint Maarten, and 14 miles ENE of Sint Eustatius.

5.180

1 **Function.** Saba is a small, picturesque island which is developing as a tourist resort. The climate is healthy and dry with an average temperature of 21°C. The wettest months are November and December. The population is supported by fishing and agriculture.

2 The Bottom, situated in the SW part of the island, at an elevation of 292 m, is the principal village and capital.

Communications are regular by sea with Curaçao and by air, from a small airstrip in the NE extremity of the island, with Sint Maarten.

Topography

5.181

1 The island, which has an area of 5 square miles, is the top of an extinct volcano, rising from an isolated bank which is steep–to on all sides. The surface is a mass of rugged mountains, rising to the prominent Mount Scenery (870 m high) (5.195) near its centre, which is usually enveloped in cloud. Deep precipitous ravines separate the mountains, the slopes of which are covered with vegetation, in places, producing lush green hills.

Sint Eustatius

Chart 487

General information

5.182

1 **Position.** Sint Eustatius (17°30′N 63°00′W) is the S of the N group of the Nederlandse Antillen (1.150). It is situated 30 miles S of Sint Maarten and 7 miles NW of Saint Christopher.

2 **Function.** Sint Eustatius is a small, underdeveloped island which has developed support facilities for the oil industry operating on the Saba Bank (5.192). The climate is healthy and not unduly wet, with most rain falling from August to November. The population depend mainly on raising cattle and agriculture as a means of livelihood, with some cultivation of agave and cotton.

3 Communications are regular by air with Sint Maarten and by sea with the neighbouring islands and Curaçao.

Topography

5.183

4 The island, which has an area of about 12 square miles, is elongated NW/SE and shaped like a saddle. The NW part is occupied by Kleine Bergen, a group of hills without any conspicuous peaks, the highest of which is Boven (17°31′N 63°00′W). The SE part is dominated by The Quill, an extinct volcano with a very conspicuous

Saba (5.181)

(Original dated 2004)

(Photograph – Susan Harland)

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Statia – St. Eustatius Oranjestad viewed from anchorage area B (5.183)

(Original dated 2004)

(Photograph – Susan Harland)

silhouette. Both Kleine Bergen and The Quill slope gradually to the plain in the middle of the island, which is low (30 m) and fairly flat.

5 There are no rivers on the island and the coasts, which are fairly steep–to (5.175), comprise cliffs except on either side of the central plain.

The island is devoid of trees except for those on the slopes of The Quill**.**

Saint Christopher

Charts 487, 489

General information

5.184

1 **Position.** Saint Christopher (17°20′N 62°45′W) lies about 7 miles SE of Sint Eustatius, 1½ miles NW of Nevis and 45 miles WNW of Antigua.

2 **Function.** Saint Christopher, more usually known as St Kitts, is a well developed island whose economy is dominated by agriculture. The principal and traditional crop is sugar but sea island cotton is being developed for export. Inshore–fishing continues as a traditional occupation for home use whilst tourism and light industry are being developed. Although hot the climate is a remarkably healthy one with extremes tempered by the ocean winds. The island is also noted historically for its lack of mosquitoes.

3 Saint Christopher possesses no deep water harbours and only indifferent roadsteads which are unsafe during the hurricane season. The population is centred largely around Basseterre (5.231), the capital and main port.

Topography

5.185

1 The island, which has an area of about 65 square miles, is elongated NW/SE. The centre of the NW portion of the island is occupied by a lofty, rugged ridge which culminates in Mount Liamuiga, a prominent peak usually enveloped in clouds. The higher slopes of the mountains are covered with grass while their summits are crowned with trees. At the base of Mount Liamuiga, on almost every side are extensive cultivated table lands.

2 The SE end of the island is much lower and is nearly separated from the main part, being connected by a low, narrow neck of sand about 4 miles from its SE end. There are some prominent hills on the SE end (5.261). When seen from a short distance Saint Christopher appears as two islands. When seen from a greater distance E or W the irregular hills of the SE part appear as several detached islets.

Nevis

Chart 489

General information

5.186

1 **Position.** Nevis (17°10′N 62°35′W) is separated from the S tip of Saint Christopher by a strait 1½ miles wide.

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2 **Function.** Nevis is a well populated island whose economy centres on peasant farmers cultivating food crops and sea island cotton. A few large plantations are used to produce coconuts and cattle but considerable areas are under scrub. Lobster fishing is popular and the island is developing a few small industries and expanding facilities for tourists to take advantage of the sulphur springs and magnificent beaches along the N and W coasts.

3 Nevis enjoys a climate similar to that of Saint Christopher (5.184). The population is mainly centred around Charlestown (5.266) and on the SE coast of the island.

Topography

5.187

1 The island, which has an area of 36 square miles, is conical in shape and volcanic in formation. Nevis Peak (17°09′N 62°35′W) is the highest point, in the centre of the island; but, owing to cloud, it is seldom visible from seaward. There are several other elevations on the island, which are almost always clear of cloud and are good marks, (5.261).

2 With the exceptions of Windy Hill (3½ miles NNW of Nevis Peak) (5.310) and the base of Saddle Hill (2 miles S of Nevis Peak) (5.261) the coasts are low the land rising gradually to the interior. Some of the plains and slopes are cultivated.

3 The coast is generally fringed with a coral reef, except for the N part of the W coast.

Montserrat

Chart 254

General information

5.188

1 **Position.** Montserrat (16°45′N 62°12′W) lies 25 miles SE of Nevis and 20 miles SW of Antigua.

2 **Function.** Agriculture and tourism make the major contribution to the economy of this small island, which abounds in lime orchards and has many old cotton plantations which are being revived for the production of sea island cotton. Tourism is on the increase, with the development of domestic facilities. The climate is tropical and healthy, with sunshine throughout the year and low humidity. The months with most rain are September to November and the dry season is from March to June.

3 Lack of a secure harbour or safe anchorages has kept the island from commercial importance. The population (1.146) is distributed throughout the island.

Topography

5.189

1 The island, which has an area of 39 square miles, is about 9 miles long and 5 miles wide (see view on page 231). Of volcanic origin, it has a rugged and uneven appearance from seaward; its lofty peaks, which are wooded to their summits with numerous streams and waterfalls, are sometimes enveloped in the clouds. Chances Peak (16°42′N 62°11′W) near the S end of Soufrière Hills (an active volcano (2000)) is the highest point of the island.

2 The coasts are bold, steep–to and in the N part generally free from dangers. In the S part of the island there are continuing pyroclastic flows from the Soufrière Hills volcano, see 5.279.

ROUTE BETWEEN SABA AND SINT EUSTATIUS

General information

Charts 583, 130, 2600 (see 1.24)

Route

5.190

1 From a position SW of Witte Kaap (Pointe Blanche) (18°00′N 63°03′W) the track leads S for about 30 miles to a position W of Back–off Baai (17°28′N 62°57′W) the S extremity of Sint Eustatius.

A recommendation for deep draught vessels is given at 5.7.

Topography

5.191

1 General topography for Saba (5.181) and for Sint Eustatius (5.183).

Depths

5.192

1 General remarks (5.176).

Saba Bank and several shoal patches in its vicinity lie from 3 to 36 miles SW of Saba. This bank consists of white coral sand with depths generally less than 36 m (20 fm) over it. Isolated coral patches, with depths between 14·6 and 18·3 m (48 and 60 ft) (as shown on the chart) have been reported.

2 The E and SE sides of the bank are fringed with a ridge of living coral, sand and rock, nearly 30 miles in length, with depths of 11·0 to 18·3 m (36 to 60 ft) over it. Shoaler depths have been reported (1957) on this ridge.

3 The existence of a detached shoal with a depth of 4 m (12 ft) (17°35′N 63°35′W) (reported 1980) was considered doubtful in 1986.

The sea bed can be clearly seen over the bank in depths of less than 20 m (11 fm) including the coral ridge mentioned above.

4 **Caution.** Less water than charted was reported in 1957 in position 17°29′N 63°18′W.

Hazards

5.193

1 It is reported that oil rigs working on Saba Bank are very well lit but they use large, off–lying buoys which are not lit.

Fish pots may be encountered up to 3 miles off the W side of Sint Eustatius.

Natural conditions

5.194

1 General remarks on flow (5.178).

Saba Bank. Over the bank the flow is reported to be negligible and very little current was observed during a survey in the winter months.

2 **Saba.** A weak S stream is sometimes experienced along the W coast of Saba.

Sint Eustatius. It is reported that a flow has been observed off the W side of the island with a rate of up to 2½ kn, N–going, and up to 1¼ kn, S–going. This flow was not linked to HW/LW but was strongest at Spring Tides.

3 **Swell**. General remarks (1.220).

Local weather. General remarks (5.177).

Charts 487, 583, 130, 1025

Principal marks

5.195

1 **Landmark on Saba**:

Mount Scenery (17°38′N 63°14′W) is reported to be visible from a distance of 30 miles, in clear

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weather. A radio mast (69 m in height) stands at an elevation of 940 m on Mount Scenery. It is marked by red obstruction lights.

5.196

1 **Landmarks on Sint Eustatius**:

The Quill (17°28′N 62°58′W) (5.183).

Statia Terminal Jetty (17°30′N 63°00′W) (5.210).

White flagstaff in Fort Oranje (near Oranjestad Light, (5.197)) which fronts the village.

5.197

1 **Major lights**:

Saint Johns Light (17°37′N 63°15′W) on the S side of Saba.

Oranjestad Light (with an elevation of 40 m) (17°29′N 62°59′W) on the SW side of Sint Eustatius.

Aids to navigation

5.198

1 For the availability and reliability of aids to navigation, see 5.10.

Directions

(continued from 5.62 and 5.156)

5.199

1 From a position SW of Witte Kaap (Pointe Blanche) (18°00′N 63°03′W) the track leads S passing (with positions from Vlakke Hoek (17°39′N 63°13′W)):

E of Vlakke Hoek, the NE extremity of Saba Island (5.181), thence:

W of Jenkins Bay (15 miles SE), on the NW extremity of Sint Eustatius (5.183).

2 From this position the track continues S for about 4 miles to a position in mid–channel between Sint Eustatius and Saba Bank (17°30′N 63°15′W) (5.192).

5.200

1 From a position W of Sint Eustatius the track leads SE, passing:

SW of Statia Terminal Jetty (17°30′N 63°00′W) (5.205); a light (dolphin, elevation about 9 m) stands on the head of the jetty.

2 From this position the track continues SE for about 5 miles to a position SW of Back–off Baai (17°28′N 62°57′W).

Directions continue for passage SW of Saint Christopher at 5.227.

Directions for the route between Sint Eustatius and Saint Christopher are given at 5.293)

Harbour and anchorages around Saba

Chart 487 plan of Saba

General information

5.201

1 **Description.** The coast of Saba contains virtually no bays or bights and the sides of the mountains fall so steeply into the sea that there is nothing that can be called a beach. However, there is one small harbour and three temporary anchorages.

2 **Depths** of less than 30 m, including isolated patches, occur within 1 mile of the coast

Prohibited anchorage. An area, shown on the chart, within which anchoring is prohibited, extends about 2 cables offshore around the SW coast of the island.

3 **Mooring buoys** (spherical, white with a blue band), associated with the marine park, are positioned around Saba (see 1.53). Those more than 300 m offshore are charted, as follows:

Three buoys 17°38′N 63°16′W

One buoy 17°39′N 63°16′W

One buoy 17°39′N 63°15′W

4 See also note on plan on chart 487.

Chart 487 plan of Fort Baai

Fort Baai

5.202

1 **General information.** Fort Baai (17°37′N 63°15′W) on the SW side of Saba, contains a small harbour (4 cables E of Tentpunt, the SW extremity of the island) which provides good shelter from the prevailing NE wind and E swell. Within the harbour depths shoal steadily from 6·8 m abreast the head of the breakwater, to 2 m, about 15 m from shore.

A mooring buoy is located 3 cables SE of the harbour.

2 **Coast radio station** is operated from Saba. See *Admiralty List of Radio Signals Volume 6(5).*

Pilots are available, if requested in advance during working hours.

Visual storm warning signals are displayed by day only. see 5.91.

3 **Directions.** Navigation in the approach to the island is clear of dangers; and there is only one obstruction (2 cables SW of Tentpunt) in the approach to Fort Baai.

Useful marks:

Radio mast (5 cables NE of Tentpunt) marked by red obstruction lights.

Saint Johns Light (8 cables E of Tentpunt).

4 **Anchorage.** Good, temporary anchorage is available in Fort Baai, about 1 cable W of the head of the breakwater, in a depth of about 15 m. The holding is good but the anchorage is exposed to E winds.

5 **Berths.** A breakwater extends 100 m W from the shore; on its N side is a quay with depths of 5·8 m alongside its outer end, shoaling to about 2 m at its root. This quay is known as Captain Leo Chance Pier.

6 Another quay extends 35 m NNE from the root of the breakwater, fronting the E shore of the harbour. It provides 21 m of berthing space with depths of 3·5 to 1·8 m alongside.

7 **Facilities.** Fort Baai is a port of entry.

Chart 487 plan of Saba

Ladder Baai

5.203

1 **Anchorage.** Ladder Baai (17°38′N 63°15′W) affords good temporary anchorage, when the weather is favourable, in depths of 17 to 22 m, with the stone steps at Ladder Landing bearing 152° about 2¼ cables. This anchorage is generally considered the most suitable for a prolonged stay.

2 **Directions.** The approach to Ladder Baai is clear, except for a 23 m pinnacle (1 mile W of the anchorage) marked by three buoys.

3 **Landing.** A heavy surf usually breaks all along the coast and renders landing extremely difficult and often dangerous. Ladder Landing is situated about 7 cables N of Tentpunt (5.202) at the foot of a pathway up the rugged precipice which rises almost perpendicular from the sea.

A flight of 530 steps leads up to The Bottom (5.180).

Well's Baai

5.204

1 **Anchorage.** Well's Baai (17°38′N 63°15′W) affords anchorage, in depths of 22 to 27 m, sand, about 2 cables

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Saba – Ladder Bay (5.203)

(Original dated 2004)

(Photograph – Susan Harland)

offshore, just before Pilot Rots (below) comes in line with the W peak of Sint Maarten (5.21) bearing 020°, distant 26 miles.

2 **Caution.** The bank in Well's Baai is very steep and use of a kedge anchor is recommended to prevent swinging inshore to the eddying gusts from the mountain.

3 **Directions.** Approach to the anchorage is clear from the W. To the N of Well's Baai, foul ground extends 2½ cables SE from Diamantrots (Diamond Rock) (17°39′N 63°15′W), which is prominent, to Pilot Rots (1·8 m high) situated close off Torrens Punt (the NW extremity of the island).

4 **Landing.** In a moderate wind, landing may be affected about 3½ cables S of Torrens Punt.

Statia – St. Eustatius – Tumbledown Dick Baai from W (5.205)

(Original dated 2004)

(Photograph – Susan Harland)

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Statia – View from anchorage area B towards Tumbledown Dick Baai (5.205)

(Original dated 2004)

(Photograph – Susan Harland)

Statia Oil Terminal

Chart 487

General information

5.205

1 **Statia Oil Terminal** (17°30′N 63°00′W) is an oil trans–shipment terminal and a bunkering port. situated on the W side of Sint Eustatius, in Tumbledown Dick Baai.

Traffic. In 2001, 192 vessels, with a total dwt of 39 423 769 tonnes, used the port.

2 **Port Authority** is the Marine Operations Manager, Staterm Building, PO Box 170, Oranjestad, Sint Eustatius, Nederlandse Antillen.

Tide. It has been reported that the normal tidal range at the terminal does not exceed 0·75 m.

3 **Weather limitations.** The terminal stands in a hurricane zone. Vessels will not be berthed within 72 hours of a hurricane approach. Maximum wind speed for berthing at the SPM, at the jetty or at floating hose stations is 25 kn.

Arrival information

5.206

1 **Notice of ETA** is required 7 days and 72, 48 and 24 hours in advance.

Pilotage is compulsory for all berths, and available for the anchorages. Pilots, who are available day and night (daytime only for the floating hose stations), board vessels 2 miles to seaward of the jetty. For details see *Admiralty List of Radio Signals Volume 6(5).*

2 **Tugs** are available.

Restricted area bounded by latitudes 17°30′N and 17°31′W, and longitudes 63°00′W and 63°02′W in which vessel movements are not permitted without a pilot.

5.207

1 **Quarantine.** Mariners must report on any communicable disease which may have occurred on board, prior to arrival. Pratique will normally be granted when the Pilot boards.

Directions

5.208

1 There are no known dangers in the approach to the oil terminal and the chart is a sufficient guide.

For details of the flow off the terminal see 5.194.

Anchorages

5.209

1 Anchorage is available, with good holding, for bunkering vessels with a maximum draught of 15 m, in an area from 4 cables to 1¼ miles SSE of the head of Statia Terminal Jetty. There are three designated anchorages, which are allocated by the terminal as follows, (positioned from the head of the jetty):

A: 4 cables S.
B: 8 cables SSE.
C: 1¼ miles SSE.

Berths

5.210

1 Statia Terminal Jetty extends 5 cables WSW from the shore and provides two berths, consisting of breasting dolphins either side of a loading platform, near the outer end of the pier. Of these, the largest is No 1 berth, on the S side, with a length of 350 m and a depth of 27 m at the seaward end, shoaling uniformly to 19 m at the inshore end. This berth can accommodate vessels up to 175 000 dwt, with a draught of 18·3 m.

2 A barge loading berth and a disused tug berth are located inshore of the platform on the S side of the pier.

This jetty is lit along its length at night.

A CALM buoy (lighted) is moored 1½ miles NNW of Statia Oil Terminal with a submerged pipeline extending SW the shore at the N end of Tumbledown Dick Baai; the SBM can handle vessels to a maximum for 415 m LOA, draught 28·7 m and 520 000 dwt

3 Between the SBM and Statia Terminal Jetty there are two floating hose stations with mooring buoys providing three berths for bunkering vessels to 40 000 dwt; a submerged pipeline extends WSW to the shore. See also 1.44.

Repairs

5.211

1 There are very limited repair services on the island.

Other facilities

5.212

1 Hospital at Oranjestad (5.219) or Saint Christopher or Sint Maarten.

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Oily waste can be accepted by the terminal, in limited quantities, provided it does not contain harmful chemicals.

Supplies
5.213

1 **Fuel.** All grades of fuel are available by barge at the jetty or anchorage.

Fresh water (for boilers only) and provisions are available.

Oranje Baai

General information
5.214

1 **Description.** Oranje Baai is a small open roadstead (17°29′N 62°59′W) which affords shelter from the prevailing winds. The village of Oranjestad, which is the capital of the island and seat of the Administrator, is built on the top of the cliff overlooking the roadstead.

2 **Port Authority** is the Harbour Master, C/O Post Office, Fort Oranje, Sint Eustatius, Nederlandse Antillen.

Visual storm warning signals are displayed by day only; see diagram 5.91.

Directions
5.215

1 The approach is free from dangers and the chart is a sufficient guide.

Useful marks:

Oranjestad Light (5.197).
Fort Royal, 6½ cables NW of light.
Flagstaff (5.196).
The Quill (5.183)

2 The village may also be identified by the ruins of several large warehouses along the beach, the lower parts of which are under water.

A stranded wreck exists on the shore in the N part of the bay.

Anchorage
5.216

1 There are a few rocky spots but, generally speaking, the bottom is sandy and the holding ground good. It is reported that an uncomfortable swell often runs in the bay.

2 The best anchorage is about 4 cables offshore, in a depth of about 18 m, sand, and clear of the charted wrecks.

Berths
5.217

1 City Pier stands at the S end of Oranje Baai. Constructed in 1993 it consists of a 60 m berth, with the Ro–Ro facility, protected by an outer L–shaped breakwater with a light at the head. Maximum draught at the berth is reported to be 4 m.

A small mole is situated ¾ cable NNW of the root of the jetty.

Landing
5.218

1 The only safe landing is on the beach, under the village, but even in this position the surf is so heavy that a boat must be veered–in from an anchor, using a long scope of cable.

Facilities
5.219

1 Deratting and Deratting Exemption Certificates can be issued. Hospital in the village.

Supplies
5.220

Fuel (5.213). Fresh provisions obtainable in small quantities Fresh water is not available.

SAINT CHRISTOPHER — SOUTH–WEST SIDE

General information

Charts 487, 489, 583, 584

Route
5.221

1 From a position SW of Back–off Baai (17°28′N 62°57′W) the route leads SE for about 21 miles to a position SW of Monkey Shoals (17°11′N 62°41′W).

A recommendation for deep draught vessels is given at 5.7.

Topography
5.222

1 General topography (5.185).

Depths
5.223

1 General remarks (5.176).

For the accuracy and adequacy of charted depths refer to charts.

Natural conditions
5.224

1 Flow (5.178). Swell (1.220). Local weather (5.177).

Principal marks
5.225

1 **Landmarks** (with positions from Mount Liamuiga (17°22′N 62°48′W)):

Mount Liamuiga (5.185).
Two chimneys (3¼ miles W).
Church spire (2¾ miles WSW).
Chimney (2½ miles WSW).

2 Brimstone Hill (2¼ miles SW) easily identified by the fortifications, which, with an elevation of 229 m, crown its summit.

Monkey Hill (5 miles SE), situated at the SE end of the ridge, is prominent, with a wooded summit.

3 Three hills at the SE end of Saint Christopher, (5.261).

For landmarks at Basseterre see 5.246.

Aids to navigation
5.226

1 For the availability and reliability of aids to navigation, see 5.10.

Directions
(continued from 5.200 and 5.294)

5.227

1 From a position SW of Back–off Baai (17°28′N 62°57′W) the track leads SE passing (with positions from Mount Liamuiga (5.185) (17°22′N 62°48′W)):

2 SW of Belle Tete (3½ miles W) the W extremity of the island, thence:

SW of Bloody Point (4 miles S), thence:

SW of dangers and shallow banks (6¾ miles SE) (5.247), 1½ miles S of Basseterre.

3 From this position the track continues SE for about 5 miles to a position SW of Monkey Shoals (13 miles SE) (5.263).

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Useful mark
5.228

1 Radio mast (with an elevation of 579 m) standing on Ottley's Level (17°19′N 62°46′W).

(Directions continue for Basseterre at 5.247, and for passage SW of Nevis at 5.263)

Anchorages

Pump Bay
5.229

1 **Description.** Pump Bay (17°22′N 62°52′W) provides anchorage off Sandy Point Town, which may be identified by a church with a red–topped yellow tower, at its SE end.

Local weather. Sudden squalls of wind and rain are a frequent occurrence at the anchorage.

2 **Directions.** The approach can best be seen from the chart, noting that the coastal bank is steep–to and depths shoal rapidly from 20 to 5 m.

Anchorage. The best anchorage is in a depth of 9 to 11 m, sand, as shown on the chart. Good anchoring marks are:

A short pier, described under berth, below.

Church spire near the S end of the town (5.225).

3 **Berth.** A short pier extends from the coast at the N end of the town. It is reported to be no longer in use as the port is closed. A light stands on the pier.

Old Road Bay
5.230

1 Old Road Bay (17°19′N 62°48′W) affords temporary anchorage in a depth of 16 m or 18 m, stony ground, about 3 cables offshore, a short distance SE of the town.

BASSETERRE

General information

Charts 487, Plan of Basseterre Bay, 489

Position
5.231

1 Basseterre (17°18′N 62°43′W) is situated on the SW side of Saint Christopher, around the shores of a sandy bay.

Function
5.232

2 Basseterre is the capital of Saint Christopher, with an estimated population of 12 605 in 1994. It serves as the principal port for the island and as a distribution centre for merchandise to neighbouring islands. It is a first port of entry. Saint Kitts Deep Water Port stands within Basseterre Bay and is described with this port complex.

3 Basseterre Bay forms the main anchorage of the island.

Approach and entry
5.233

1 Basseterre Bay is open to the S and is approached over a coastal bank which extends 2 miles offshore.

Traffic
5.234

1 In 2004, 520 vessels, with a total dwt of 1 979 948 tonnes used the port.

Port Authority
5.235

1 St. Christopher Air and Sea Ports Authority, PO Box 963, Basseterre, St. Kitts. The General Manager administers Saint Kitts Deep Water Port at Basseterre.

Limiting conditions

Deepest and longest berth
5.236

1 **Deepest berths**, Port Zante Cruise Terminal. and the main berth at Saint Kitts Deep Water Port (5.252).

Longest berths Port Zante Cruise Terminal and the Ro–Ro Terminal at Saint Kitts Deep Water Port.

Density of water
5.237

1 1·025 g/cm^3.

Maximum size of vessel handled
5.238

1 A vessel length of 183 m can be accommodated at the main berth in Saint Kitts Deep Water Port. In 1993 it was reported that the depth alongside was 7·3 m (see 5.252).

Port Zante Cruise Terminal is designed for vessels of 74 000 grt and 274 m LOA.

Local weather
5.239

1 The prevailing wind blows strongly across the low land to the SE of the town. It creates an off–shore wind at the berths in Saint Kitts Deep Water Port, making it advisable to berth early in the morning, before the wind lifts.

Sea state
5.240

1 A shallow coastal bank, bordering the beach, raises a heavy surf, especially when rollers prevail (1.222), making landing difficult at times.

Arrival information

Port radio
5.241

1 There is a port radio station at Basseterre, see *Admiralty List of Radio Signals Volume 6(5).*

Long range contact is through Barbados Radio, see *Admiralty List of Radio Signals Volume 1(2).*

Notice of ETA
5.242

1 Pilotage request is required 24 hours in advance.

Pilots and tugs
5.243

1 **Pilotage** is not compulsory but a fee is charged whether a Pilot is used or not. Pilots board 9 cables SSW of Saint Kitts Deep Water Port (5.252).

2 **Tugs** are not available but a launch can be used to assist with berthing.

Quarantine
5.244

1 The Harbour Master boards on arrival and inspects health clearance from the last port of call.

Harbour

General layout
5.245

1 Basseterre is a small, natural harbour open to the S. Saint Kitts Deep Water Port (5.252) projects SW from the E entrance point of the bay. Port Zante Cruise Terminal stands near the centre of the N side of the bay. Two piers stand on the E side.

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Approaching Basseterre – west (5.231.1)

Port Zante Cruise Terminal

Approaching Basseterre (5.231.2)

Airport

Airport

Approaching Basseterre (5.231.3)

St Kitts Deep Water Port

Approaching Basseterre (5.231.4)

(Original dated 1998)

(Photographs – Crown Copyright)

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Sugar Warehouse from SW (5.247)

(Original dated 1998)

(Photograph – Crown Copyright)

Principal marks

5.246

1 **Landmarks** (with positions from the sugar warehouse (17°17′·5N 62°42′·5W)):

Sugar warehouse.

White chimney of a sugar factory (with an elevation of 86 m) (1 mile NNW).

White obelisk of the War Memorial (1½ miles W).

Directions for entering harbour

(continued from 5.228)

5.247

1 From a position on the coastal route (17°12′N 62°45′W), the approach to Basseterre leads NNE passing (with positions from the sugar warehouse (17°17′·5N 62°42′·5W)) (see views 5.247.1 to 4 on page 237):

WNW of Monkey Shoals (6 miles S) (5.263), thence:

WNW of Horse Shoe Point (5¼ miles SSE), the SE extremity of St. Kitts.

Clear of shoal patches, with charted depths of 12·5 m (2 miles S).

2 From this position the track continues NNE for about 6 cables to the pilot boarding position (1¼ miles SSW) from whence the approach track continues N into the bay passing:

WNW of a 9·4 m patch (1 mile SSE), thence:

WNW of a dangerous wreck (1 mile SE), position approximate.

ESE of a dangerous wreck (1½ miles WSW), the charted position of which is approximate, and:

3 **Clearing bearing.** The line of bearing 019° of the white chimney (17°18′·3N 62°43′·0W) (5.246) clears all the charted dangers in the approaches.

Useful marks

5.248

1 The following features can be identified (with positions from the sugar warehouse (5.246):

Spire of cemetery chapel (1½ miles WNW).

Television mast (20 m in height) (1½ miles WNW) which is marked by red obstruction lights.

2 Saint George's Anglican Church tower (36 m in height) (1 mile WNW), which is brown.

Port Zante Terminal Building (8½ cables W) which has white walls, blue roof and central dome.

3 Twin spires of the Roman Catholic Church (29 m in height) (8 cables WNW) made of grey stone.

A group of silver grey tanks (5 cables WNW) situated near the coast.

4 A silo (3 cables WNW) which is marked by red obstruction lights.

A group of silver grey tanks (1 cable SW) situated near the pier at the sugar factory.

5.249

1 **Lights:**

Saint Thomas Fort Light (mast, 5 m in height) (1½ miles W).

Fort Smith Light (concrete block, 6 m in height) (1½ cables S).

Market Building Light (light green building, cream roof, light 8 m high) (1·1 miles W)

Anchorages, moorings and berths

Chart 487 plan of Basseterre Bay

Anchorages

5.250

1 Anchorages are as shown on the chart (with positions from the sugar warehouse (5.246)):

6¼ cables SW in a depth of about 14 m, fine sand and shells;

8¾ cables WSW in a depth of 14 to 16 m, sand).

2 Owing to the proximity of the Cruise Terminal, it may be prudent for vessels to anchor further offshore.

Moorings

5.251

1 **Shell** tanker berth consisting of three mooring buoys connected to shore by three underwater pipelines is situated about 5 cables W of the sugar warehouse. A depth of 6·5 m at the berth was reported in 1989.

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St Kitts Deep Water Port from WNW (5.252)

(Original dated 2002)

(Photograph – Gareth Kirk, mv Logos II)

2 **Texaco** tanker berth, consisting of two mooring buoys, is situated 4 cables E of the Shell tanker berth, and is marked by a lighted dolphin. The depth at the berth was 6·0 m in 1999.

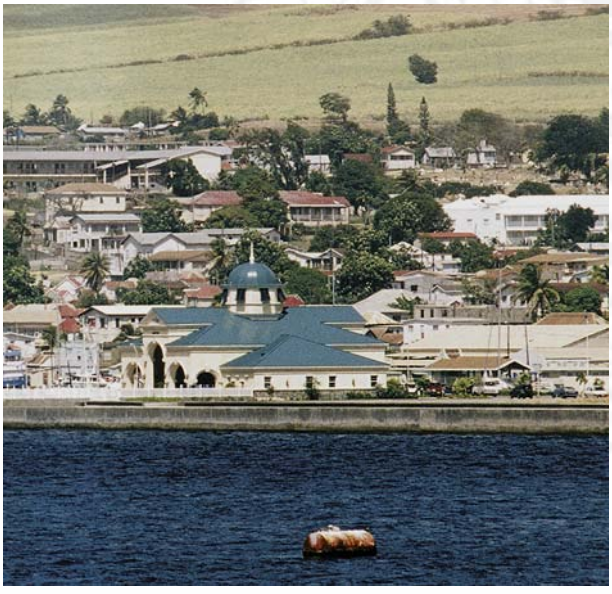
Alongside berths

5.252

1 Positions of berths are given from the sugar warehouse (17°17′·5N 62°42′·5W) (5.246).

Saint Kitts Deep Water Port, (3 cables S) comprising:

The main berth (at the SW end) with a length of 122 m and a depth of 7·3 m alongside. A mooring dolphin and a mooring buoy off the S end of the berth extend the berth to accommodate larger vessels; for maximum size see 5.238.



Port Zante Cruise Terminal Building from SE (5.252)

(Original dated 1998)

(Photograph – Crown Copyright)

2 Ro–Ro Terminal (NE of the main berth) 120 m in length with a depth of 5·5 m alongside, designed to take Ro–Ro ships, containers and flat top barges. With the aid of berthing dolphins, it is possible to accommodate vessels up to 213 m in length.

3 Ferry Terminal (1 mile W), and about ½ cable W of Port Zante Cruise Terminal, extending about 45 m from the shore and a reported depth alongside of 2·1 m.

There are two piers 2 and 3 cables N of the main pier, the N being the sugar loading quay.

4 **Port Zante Cruise Terminal** (8 cables W). A new jetty, 12 m wide extending 336 m 284 m S from the terminal, with three mooring dolphins extending a further 176 m S. The S beacon is marked by a light.

Dolphins from the previous jetty (destroyed by a hurricane in 1999) lie about 1 and 1¼ cables E and W of the jetty as shown on the chart.

5 It is reported (2002) that vessels up to 313 m LOA and draught 8.53 m can be accepted, but further information should be obtained from the Port Authorities.

Port services

Repairs

5.253

1 The sugar factory has a well equipped shop for machine welding and maintenance. They will assist with engine repairs.

Other facilities

5.254

1 Hospital, Oily waste disposal facilities do not exist. Deratting exemption certificates can be issued.

Supplies

5.255

1 **Fuel:** Basseterre is a bunkering port. Diesel fuel (Cetane 45) can be supplied by road tanker; the pumping rate is 15 tonnes per hour.

Fresh water is available at the jetties and piers, supplied at a rate of 20 tonnes per hour per connection.

Provisions. Fresh provisions and supplies are available in limited quantities. Frozen produce is reported to be plentiful.

Communications

5.256

1 **International airport** 2 km from the port.

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NEVIS — SOUTH–WEST SIDE

General information

Charts 489, 585, 1025

Route

5.257

1 From a position SW of Monkey Shoals (17°10′N 62°41′W) (5.263) the route leads SE for about 27 miles to a position SW of Havers Shoal (16°49′N 62°26′W).

A recommendation for deep draught vessels is given at 5.7.

Topography

5.258

1 General topography for Saint Christopher (5.185).

General topography for Nevis (5.187).

Depths

5.259

1 General remarks on depths (5.176).

For the accuracy and adequacy of charted depths around Saint Christopher and Nevis, see warning on Chart 489.

2 From the S side of Nevis the coastal bank extends about 10½ miles SSE, with general depths from 16 to 37 m. There is a coral ledge at the S end with a depth of 14 m near its extremity (16°57′·5N 62°30′·3W).

Natural conditions

5.260

1 Flow at 5.178.

Swell at 1.220.

Local weather at 5.177.

Principal marks

5.261

1 **Landmarks on Saint Christopher** consist of three prominent hills, well defined as follows:

Nags Head (17°13′N 62°39′W) rising out of Horse Shoe Point.

2 Sugar Loaf (1½ miles NE of Nags Head) situated about half way between Nags Head and Saint Anthony Peaks.

Saint Anthony Peaks (2¼ miles NE of Nags Head) which are two massive hills, the SE of which is the higher.

3 **Landmarks on Nevis** (with positions from Nevis Peak (17°09′N 62°35′W)):

Round Hill (3 miles NNW) (5.299).

Nevis Peak (5.187).

4 Saddle Hill (2 miles S) is prominent from all directions. It may be readily identified from its shape, except from ESE and WNW, whence the 2 hummocks are in line.

Aids to navigation

5.262

1 For the availability and reliability of aids to navigation see 5.10.

Directions

(continued from 5.228)

5.263

1 From a position SW of Monkey Shoals (17°10′N 62°41′W) the track leads SE passing (with positions from Fort Charles (17°08′N 62°38′W)):

2 SW of Monkey Shoals (4 miles NW), consisting of two small banks of coral and sand. The SW shoal is steep–to on its SW side as shown on the chart. The discoloured water over them may be distinguished from some distance off, from a high position. A dangerous wreck, lies in mid–channel between Monkey Shoals and Horse Shoe Point, (5 miles NNW), thence:

3 SW of the 20 m depth contour along the S end of the W coast of Nevis, to avoid the fringing reef, thence:

SW of a coral ledge (extending about 6 miles SE from position 17°00′N 62°34′W) which is from 1 to 2 miles wide, with depths of 14 to 18·3 m over it.

4 From this position the track continues SE for about 11 miles to a position SW of Havers Shoal (16°49′N 62°25′W) lying about 4 miles SW of the bank extending 4 miles S from Redonda (16°56′N 62°21′W) (5.317).

Clearing marks

5.264

1 The line of bearing, more than 324°, of Sint Eustatius (17°30′N 63°00′W) (5.183) open SW of Brimstone Hill (17°21′N 62°50′W) (5.225) passes SW of Monkey Shoals and the 20 m depth contour W and S of Nevis.

The alignment (028°) of the SE extremity of Horse Shoe Point (5.261) with the NW of Saint Anthony Peaks (5.261) leads close SE of Monkey Shoals.

Useful marks

5.265

1 Charlestown Pier Light (post with an elevation of 5 m) (17°08′N 62°38′W).

Fort Charles Radio Station Light (17°08′N 62°38′W) was reported in 1990 to be visible at 20 miles.

2 Dogwood Point Light (17°06′N 62°36′W).

For landmarks at Basseterre see 5.246.

(Directions continue for passage SW of Montserrat at 5.280. Directions for The Narrows are given at 5.309)

Charlestown

Chart 489

General information

5.266

1 **Position and function.** Charlestown (17°08′N 62°38′W), situated on the W coast of Nevis, is the capital and first port of entry for the island. In 1994 the estimated population was about 1400.

Traffic. In 2004, 88 vessels, with a total dwt of 202 649 tonnes, used the port.

2 **Port Authority.** As for Saint Christopher (5.235).

Pilots are not available, nor are they required.

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Visual storm warning signals are displayed at the Belfry (1½ cables NNE of the root of the pier).

Day	*Night*	*Meaning*
		Winds of 28 to 33 knots expected.
		Winds of 34 to 63 knots expected.
	Red flares. (Very pistol)	Winds above 63 knots expected.

Nevis storm warning signals (5.266)

Directions for entering harbour

5.267

1 From the vicinity of 17°05′N 62°39′W, the line of bearing, more than 348°, of Sir Timothy's Hill (17°17′N 62°41′W), well open W of Green Point (3 miles SSE), leads clear of the coastal bank to the S of Charlestown.

2 From the vicinity of 17°07′N 62°39′W, the line of bearing, more than 019°, of Booby Islet (17°14′N 62°37′W) (5.302), open NW of Lowland Point (3½ miles SSW) leads in a least depth of 9·1 m to the anchorage, passing close to the edge of the coastal bank.

3 It is recommended that deep draught vessels should be kept well clear of the coastal bank. At night it is advisable to keep outside the 20 m depth contour.

Useful marks

5.268

1 Radio mast, red and white bands, standing near the root of the pier.

Two oil tanks, situated close S of the root of the pier.

Anchorages

5.269

1 **Good anchorage** is available, sheltered from the prevailing winds, in depths of 9 to 11 m, coral and sand, in the open roadstead, about 5 cables W of Charlestown Pier, as shown on the chart. HMS *Exeter* (3150 tonnes) anchored in this position in 1982.

HMS *Fox* (950 tonnes) anchored in a depth of 8 m with Charlestown Pier bearing 115°, 3 cables, in 1985.

2 In 1992 two mooring buoys, approximately 90 m apart, were reported to lie just over 1 cable offshore from a petroleum tank farm, 8 cables SSE from Fort Charles Radio Station Light (5.265).

Alongside berth

5.270

1 **Charlestown Pier**, with depths alongside of 3·4 to 4·5 m, projects 118 m from the coast, abreast the town. A sketch survey in 1985 showed a depth of 4 m across the end of the pier and alongside the outer 70 m, on the N side.

Landing steps exist on the N side of the outer end of the pier.

2 **Long Point Harbour.** A new harbour has been constructed at Long Point, approximately 1¾ miles SSE of Charlestown Pier, consisting of an L–shaped pier as shown in the view. The pier is marked by a light. It is reported that the longest berth is 139 m in length. There is a Ro–Ro berth.

Port services

5.271

1 **Facilities:** hospital, Deratting Exemption Certificates can be issued

Supplies: provisions plentiful.

Rescue

5.272

1 The Coastguard are reported to have two boats available for SAR duties.

MONTSERRAT —SOUTH–WEST PART

General information

Charts 254, 585

Route

5.273

1 From a position SW of Havers Shoal (16°49′N 62°25′W) the route leads SE for about 34 miles to a position W of Îlet á Kahouanne (16°22′N 61°47′W).

A recommendation for deep draught vessels is given at 5.7.

Topography

5.274

1 General topography for Montserrat (5.189). On the SW side of the island the land slopes gradually to the coast and is cultivated.

Depths

5.275

1 General remarks on depths (5.176).

For remarks on the accuracy and adequacy of charted depths around Montserrat, see Chart 254.

Natural conditions

5.276

1 **Flow.** General remarks on flow (5.178).

Tidal streams, close to Montserrat, generally run parallel to the coast, at a rate of about ½ kn.

The combined flow, off the S end of the island, is weak in an E–going stream but in a W–going stream may attain a rate of 2 kn.

2 **Swell.** General remarks on ground swell (1.220).

Local weather. General remarks (5.177).

Principal mark

5.277

1 **Landmark:**

Silo (16°42′·4N 62°12′·3W).

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Aids to Navigation

5.278

1 For the availability and reliability of aids to navigation see 5.10.

Exclusion zone

5.279

1 As a result of volcanic activity from the Soufrière Hills volcano, exclusion zones have been established around the E and S coasts of Montserrat, the limits of which are shown the chart:

2 Between 16°45′·9N 62°09′·7W and 16°41′·8N 62°08′·7W within 2000 m of the coast;
Between 16°40′·5N 62°10′·9W and 16°41′·3N 62°12′·5W within 2000 m of the coast, and;
Off Plymouth (16°42′N 62°13′W) within 500 m of the coast.

3 **Caution.** The area west of Montserrat is subject to heavy ash falls. There is the possibility of pyroclastic flows entering the sea in the Plymouth area, and a delta has formed up to 500 m from the previously charted coastline in the vicinity of Hot River (16°43′N 62°09′W). Abnormally high seas may also be expected to the S of the island.

Directions

(continued from 5.265, 5.322 and 5.323)

5.280

1 From a position SW of Havers Shoal (16°49′N 62°25′W) (5.263) the track leads SE passing (with positions from Bransby Point (16°43′N 62°15′W)):

2 SW of Bransby Point, the W extremity of Montserrat; shallow water, with depths of less than 20 m, extends 6 cables W, thence:
SW of the exclusion zone (3½ miles SE) in the vicinity of Old Fort Point (5.279).

3 From this position the track continues SE for about 16 miles to a position W of of Îlet á Kahouanne (16°22′N 61°47′W) lying close off the NW extremity of Guadaloupe.

Useful marks

5.281

1 Aero light (radio mast with an elevation of 104 m) (3¾ miles SE).
Two radio masts (elevation 79 m) (4½ miles SE) occasionally showing red obstruction lights.
Two radio masts (4¼ miles NE and 4½ miles NNE), positions approximate.

(Directions continue for passage W of Guadeloupe at 6.44. Directions for passage W of Montserrat are given at 5.323)

Plymouth

Chart 254

General information

5.282

1 **Description.** Plymouth (16°42′N 62°13′W), situated on the SW side of Montserrat, was the principal town and only port of entry for the island. As a result of volcanic eruptions (5.279) the port and town are closed. All traffic is now through Little Bay, 6 miles N (5.283).

Little Bay

Chart 254 plan of Little Bay

General Information

5.283

1 **Position and function**. Little Bay extends about 5 cables S from Rendezvous Bluff (16°48′N 62°13′W), a prominent headland.

Following the destruction of Plymouth (5.282) by volcanic ash in 1997 a port with a jetty has been constructed 1 cable SE of Rendezvous Bluff. In 2002 a single warehouse was available and further development work was in progress.

Rendezvous Bluff

Approaches to Little Bay from WNW (5.283)

(Original dated 1999)

(Photograph – DFID Montserrat)

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Little Bay (5.286)

(Original dated 1999)

(Photograph – DFID Montserrat)

2 **Port Authority** is Montserrat Port Authority, PO Box 383, Plymouth, Montserrat.

Traffic. In 2004, 148 vessels, with a total dwt of 230 435 tonnes, used the port.

Arrival Information

5.284

1 **Entry** is reportedly available day and night.

Pilots; available.

Tugs: not available locally but obtainable from Antigua.

2 **Caution.** Early morning sun can make obvious landmarks difficult to see.

Further information should be sought from the Port Authority (5.283).

Prohibited anchorage

5.285

1 Two prohibited anchorages, the limits of which are shown on the plan, have been established for the protection of coral reefs:

Potato Hill Reef (16°48′·0N 62°12′·4W)

Carr's Bay Reef (16°47′·8N 62°12′·7W).

Berths

5.286

1 **Jetty.** A concrete jetty extends about 95 m SW from the NE part of the bay, providing a berth 30 m in length on its NW side, maximum draught 4·5 m. The SE side provides a berth about 65 m in length with depths alongside of about 2·3 to 4·8 m. The depths are from local surveys prior to construction of the jetty and advice should be sought from the Port Authority.

2 It is reported that the jetty can handle cargo vessels, ro–ro ships and ferries. Cruise ships can not be accommodated at the berth.

Mooring buoys lie N and W of the jetty head as shown on the chart.

3 **Carr's Bay.** Three mooring buoys lie 3¼ cables SW of the jetty head. Tankers discharge via a floating pipeline to Delta Oil Terminal, 1¾ cables SSE, see note on plan.

Anchorage

5.287

1 In 1999 anchorages were obtain 3 and 4½ cables WSW of the jetty with moderate holding in coral and sand. This anchorage is sheltered from the prevailing wind, but exposed to the swell. See also 5.325.

ROUTE BETWEEN SINT EUSTATIUS AND SAINT CHRISTOPHER

General information

Chart 487

Route

5.288

1 From a position SW of Back–off Baai (17°28′N 62°57′W) the route leads NE for about 11 miles to a position N of Dieppe Bay Town (17°25′N 62°49′W).

A recommendation for deep draught vessels is given at 5.7.

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Topography
5.289

1 General topography for Sint Eustatius, with a view, (5.183). White Wall (on the S side of The Quill) is a bold, white cliff, about 274 m high.

General topography for Saint Christopher (5.185).

Depths
5.290

1 General remarks (5.176).

For the accuracy and adequacy of charted depths around Saint Christopher see warning on the chart.

2 The bank joining Sint Eustatius and Saint Christopher is about 6 miles wide, with general depths of 23 to 60 m, but with isolated shoal patches. Along the NW end of Saint Christopher the 20 m depth contour lies within 3 cables of the coast, but a bank extends seaward from the N coast.

Natural conditions
5.291

1 Flow (5.178). Swell (1.220). Local weather (5.177).

Principal marks
5.292

1 **Landmarks:**

The Quill (17°28′N 62°58′W) (5.183).

Mount Liamuiga (17°22′N 62°48′W) (5.185).

Directions
(continued from 5.200)

5.293

1 From a position SW of Back–off Baai (17°28′N 62°57′W) the track leads NE passing (with positions from Saint Paul's Point (17°25′N 62°51′W)):

2 NW of Belle Tete (2½ miles SW), the NW extremity of Saint Christopher, and

SE of Back–off Baai (7½miles NW), thence:

SE of a wreck (5 miles NW), with a depth of 13 m over it, marked by a light–buoy (white can). The wreck is used by divers.

3 SE of an isolated patch (4½ miles NW), with a depth of 20·1 m over it, position approximate, thence:

NW of Dieppe Bay (2 miles ENE) from which a reef and shoal water extend 1½ miles N. At night it is recommended to remain in depths of more than 30 m, as the coast around Dieppe Bay is very low and, being backed by high land, is not suited for estimating distance.

4 From this position the track continues NE about 3¾ miles to a position N of Dieppe Bay Town (17°25′N 62°49′W).

Useful marks
5.294

1 Two chimneys (17°22′N 62°52′W).

(Directions continue for passage NE of Saint Christopher at 5.301)

SAINT CHRISTOPHER AND NEVIS — NORTH–EAST SIDES

General information

Charts 487, 489, 584

Route
5.295

1 From a position N of Dieppe Bay Town (17°25′N 62°49′W). the route leads SE for about 27 miles to a position NE of the SE extremity of Nevis (17°06′N 62°33′W).

2 A recommendation for deep draught vessels is given at 5.7.

Topography
5.296

1 General topography for Saint Christopher (5.185). The NE coast is fringed with reefs, in places.

General topography for Nevis (5.187).

Depths
5.297

1 General remarks on depths (5.176).

Banks, with depths of less than 20 m over them, extend up to 2¼ miles from the NE coast of Saint Christopher. These banks are steep–to and soundings give little warning of their proximity.

2 On the NE side of Nevis, depths of less than 20 m are found within 1½ miles of the coast.

For the accuracy and adequacy of charted depths around Saint Christopher and Nevis see warning on charts.

Natural conditions
5.298

1 General remarks on flow (5.178).

General remarks on ground swell (1.220).

The sea breaks heavily on the banks off the NE coasts of Saint Christopher and Nevis.

General remarks on local weather (5.177).

Principal marks
5.299

1 **Landmarks on Saint Christopher** (with positions from Mount Liamuiga):

Mount Liamuiga (17°22′N 62°48′W) (5.185).

Monkey Hill (5 miles SE) (5.225).

Three prominent hills (12 miles SE) (5.261).

2 **Landmarks on Nevis** (with positions from Nevis Peak (17°09′N 62°35′W):

Round Hill (3 miles NNW) easily identified rising to a peak on which stands a conspicuous radio mast.

Cone Peak (1 mile NE), the higher of two eminences rising from a spur of Nevis Peak.

Nevis Peak (5.187).

Saddle Hill (2 miles S) (5.261).

Aids to navigation
5.300

1 For the availability and reliability of aids to navigation see 5.10.

Directions
(continued from 5.108 and 5.168)

5.301

1 From a position N of Dieppe Bay Town (17°25′N 62°49′W). the track leads SE passing (with positions from Saint Anthony Peaks (17°15′N 62°38′W)):

NE of Dieppe Bay (15 miles NW) (5.293), to avoid a shallow spit, the N edge of which is indicated by discoloured water, thence:

2 NE of a bank with a depth of 6·7 m (8 miles NW) extending 1¼ miles N from Barkers Point. The sea breaks on this bank in a heavy swell. Thence:

3 NE of a shoal patch (1½ miles NE), with a least charted depth of 4·3 m, and:

NE of a small, perpendicular cliff lying at the base of Saint Anthony Peaks (5.261), thence:

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4 NE of a bank (2½ miles SE), on which there are dangerous rocks, some of which are nearly awash, which is almost connected to the NE side of Nevis, thence:

NE of two shoals (about 5 miles SE), reported (1990), with least depths of 4·0 and 4·6 m over them.

5 From this position the track continues SE for about 4 miles to a position NE of the SE extremity of Nevis (9 miles SSE).

Useful marks

5.302

1 Tower (marked by lights) (17°19′N 62°42′W), the position of which is approximate, is reported to have been seen at 23 miles.

2 Booby Islet (17°14′N 62°37′W), a conical islet situated near the middle of the NE entrance to The Narrows (5.303).

(Directions continue for passage NE of Montserrat at 5.319)

Side channel

Chart 489

The Narrows

5.303

1 **Description.** The channel (17°13′N 62°37′W), between Saint Christopher and Nevis, has a minimum width of 1¾ miles with depths suitable for vessels with a draught up to 5·5 m.

2 **Local knowledge** and great caution is required. The channel is best navigated at midday as soundings give little warning of the approach to the banks. Seas break heavily over some of these rocks.

3 **Prominent marks** (5.299 and 5.302).

Directions

5.304

1 **The North–east entrance**. There are three main approaches passing between or inside the outer shoals. Directions are given below, with positions from Booby Islet (17°13′·6N 62°36′·6W) (5.302).

5.305

1 From a position on the coastal route NE of Mosquito Bluff the alignment (233°) of Mosquito Bluff (1 mile NW) (5.301) with Nags Head (2½ miles WSW) (5.261), leads between the outer shoals, passing:

Over the NW extremity of a bank, with a depth of 8·8 m (1¾ miles NNE), extending SE for 2½ miles, and:

SE of a shoal patch with a least charted depth of 4·3 m (2 miles N).

2 When Booby Islet bears 193° the track leads along the S part of the track given in 5.306.

5.306

1 From the vicinity of 17°17′N 62°36′W, the line of bearing (193°) of the W extremity of Booby Islet (5.302) with the church at Lowland (3¾ miles SSW) leads towards the NE entrance passing:

Between the outer shoals (5.305), thence:

2 Very close WNW of a shoal patch with a least charted depth of 5 m (8 cables NNE).

(Directions continue for The Narrows at 5.309)

From north–west

5.307

1 From the vicinity of 17°17′N 62°38′W, the line of bearing, less than 172°, of Mosquito Bluff (1 mile NW) (5.301) leads towards the NE entrance, passing:

W of the outer shoals (2 miles N and 1¾ miles NNE) (5.301).

2 The track is then adjusted to remain at least 3 cables offshore and to avoid the shoal patch (8 cables NNE) (5.306).

(Directions continue for The Narrows at 5.309)

From south–east

5.308

1 South Channel (1¾ miles ESE), in which the depths are irregular but through which there is a minimum depth of 7·3 m, is suitable for use by small craft only.

Directions for The Narrows

5.309

1 From a position about 4 cables NNE of Booby Islet (17°14′N 62°37′W) (5.302) the recommended route leads generally SW passing, (with positions from Booby Islet):

2 Clear of Booby Islet, thence:
SE of a 5·8 m patch (4 cables WNW), thence:
NW of a 5·5 m patch (5 cables S), thence:
SE of a 5·5 m patch (8 cables WSW), thence:
NW of a 5·8 m patch (8 cables SSW), thence:

3 About 2½ cables NW of Cow Rocks (1 mile SW), lying near the middle of the channel, at the NW extremity of a broad spit, with depths of 3·7 m over it, extending NW from the coast of Nevis, thence:

4 NW of a 5·8 m patch (1¼ miles SW) lying 3 cables SW of Cow Rocks, thence:
SE of a 5·2 m patch (1½ miles WSW).

Booby Islet

The Narrows from SW (5.303)

(Original dated 2002)

(Photograph – Gareth Kirk, mv "Logos 11")

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Useful mark
5.310

1 Windy Hill (17°12′N 62°36′W), which is small, rounded and detached, rises close above the NW extremity of Nevis, at the foot of Round Hill (5.299) forming a prominent bluff.

Anchorages

The Narrows
5.311

1 Good anchorage can be obtained in the W part of The Narrows, in a depth of about 11 m, with Mosquito Bluff (17°14′N 62°37′W) (5.301) bearing 022°, just open ESE of Scotch Bonnet (7 cables SW), and the N extremity of Nevis bearing 087°; as shown on the chart. The holding ground is good.

Majors Bay
5.312

1 Majors Bay (17°13′N 62°39′W) is reported to afford safe anchorage at its N end, in a depth of about 4 m, sand, protected from the ground swell and sheltered, even in winter, by Nevis (2½ miles SE).

MONTSERRAT — NORTH AND EAST SIDES

General information

Charts 489, 254, 585

Route
5.313

1 From a position NE of the SE extremity of Nevis (17°06′N 62°33′W) the route leads SE for about 32 miles to a position NE of Spanish Point (16°50′N 62°04′W) from whence the route leads SSW for about 29 miles to a position W of Îlet á Kahouanne (16°22′N 61°47′W) lying close off the NW extremity of Guadaloupe.

A recommendation for deep draught vessels is given at 5.7.

Topography
5.314

1 General topography for Nevis (5.187).

General topography for Montserrat (5.189). The E and NW sides of Montserrat are precipitous.

Depths
5.315

1 General remarks (5.176).

A bank, with depths from 27 to 60 m over it, extends 9 miles N and 5 miles SSW of Redonda (16°56′N 62°21′W) (5.317).

For the accuracy and adequacy of charted depths around Nevis and Montserrat, see notes on Charts 489 and 254.

Natural conditions
5.316

1 **Flow**. General remarks (5.178).

Off the N end of Montserrat the W–going flow sometimes attains a rate of 2 kn, whilst the E–going flow is weak. Along the other coasts of the island the rate is about ½ kn, running parallel to the coast.

2 **Depths.** General remarks (1.220).

Local weather. General remarks (5.177).

Principal marks
5.317

1 **Landmarks on Nevis** (with positions from Nevis Peak (17°09′N 62°35′W)):

Cone Peak (1 mile NE) (5.299).

Nevis Peak (5.187).

Saddle Hill (2 mile S) (5.261).

2 **Landmark south of Nevis:**

Redonda (16°56′N 62°21′W), a barren, rocky, uninhabited islet with a rounded summit.

Caution
5.318

1 As a result of volcanic activity an exclusion zone, extending to 2000 m offshore, has been established off the E coast of Montserrat (see 5.279).

Directions

(continued from 5.302)

North of Montserrat
5.319

1 From a position NE of the SE extremity of Nevis (17°06′N 62°33′W) the track leads SE passing (with positions from Redonda Island (16°56′N 62°21′W)):

NE of Redonda (5.317), thence:

NE of North–west Bluff (10½ miles SE), the N extremity of Montserrat close E of which lies Little Redonda Island on the coastal shoal, thence:

NE of Pinnacle Rock (12½ miles SE), lying close to the coast at the foot of steep cliffs forming the NE extremity of the island, thence:

2 NE of an isolated patch (15 miles SE), with a depth of 7·3 m over it, position approximate, reported (1966).

East of Montserrat
5.320

1 From the position NE of Spanish Point (16°45′N 62°09′W) the track leads SSW passing:

ESE of Roche's Bluff, (18½ miles SE) and of the exclusion zone extending to 2000 m offshore (5.279), thence:

ESE of Old Fort Point (17 miles SE), the SW extremity of Montserrat where there is much volcanic activity (5.318).

2 From this position the track continues SSW for about 17 miles to a position W of Îlet á Kahouanne (16°22′N 61°47′W) lying close off the NW extremity of Guadaloupe.

Useful marks
5.321

1 Aero light (with an elevation of 60 m) (16°46′N 62°10′W) which is reported to be visible at a distance of 8 miles.

Blackburne Airport Light (Aero, with an elevation of 10 m) (6 cables SE of the aero light (above)) which is reported to be visible at a distance of 8 miles.

(Directions continue for passage W of Guadeloupe at 6.44)

Channel east of Nevis

Charts 489, 585

Directions
5.322

1 From the vicinity of 17°10′N 62°25′W, the charted deep water channel passing E of Nevis, leads generally S, with a

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least width of 5 miles, passing (with positions from Redonda (16°56′N 62°21′W)):
E of a coral ledge (8 miles W) (5.263) situated near the SE end of the bank (5.259) extending SSE from Nevis, thence:
2 W of Redonda (5.317), thence:
E of a detached 14 m patch (reported 1996), situated 3 miles SE of the coral ledge, thence:
Clear of Havers Shoal (8 miles SSW) (5.263).
(Directions are given for passage SW of Montserrat at 5.280)

Channel west of Montserrat

Charts 254, 585

Directions

5.323

1 From the vicinity of 16°57′N 62°13′W, the charted deep water channel passing W of Montserrat, leads generally SSW, with a least width of 6 miles, passing (with positions from Redonda (16°56′N 62°21′W)):
ESE of the bank on which Redonda stands (5.315) and of The Pinnacle, a small detached rock lying off the SE side of Redonda (5.317), thence:
2 WNW of Rendezvous Bluff (11 miles SE) (5.283); the port of Little Bay lies close SE, thence:
WNW of artificial reefs (14 miles SSE) consisting of wreckage and mid–water modules, placed between the 10 and 30 m depth contours between Old Road Bluff and Bransby Point, as shown on Chart 254. These reefs are marked by a buoy. Thence:
ESE of Havers Shoal (8 miles SSW) (5.263), thence:
3 WNW of Bransby Point (14 miles SSE) (5.280).
(Directions continue for passage SW of Montserrat at 5.280)

Anchorages

Chart 585

Redonda

5.324

1 Anchorage can be obtained, in depths of 33 to 37 m, sand, about 3 cables NW of the pier, situated at the S end of the islet, on the W side.
The pier provides the only landing place.

Chart 254

West of Montserrat

5.325

1 Anchorage is available for smaller vessels anywhere off the W side of Montserrat, N of the exclusion zones (5.279) and clear of the artificial reefs described at 5.323. Recommended areas are as follows (with positions from Bransby Point (16°43′N 62°15′)):
2 Carr's Bay (5 miles NNE) provides a comfortable anchorage clear of the prohibited anchorage areas and the mooring buoys and tanker discharging operations (5.286).
Old Road Bay (1¼ miles NNE) which is reported to be exposed and choppy. There is a small jetty at Old Road Bay. Attention is drawn to the area of artificial reefs, shown on the chart, lying SSW of the jetty
3 See Caution at 5.279 for details of exclusion zones owing to volcanic activity

NORTH–EAST GROUP OF LEEWARD ISLANDS—BARBUDA TO ANTIGUA

GENERAL INFORMATION

Chart 584

Area covered

5.326

1 This section describes an area at the NE end of the Leeward Islands, in the vicinity of 17°20′N 61°50′W. The area encompasses the following islands:
Barbuda (17°37′N 61°47′W) (5.331).
Antigua (17°05′N 61°50′W) (5.332).

Depths

5.327

1 General remarks (5.6).
Outlying banks. A series of flat–topped banks, with depths from 21 to 73 m lie between 15 and 40 miles W of Barbuda.
2 **Coastal bank.** Barbuda and Antigua lie on a bank, Barbuda near its NE edge and Antigua near the middle of its S edge. The bank consists of coral and sand and the general depths over it are less than 35 m. West of Antigua the 200 m depth contour lies between 5 and 15 miles offshore. The coastal bank rises steeply from deep water, with the bottom being clearly visible in places, and along the entire length of its W edge there is a lip that is shallower than the depths closer inshore.
South of Antigua the 200 m depth contour approaches the coast and lies from 1 to 3 miles offshore.
3 **Caution.** Shoals dangerous to deep draught vessels lie up to 17 miles W of Barbuda, up to 14 miles W of Antigua and in the channel between the two islands.
Antigua should be approached with caution, as shoal patches, over which there is less water than charted, may be encountered.

Fishing

5.328

1 Fishing is carried out on the bank surrounding Barbuda and Antigua. Inshore fishing is traditional and confined mainly to the waters between Antigua and Barbuda.
Lobster fishing has recently increased and numerous floats, attached to pots, may be encountered.
Deep–sea fishing takes place to the W and S of Antigua.

Natural conditions

5.329

1 **Local weather** is generally dry and sunny, with a sea breeze moderating the heat and humidity. The most pleasant time of the year is from the end of November to the beginning of May.
2 **Current**. General remarks on current are given at 5.9.
During the periods November 1848 and May 1849, and between April and August 1973, little or no current was experienced between Barbuda and Antigua. The connecting bank probably deflects the South Equatorial Current round the islands at the extremities of the bank.

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Wrecks

5.330

1 It is reported that there are about 80 known shipwrecks around the coast of Antigua and 120 around Barbuda.

Chart 254

Barbuda

5.331

1 **Position.** Barbuda (17°37′N 61°47′W) is the NE of the Leeward Islands, situated 53 miles ESE of Saint Barthélémy and 25 miles N of Antigua, its nearest neighbour.

2 **Function.** This island, which is partly cultivated, produces some sugar; but the population (1.84) are mainly employed in lobster fishing. Plans exist to develop the island as a tourist resort, taking advantage of the dry, sunny climate and excellent beaches; and making use of the airstrip at Codrington, which is the main population centre.

3 The island is administered from Antigua (5.332). There is a government office and police station on Barbuda but customs must be cleared in Antigua before arrival at Boat Harbour the only port of entry in Barbuda.

4 **Topography.** Barbuda, a flat, featureless coral island of some 62 square miles in area, is less than 40 m high with a large lagoon on the W side.

Chart 2064

Antigua

5.332

1 **Position.** Antigua (17°05′N 61°50′W) is in the NE group of the Leeward Islands, situated 42 miles E of Saint Christopher and 35 miles N of Guadeloupe.

2 **Function.** Antigua is a well developed island whose economy is based predominantly on agriculture; with tourism as the principal revenue earner. Fishing is also a major industry.

3 There is a deep water harbour at Saint John's (5.354), the capital and only town of importance, in addition to several safe harbours for smaller vessels.

5.333

1 **Topography.** The island, which has an area of about 108 square miles, is of modest elevation with a gently undulating landscape. The hills rise gradually towards the SW side of the island where they become very irregular and serve as landmarks, culminating in Boggy Peak (17°02′N 61°52′W) which is the highest in the island and is conspicuous.

2 The coast is deeply indented, particularly on the NE side, providing many natural harbours and countless coves. Reefs and shoals surround the island on almost every side except for a part of the S coast.

There are no permanent rivers and few springs or ponds but artificial dams have been constructed to create reservoirs.

3 It is reported that the S coast is illuminated at night by the lights of many hotels.

BARBUDA — NORTH AND EAST SIDES

General information

Charts 254, 584

Route

5.334

1 From a position NNW of Goat Island, Barbuda (17°42′N 61°51′W) the route leads SE for about 25 miles to a position ENE of Rubbish Bay (17°40′N 61°46′W) from whence the route leads S for about 27 miles to a position NE of Four Fathom Bank (17°11′N 61°42′W) lying off the NE coast of Antigua.

Topography

5.335

1 The N side of Barbuda is low, sandy and scantily wooded. Near the middle of the E side of the island, the coast, for a distance of about 2 miles, is composed of perpendicular cliffs, rising to a plateau known as The Highlands. The N shoulder of The Highlands (39 m high), the highest part of the island, is a prominent feature.

Depths

5.336

1 General remarks on depths (5.327).

For the accuracy and adequacy of charted depths around Barbuda and the possibility of uncharted coral heads, see the note on Chart 254.

Fishing

5.337

1 For remarks regarding fishing floats, see 5.328.

Natural conditions

5.338

1 Current (5.329). Swell (1.220). Local weather (5.329).

Principal mark

5.339

1 **Landmark:**

Hotel (17°33′N 61°46′W) (5.349).

Aids to navigation

5.340

1 For the availability and reliability of aids to navigation see 5.10.

There are no navigation lights on Barbuda.

Directions

North of Barbuda

5.341

1 From a position NNW of Goat Island, Barbuda (17°42′N 61°51′W) the track leads SE passing (with positions from Hog Point (17°42′N 61°48′W)):

2 NE of Goat Reef, the N extremity of which is always visible (5 miles NW). It fronts the NW coast of Barbuda, which is foul, between Goat Point (3½ miles NW) and Billy Point (4½ miles WNW). Depths of 20 m are found within 1½ miles of the reef and the remains of a stranded wreck, (with an elevation of 1·2 m) (4¾ miles NW), the position of which is approximate, lying on the N edge of the reef were visible in calm weather in 1970. Thence:

3 NE of a dangerous wreck (3 miles NW), the position of which is approximate, situated near the NW end of Cobb Reef (below), thence:

NE of Cobb Reef (2 miles WNW), lying from 5 cables to 1½ miles offshore, fronting the bight between Goat Point (the N extremity of Barbuda) and Hog Point (3½ miles SE). Depths of over 20 m are found less than 5 cables outside the reef.

4 From this position the track continues SE for about 8 miles to a position NE of Rubbish Bay (17°40′N 61°46′W) and NE of a coastal reef of broken coral which extends SE from Hog Point, as an extension of Cobb Reef, along the E coast of Barbuda, extending about 6 cables offshore. Seas break heavily on this reef, but deep water is to be found within 1 mile of the shore.

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Caution

5.342

1 When passing N of Barbuda mariners should be aware of the low–lying N end of the island, with its outlying reefs, extends about 7 miles N or NW. The Highlands (5.335) will be the first land sighted and may be mistaken for the N end of the island.

East of Barbuda

5.343

1 From a position NE of Rubbish Bay (17°40′N 61°46′W) the track leads S passing (with positions from Spanish Point (17°33′N 61°44′W)):

E of the coastal reef (5.341) which continues to a position 5 cables S of Spanish Point, and:

2 E of a dangerous wreck (6 miles N), the position of which is approximate, and:

E of a stranded wreck (with an elevation of 5 m) (5 miles N), position approximate, lying on the edge of the reef, thence:

3 E of Spanish Point, the S extremity of Barbuda, which is faced on its N side by a white cliff about 11 m high, thence:

E of Palaster Reef (2 miles S), fronting Gravenor Bay, lying on which are numerous rocks, thence:

4 E of Dodington Bank (2½ miles SW), a shoal tongue with a least depth of 3 m over it, thence:

E of the bank extending 8 miles S, with a least depth of 5 m over a shoal (5 miles S), existence doubtful, position approximate (see 5.346), thence:

5 Clear of an isolated shoal (8½ miles SSE), the existence of which is doubtful, with 26 m of water over it.

6 From this position the track continues S for about 11 miles to a position NNE of Four Fathom Bank (17°11′N 61°42′W).

(Directions continue for passage NE of Antigua at 5.430)

BARBUDA — WEST SIDE

General information

Charts 254, 584

Route

5.344

1 From a position NNW of Goat Island, Barbuda (17°42′N 61°51′W) the route leads S for about 44 miles to a position W of Diamond Bank (17°12′N, 61°53′W).

Topography

5.345

1 General topography for Barbuda (5.331).

The W coast of the island, from Cedar Tree Point (17°42′N 61°53′W) to Palmetto Point (7 miles SSE), for the most part consists of a low, narrow, scantily wooded ridge of sand, which separates Codrington Lagoon from the sea. Palmetto Point, the SW extremity of the island, is reported to be extending S. The S coast is low, sandy and scantily wooded.

Depths

5.346

1 General remarks (5.327).

There may be less water than charted on the banks and shoals off the S coast of Barbuda. For the accuracy and adequacy of charted depths around Barbuda and the possibility of uncharted coral heads see the note on Chart 254.

Fishing

5.347

1 Remarks on fishing floats (5.328).

Natural conditions

5.348

1 **Current.** General remarks on current are given at 5.9.

Off Barbuda the current is reported to set generally W, but a strong N current has been experienced along the W coast.

2 General remarks on ground swell (1.220).

The area covered by this passage is exposed to the rollers (1.222) which occur between November and May. These rollers approach vessels at anchor from astern, which eases the strain on the cable and makes them ride more easily than at most of the anchorages in the vicinity of Antigua.

Principal marks

5.349

1 **Landmarks:**

Martello Tower (partly ruined) (17°36′N 61°50′W), standing near the beach about 2 miles E of Palmetto Point, is visible from a considerable distance under favourable conditions. In 1992 it was reported that surrounding trees hamper indentification of the tower.

2 Hotel (17°33′N 61°46′W) standing on Cocoa Point, is partly obscured by tall shrubs but is still visible from a considerable distance under favourable conditions.

Aids to Navigation

5.350

1 For the availability and reliability of aids to navigation see 5.10.

There are no navigation lights on Barbuda.

2 Palmetto Point (5.345) should not be used for position fixing owing to repeated reports that it is extending S. An hotel, illuminated and with red roof and associated water tower lies close N of the Point.

Directions

5.351

1 From a position NNW of Goat Island, Barbuda (17°42′N 61°51′W) the route leads S passing (with positions from Martello Tower (17°36′N 61°50′W) (5.349)):

2 W of Cedar Tree Point (7miles NNW) (5.345), thence:

W of the 30 m depth contour (14 miles WNW) which marks the edge of the coastal bank extending up to 12 miles W of Barbuda, on which there is a ledge (8 miles NNW), composed of detached coral heads, which extends about 2½ miles from the coast between Billy Point (7½ miles N) and Cedar Tree Point (7 miles NNW). Seas do not break on this ledge and soundings give no warning of approach. The west coast of Barbuda is, in places, foul for about 2¼ miles offshore, but there are no known dangers outside depths of 10 m. However, at night, mariners are recommended to remain in depths of more than 20 m. Thence:

3 W of Tuson Rock (3½ miles NNW), lying amid a large group of rocks encumbering Low Bay. An isolated shoal with a depth of 9·6 m over it, lies 2½ miles W of the rock. Thence:

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4 E of an isolated bank (rock), with a least depth of 21 m over it (17 miles W), thence:
W of Palmetto Point (2 miles WSW) off which the waters are incompletely surveyed, thence:
W of Codrington Shoals (5¾ miles S), with a least depth of 3·1 m over them.

5 From this position the track continues S for about 15 miles to a position W of Diamond Bank (17°12′N 61°53′W).

(Directions continue for entering Saint John's Harbour at 5.377, for passage W of Antigua at 5.401, and for passage N of Antigua at 5.428)

Anchorages and harbours

Spanish Wells
5.352

1 **Caution**. The S side of Barbuda is very dangerous and should be approached with great caution on account of the offlying banks and shoals. At night, it should, if possible, be avoided altogether, as soundings give little warning.

2 **Directions.** From the vicinity of 17°30′·0N 61°51′·5W, the line of bearing, 012°, of the Martello Tower (5.349); or the line of bearing, 023°, of the N shoulder of The Highlands (5.335) in the vicinity of the ruin of Highland House (17°40′·0N 61°47′·4W); leads towards the anchorage, as shown on the chart, passing (with positions from the Martello Tower):

3 WNW of Codrington Shoals (5½ miles S), being the outermost of the dangers extending SW from Cocoa Point. It is reported that the ground swell breaks on these shoals. Thence:

4 WNW of Dodington Bank, with a least depth of 4·1 m (5½ miles SSE), which extends 3 miles SW from Palaster Reef, which is nearly awash and always visible. It is reported that the ground swell breaks on shallow patches in this shoal. Thence:

5 WNW of the foul ground extending up to 1¼ miles W from the coast N of Cocoa Point (4¾ miles SE).

6 **Landing.** The beach in the vicinity of the Martello Tower is fringed with small coral heads with considerable depths between them. In 1970 a channel, about 60 m wide, with a depth of 4 m, was dredged between the coral heads SSW of the Martello Tower, to within 120 m of the beach.

7 **Useful marks:**
Hotel, 1½ cables SE of the Martello Tower.
Sand loading chute, which looks like a crane, situated near the head of the reclaimed spit of land.

8 **Anchorage**. Good anchorage may be obtained in a depth of about 10 m, as shown on the chart, with the Martello Tower bearing 012° distant 1¼ miles. This position is sheltered by Palaster Reef (5 miles SE) when the wind is E of SE; but becomes dangerous when the wind is strong.

9 **Alongside berths.** A terminal, situated at the seaward end of the reclaimed neck of land, is used for loading sand. A wooden wharf is also situated on the W side of the reclaimed land.

10 **Supplies:** Lobster and fish are available.

Anchorage west of Tuson Rock
5.353

1 **Good anchorage** may be obtained, sheltered from the prevailing winds, on the W side of Barbuda, in a depth of about 11 m (17°37′·8N 61°54′·1W) as shown on the chart. Anchor bearings are:
Cedar Tree Point, 012°.
Martello Tower, about 116°.

2 This anchorage is exposed to rollers.

SAINT JOHN'S HARBOUR AND APPROACHES

General information

Chart 2065, plan of Saint John's Harbour

Position
5.354

1 Saint John's Harbour (17°08′N 61°52′W) is situated on the NW side of Antigua.

Function
5.355

1 Saint John's Harbour is the chief commercial port of Antigua, serving Saint John's, the capital and largest city, which is situated on the gentle slopes at the head of the harbour.

It is the main port of entry for Antigua and provides facilities for the many cruise liners which visit the island.

Port limits
5.356

1 The seaward side of the Port of Saint John's is bounded by lines drawn as follows, (with positions from James Bluff (17°08′N 61°52′W):
Due W from Weatherills Point (2¼ miles NNE).
Due N from Shipstern Point (1½ miles W).

Harbour
5.357

1 The port comprises:
Saint John's Harbour (5.374).
Saint John's Road (5.375).

Approach and entry
5.358

1 **Approach.** Saint John's Harbour outer anchorage and pilot boarding ground can be approached from three directions as follows:
From the N (5.377).
From the WNW (5.379), through West Channel, which is the principal approach for ocean–going vessels.
From SW (5.381) through Sandy Island Channel, for smaller vessels of suitable draught.

2 **Entry.** Saint John's Harbour is entered through a dredged channel (17°08′N 61°53′W) (5.383).

Traffic
5.359

1 In 2004, 834 vessels, with a total dwt of 4 647 271 tonnes, used the port.

Port Authority
5.360

1 Antigua and Barbuda Port Authority, PO Box 1052, Saint John's, Antigua. The Harbour Office is on Rat Island (5.374) near Deep Water Harbour Jetty.

Limiting conditions

Controlling depths
5.361

1 For depths in the approaches to Saint John's Harbour, see 5.327.

The dredged channel (5.383) to the deep water harbour and the turning basin (5.385), were dredged in 2002; the

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least charted depth in the channel on the alignment of the leading lights is 10·7 m. The channel width is 110 m, but in the seaward half of the channel shoaling has occurred, as shown on the chart, thus reducing the effective width of the channel.

2 The dredged depth (2004) in the approach to and alongside the Deep Water Harbour (5.387) is 10·6 m and a least charted depth in the turning basin of 10·3 m.

Deepest and longest berth

5.362

1 **Deepest and Longest berth** is the Deep Water Harbour Jetty (5.387).

Mean tidal levels

5.363

1 MHHW 0·4 m.
MLLW 0·2 m.
The tide is usually diurnal.

Density of water

5.364

1 1·025 g/cm^3.

Maximum size of vessel handled

5.365

1 MV *Adventure of the Sea*, 137 276 gt.

Local weather

5.366

1 **Climatic table** is given at 1.255
The harbour is safe from strong winds, except for hurricanes. During the winter months a fresh E wind can be expected between 0800 and 1800. Entry at dusk, when the wind is likely to be light and the sun is astern, has been recommended.

Sea state

5.367

1 Exposed to swell the berths in the deep water harbour can become uncomfortable for smaller vessels. It has been reported that the wind and swell have made the running of boats and embarkation of passengers difficult.

Arrival information

Port radio

5.368

1 At Saint John's Harbour and at the Sea Island Jetty (5.388) in Saint John's Road. See *Admiralty List of Radio Signals Volume 6(5)*

Notice of ETA

5.369

1 Not less than 24 hours prior to arrival. Pilots should be notified 48 hours in advance.

Outer anchorage

5.370

1 An anchorage is available in a depth of about 17 m in position 17°10′N 61°54′W, 2 miles NE of Sandy Island (5.379).

Pilots

5.371

1 Pilotage is compulsory. Pilots, for vessels proceeding to the deep water harbour, embark 2 miles WNW of James Bluff (17°08′N 61°52′W).

Pilots, for vessels proceeding to Sea Island Jetty, embark 3 miles NW of James Bluff.

See *Admiralty List of Radio Signals Volume 6(5)*.

Tugs

5.372

1 Available.

Quarantine

5.373

1 Pratique is given at the berth. Suspected infectious diseases must be notified to the Port Health Inspector before arrival.

Harbour

General layout

5.374

1 **Saint John's Harbour** is a small, natural, coastal harbour that is open to the WNW and divided into two parts by Rat Island, a peninsula (5 cables SE of James Bluff (17°08′N 61°52′W)). The N part is shallow; the S part has been dredged to the S of Rat Island to create a deep water harbour with a berth and turning basin.

5.375

1 **Saint John's Road** (1 mile NW of James Bluff) extends from Great Sister (5.377), at its N end, to Goat Hill (2½ miles SSW). It is encumbered by Warrington Bank (5.383) and contains an oil terminal, consisting of Sea Island Jetty and a mooring berth (5.388). There is a channel, 2 cables wide, with depths of more than 10 m, between the E end of Middle Ground (8 cables NW of James Bluff) and James Ground, the shallow coastal bank extending 5 cables seaward from James Bluff.

Principal marks

5.376

1 **Landmarks:**
Radio mast on Boggy Peak (17°02′N 61°52′W) (Chart 2064) (5.333). The mast may be obscured by cloud.

2 Saint John's Cathedral (17°07′N 61°51′W), a massive white building with two tall towers;.

Table Hill (17°07′N 61°54′W), a small peak situated at the E end of a narrow, flat–topped ridge, of modest elevation, is prominent and may be identified from a distance.

Directions for entering harbour

Approach from north

(continued from 5.351)

5.377

1 **Initial position:** 17°14′N 61°54′W.
Leading marks:
Front mark, Fort Barrington (17°08′N 61°53′W) which stands on Goat Hill and has a signal mast.
Rear mark, Mount Thomas (1½ miles S of the front mark), a large wooded hill, that is somewhat pointed when viewed from NNW.

2 The alignment (173°) of these marks leads towards the entrance channel, passing (with positions from Fort Barrington):
W of Diamond Bank (4 miles N) on which lies a coral ledge that is nearly awash, on which the sea seldom breaks. When conditions are right the bank shows clearly as discoloured water, thence:

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3 E of isolated pinnacles with depths of less than 10 m (in the vicinity of a position 4 miles N) as shown on the chart, which lie on a broad ridge extending over 3 miles W from Diamond Bank, thence:

W of Bannister Bank (3 miles N), thence:

4 W of Great Sister (2 miles NNE), a rocky islet with bushes on it, which is easily identified, standing at the W end of a bank extending from the coast.

5 Thence adjust track to pass N of Warrington Bank (1 mile N), marked at its NW end by a buoy (special), into Saint John's Road; or to pass W of the bank, marked at its W extremity by a buoy (S cardinal), to a position 2 miles WNW of James Bluff, where the Pilot embarks (5.371).

6 **Local knowledge** is required for this approach, which is not recommended for use at night.

7 **Useful mark:**

Radio mast (with an elevation of 70 m) (17°09′N 61°51′W) that is painted red and white and reported to be conspicuous.

Approach from the north—limited draught

5.378

1 **Diamond Channel** (17°12′N 61°52′W) (5.431) provides an alternative approach from the N for coasters.

(Directions continue for entering Saint John's Harbour at 5.383)

Charts 2065, 2064

Approach from west–north–west

5.379

1 **Initial position:** 17°10′N 61°58′W.

Leading marks:

Front mark, Fort James Light (white column, 2 m in height) (17°08′N 61°52′W) standing on Fort James which is situated close N of James Bluff, a small rocky bluff, 11 m high.

2 Rear mark, the Cathedral (1¼ miles ESE of front mark) (5.376).

The alignment (110°) of the front mark between the towers of the rear mark); or the line of bearing 125° on Fort Barrington (17°08′N 61°53′W) (5.377); leads towards the entrance channel, in clear water, passing (with positions from Fort James Light):

3 SSW of the pinnacles W of Diamond Bank (4 miles NNW) (5.377), thence:

Fort James

James Bluff from SSW (5.379)

(Original dated 2002)

(Photograph – Gareth Kirk, mv Logos II)

NNE of the bank extending 5 cables N from Sandy Island (3½ miles W) which is partly covered by stunted trees and shrubs. Sandy Island Beacon (framework tower, 16 m in height) stands on the S side of the island.

4 Thence to the vicinity of the Pilot embarkation point (2 miles WNW) (5.371).

5.380

1 **Useful mark:**

Radio mast 17°09′N 61°51′W.

(Directions continue for entering Saint John's Harbour at 5.383)

Chart 2065

Approach from south–west

5.381

1 **Route.** Sandy Island Channel (17°07′N 61°55′W) leads between Sandy Island (5.379) and Hurst Shoals (1½ miles SSW).

2 **Directions.** From the vicinity of 17°07′N 61°56′W, the line of bearing, 055°, of Great Sister (17°10′N 61°52′W) (5.377) leads through the centre of Sandy Island Channel, in a least charted depth of 11 m (17°07′N 61°56′W), passing (with positions from Sandy Island Beacon (17°08′N 61°56′W)):

3 NW of Hurst Shoals, with a least charted depth of 3·2 m (1½ miles SSE) and:

SE of Weymouth Reef (2½ cables WSW), on which, in 1994, lay a stranded wreck fitted with a radar reflector, (see view 5.379) thence:

Sandy Island Beacon from N (5.379)

Wreck on Weymouth Reef

(Original dated 2002)

(Photograph – Gareth Kirk, mv Logos II)

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SE of the bank extending 2 cables SE from Sandy Island (5.379) and:

4 NW of Hawk's Bill Rock (2 miles SE), a barren, black rock which is steep–to on its W side. This side, which is composed of soft sandstone, has been eroded by the sea to form a perpendicular cliff, nearly to the top of the rock, with an overhang at the top. Its rounded summit terminates in a small knob which, when seen clear of the land, has the appearance of a hawk's bill and is easily identified. Thence:

5 NW of Guard Point (2 miles ESE), a wooded bluff of moderate elevation, thence:

NW of Shipstern Point (2 miles E), a bold, perpendicular cliff (18 m high) with several large masses of rock lying at its base, situated at the W end of a small, flat–topped, rocky islet on which stand a few trees. The rock masses are distinctive from NE or SW. The dangerous wreck of the steel barque *Andes* which sank in 1905, lies close SSE of the point.

6 Thence to the vicinity of the Pilot embarkation point (1½ mile E) (5.371).

Approach from south–west—limited draught

5.382

1 An alternative approach channel from the SW exists between Pelican Island (17°06′N 61°54′W) which is rocky with foul ground extending about 1 cable from its W side, and Hurst Shoals (6 cables NW) (5.381), in which there are depths of about 6 m.

2 **Clearing marks.** The alignment (050°) of Guard Point (17°07′N 61°54′W) (5.381) with Fort Barrington (8 cables NE) (5.377) passes close SE of Hurst Shoals.

(Directions continue for entering harbour at 5.383)

Entering harbour

(continued from 5.378, 5.380, 5.382)

5.383

Leading lights:

Front light (red square topmark on post, 17 m in height) (17°17′·1N 61°50′·6W), situated close to the right of a green building on the foreshore.

Rear light (as for front light, 9 m in height) (440 m SSE of front light), situated in some trees.

1 The alignment (113°) of the leading lights, which are reportedly not visible until entering the entrance channel and extremely difficult to distinguish by day, particularly when entering in the morning, leads through West Channel and the dredged channel, passing (with positions from Fort James Light (17°08′N 61°52′W)):

2 SSW of Warrington Bank (1½ miles NW) on which the sea may break in W or NW winds. The W extremity is marked by a buoy (S cardinal), the position of which is approximate. Thence:

NNE of Shipstern Point (1½ miles W) (5.381), thence:

3 NNE of Goat Hill (1¼ miles W) (5.377), thence:

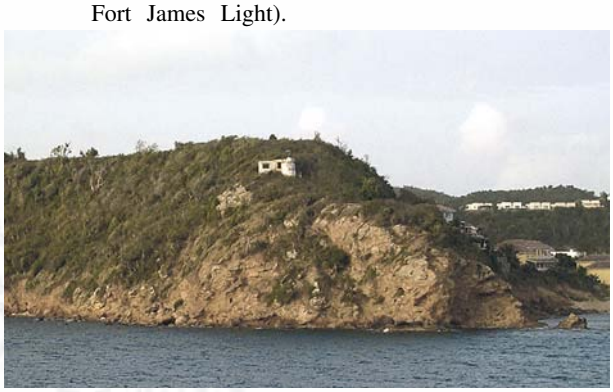
SSW of Middle Ground, extending 7 cables SE from Warrington Bank, thence:

4 Through the dredged channel (5.361) which leads for about 1½ miles towards the turning basin (5.385) in the deep water harbour.

Useful mark

5.384

1 Pillar Rock Light, a white house with its name on the side, having an elevation of 32 m, (9 cables W of Fort James Light).



Pillar Rock Lighthouse from NNE (5.384)

(Original dated 2002)

(Photograph – Gareth Kirk, mv Logos II)

Basins and berths

Turning basin

5.385

1 At its E end, the dredged channel opens out into a turning basin, about 445 m wide, the limits marked by buoys (spar, special); see 5.361 for depths.

Anchorages

5.386

1 **Saint John's Road** (5.375) affords excellent anchorage in depths of 14 m, except in strong W or NW winds which raise an uncomfortable swell; these winds are rare. Anchorage positions are as follows:

North of Warrington Bank (5.377). Tankers and vessels bunkering usually anchor N or NW of Warrington Bank.

2 East of Warrington Bank, clear of the approach to the Sea Island Berth (5.388), as shown on the chart.

South of Warrington Bank. Comfortable anchorage may be obtained in depths of 12 to 14 m, good holding ground, as shown on the chart, keeping clear of the harbour entrance channel (5.383).

Berths

Deep water harbour jetty

5.387

1 Situated on the S side of Rat Island opposite the inward end of the dredged channel. It is 366 m in length with a dredged depth of 10·6 m (2004) alongside and an elevation of 3 m; there are three berths.

Ro–Ro facilities are available.

Oil terminal

5.388

1 Sea Island Jetty (Oil Berth) (7 cables offshore), with a length of about 236 m and depths of 10·6 m to 12·5 m alongside, is situated midway along a pipeline extending from the coast. It is reported to accommodate vessels with a maximum draught of 9·7 m. The berth consists of a steel and concrete jetty, about 60 m in length, flanked by dolphins which are joined by catwalks. The line of the jetty is reported to be 286°–106°, with vessels berthed

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Heritage Quay (5.389)

(Original dated 1998)

(Photograph – Crown Copyright)

either side–to on its S side. Working lights are used at night, permitting night berthing.

2 It is advised that the jetty should not be approached via the channel from the S between Middle Ground and James Ground. Tugs may be required as the jetty is exposed to swell and prevailing winds.

3 Four mooring buoys, positioned in 15 m of water, are situated around the seaward end of the pipeline, as shown on the chart. These buoys are reported to accommodate vessels with a maximum draught of 13·4 m.

Sea Island Jetty from WSW (5.388)

(Original dated 1995)

(Photograph – Crown Copyright)

Cruise ship terminals

5.389

Heritage Quay (1 mile ESE of Fort James Light) is situated at the E end of the harbour and consists of a pier extending 210 m W from the town, with two dolphins lying about 60 m and 100 m W of the pierhead; charted depths alongside are 9·9 m on the N side and 10·0 m to the S.

Nevis Street Pier, ¾ cable S of Heritage Quay, extending 300 m W from the shore, with two dolphins lying about 30 m and 130 m W of the pierhead; charted depths alongside are 10·7 m on the N side, 9·0 m to the S.

Port services

Repairs

5.390

1 All types of deck repairs but only minor machine repairs can be undertaken.

Other facilities

5.391

1 Hospital; Deratting Exemption Certificates can be issued; Oily waste disposal facilities are not available.

Supplies

5.392

1 **Fuel oil**, diesel fuel and lubricants are available at the Sea Island Jetty and by barge.

Fresh water is available at the Deep Water Harbour Jetty, and by barge if also supplying bunkers. Water may be restricted in times of drought.

Fresh provisions are available.

ANTIGUA — WEST AND SOUTH SIDES

General information

Charts 584, 585 2064

Route

5.393

1 From a position W of Diamond Bank (17°12′N 61°53′W) the route leads S. for about 12 miles to a position W of Cades Reef (17°00′N 61°53′W) from whence the route leads E for about 14 miles to a position S of English Harbour (17°00′N 61°46′W) (5.456).

Inshore route

5.394

1 An inshore route, suitable for coasters is presented as an approach to Five Island Harbour (17°06′N 61°53′W) (5.413) and Saint John's Harbour (17°08′N 61°52′W), from English Harbour (5.456). This route leads W through Goat Head Channel (17°01′N 61°52′W) (5.407), then N through a channel inside the reefs to Five Island Channel (17°05′N 61°55′W) (5.411).

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Topography

5.395

1 General topography for Antigua (5.333).

Mount Thomas (17°06′N 61°53′W) (5.377).

The only part of the coast free from reefs is between Old Road Bluff (17°00′N 61°50′W) and Falmouth Harbour (3 miles E), where the coast is bold, steep–to and, in many places, rugged irregular hills rise abruptly from it.

Depths

5.396

1 General remarks (5.327).

On the bank which extends 13 miles W and 9 miles SW from the W coast of Antigua the depths are irregular, varying from 11 m to over 30 m, quite rapidly at times. Owing to this variation in depth and the proximity of dangerous reefs and shoals along the major part of the coast, it is recommended that the coastal passage should only be undertaken when the vessel's position can be accurately determined and that sounding should be continuous.

2 **Caution.** It is reported that numerous coral heads are to be found between Cades Reef (17°00′N 61°53′W) (5.404) and Middle Reef (5 cables N) and caution is necessary in the area.

Fishing

5.397

1 Fishing floats (5.328).

Rescue

5.398

1 A coastguard and two lifeboats are stationed at English Harbour (17°00′N 61°46′W) (5.456).

Natural conditions

5.399

1 **Current.** For the current S of Antigua, see 5.329.

Swell. General remarks (1.220). It is reported that, when a ground swell is running from the NW, seas break in depths of 3 m on the shoals along the W coast of Antigua.

Local weather. Being in the lee of the island, this side is subject to a steady wind and calm sea.

Principal marks

5.400

1 **Landmarks:**

Table Hill (17°07′N 61°54′W) (5.376).

Radio mast on Boggy Peak (17°02′N 61°52′W) (5.376).

Curtain Bluff Hotel, situated on Curtain Bluff (17°01′N 61°51′W), white, reported to be brightly lit at night.

Directions

(continued from 5.351)

Antigua — west side.

5.401

1 From a position W of Diamond Bank (17°12′N 61°53′W) the route leads S passing (with positions from Five Islands (17°05′N 61°55′W)):

W of Weymouth Reef (5.381) (3¼ miles NNW) lying on a detached shoal surrounding Sandy Island (5.379). A wreck lies on the reef. Thence:

W of the coastal bank extending W from Pelican Shoal (8 cables NNW) (5.414), thence:

E of Ariadne Shoal (6½ miles W) lying close within the 200 m depth contour, thence:

2 W of Five Islands which are very distinct when seen from N or S but, being backed by high land, only the largest is easily distinguished from W. There are only four islands in the group. The NE part of the highest is called the fifth island, and is attached to the SW part by a low rocky edge. From a distance it appears to be detached. The two outer islands are steep–to on their N and W sides. All but the largest island are low, small, rugged, rocky and sparsely covered with brushwood. Thence:

3 W of Irish Bank (1 mile SW) the N–most of numerous rocky shoals lying on the coral ledge extending about 1¾ miles from the coast to the S of Pearns Point (4 cables ESE), thence:

4 W of an isolated shoal, with a least depth of 3 m over it (1½ miles SSW), lying 1¼ miles WNW of Ffryes Point, a prominent, bold, bluff headland, about 30 m high, thence:

W of an isolated patch, with a least charted depth of 3 m, (2½ miles SSW), thence:

5 W of numerous coral heads (4 miles SSE) centred about 8 cables SW of Johnson's Point (the SW extremity of Antigua) which is low and rocky and on which stands the ruins of a fort. Pelican Island (5.382), 5·5 m high, standing close SW of Johnson's Point, is covered with brushwood and only clear from the NW or SE.

6 From this position the track continues S for about 1 mile to a position W of Cades Reef (17°00′N 61°53′W) (5.404) lying on the coastal reef.

5.402

1 **Clearing bearing:**

The line of bearing, more then 012°, of Sandy Island Beacon (17°08′N 61°55′W) (5.379), clears to the W of Irish Bank and all other shoals on the coastal bank, as far N as Hurst Shoals.

5.403

1 **Useful marks:**

Goat Hill (17°08′N 61°53′W) (5.377) is prominent from SW, when open of Guard Point (8 cables SW) (5.381).

2 Pearns Hill (17°05′N 61°54′W) conical with a thickly wooded summit.

Antigua — south side

5.404

1 From the vicinity of 16°58′N 61°58′W, the track leads generally E, in deep water after leaving the offshore bank, passing (with positions from Old Road Bluff (17°00′N 61°50′W)):

2 S of Cades Reef (2 miles W), lying about 1 mile offshore, which is the outermost of the dangers fronting the coast to the W of Old Road Bluff. The outer side of the reef rises steeply and is dangerous to approach as sounding gives little warning; however, it is reported to break in all but the calmest weather. By day, the reef, which nearly dries in places, can usually be seen; and at the W end there are frequently small sandy cays which from time to time are heaped–up and washed away by the action of the rollers (1.222). This reef is reported to be a yachting danger area. Thence:

3 S of Old Road Bluff, a prominent, rounded, steep–to headland, which is easy to identify from E or W as it stands out a short distance from under the

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high land and rises to Fisher Hill, (3 cables inland).

4 From this position the track continues E for about 4 miles to a position S of Falmouth Harbour (3 miles E).

5.405

1 **Clearing bearing:**

The line of bearing, less than 084°, of Old Road Bluff (5.404) clears to the S of Cades Reef.

5.406

1 **Useful marks:**

Morris Old Mill (17°01′N 61°51′W) situated 5 cables E of Goat Head (5.408), the only mill visible from seaward in this vicinity.

2 Curtain Bluff Hotel (17°01′N 61°51′W) (5.400).

Cape Shirley Light (17°00′N 61°45′W) (5.455), noting that this light is obscured when bearing more than 084°.

(Directions continue for Falmouth Harbour at 5.472, and for English Harbour at 5.460. Directions for passage SE of Antigua are given at 5.455)

Five Island Harbour and Jolly Harbour – Inshore route

Goat Head Channel

5.407

1 **Description.** Goat Head Channel (17°01′N 61°52′W) which passes between Middle Reef (5.408) and the shoal bank and coral ledge which borders the coast, has depths of not less than 7·3 m in the E approach and through the channel. However the W end is closed by a bar, with general depths of 6 m, on which there are rocky heads with depths of 3·0 to 4·6 m over them, extending NW from Middle Reef (5.408). An inshore channel (5.409) continues N to Five Islands.

5.408

1 **Directions.** From a position about 3 cables S of Old Road Bluff (17°00′N 61°50′W) the track leads NW on Goat Head (17°01′N 61°52′W), then generally WNW, in mid–channel between Middle Reef and the ledge which extends from Goat Head. When the sky is clear overhead, discoloured water can be seen off the end of the reef and over the ledge, making clear a mid–channel course. This track passes (with positions from Goat Head)):

2 About 2½ cables SW of Old Road Bluff (5.404), thence:

SSW of Road Fort (1¼ miles ESE), a bold rocky point on which stands an old fort, situated close S of a village, thence:

About 2½ cables SSW of Curtain Bluff (8 cables SE) (5.400) on the E side of Morris Bay, thence:

3 NNE of Cades Reef (6 cables S) (5.404), thence:

SSW of the ledge extending from Goat Head, a salient rocky point which rises to a rounded summit about 35 m high that is prominent from the SE, thence:

4 NNE of Middle Reef (5 cables SW) lying about 5 cables offshore, parallel to and inside Cades Reef, which it resembles in appearance, thence:

SW of the drying coral ledge bordering the coast WNW of Goat Head, which is low and sandy and backed by swampy ground, thence:

5 NNE of the bar (5.407) extending NW from Middle Reef, thence:

About 2½ cables SSW of Pelican Island (2 miles W) (5.382).

Channel inside Irish Bank

5.409

1 A good channel exists inside the reefs, with a minimum depth of 4·3 m, despite a 3 m patch charted in position 17°01′·6N 61°54′·1W, close W of the leading line (5.410); however it is possible to enter this channel through Goat Head Channel (5.407) and to remain in deeper water, E of the leading line.

2 **Local knowledge** is required.

5.410

1 **Directions.** From a position about 2½ cables SW of Pelican Island (17°02′N 61°54′W) the track leads NW towards the alignment (347°) of the W extremity of the highest of Five Islands (17°05′N 61°55′W) (5.401), with Sandy Island (3¼ miles NNW) (5.379) which then leads towards Five Islands, passing (with positions from the front leading mark):

2 ENE of a charted depth of 3 m (3¼ miles S) (5.409), thence:

ENE of a rock nearly awash (2 miles S), lying about 7 cables WSW of Ffryes Point, thence:

WSW of a dangerous rock (1¾ miles SSE) situated in the approach to Valley Church Bay (17°03′N 61°54′W), thence:

3 ENE of Irish Bank (8 cables SSW) (5.401), and:

WSW of Reeds Point (1¼ miles SE) which lies at the foot of a wooded hill of moderate elevation which is separated from the coast by a narrow neck of low, swampy land, forming the S side of Mosquito Cove.

(Directions for Jolly Harbour continue at 5.417)

Five Island Channel

5.411

1 Five Island Channel (17°05′N 61°55′W), which is about ¾ cable wide, has a least charted depth of 3·4 m in the fairway, and passes between the highest of Five Islands (5.401) and a rock (about 1½ cables ESE) lying close NW of the inner islands.

5.412

1 **Directions.** From a position 2 cables S of the largest of Five Islands, the line of bearing, 016°, of Hawk's Bill Rock (2 miles NNE) (5.381), just open W of Fullerton Point (1½ miles NNE), leads through Five Island Channel.

Five Island Harbour

Charts 2065, 2064

General information

5.413

1 **Description.** Five Island Harbour (17°06′N 61°53′W), though exposed to rollers (1.222), affords secure anchorage during the prevailing winds to coasters with a draught of less than 5 m. The E part of the bay is shallow and reported to be subject to mosquitoes.

Directions

5.414

1 The approach and entry to Five Island Harbour leads ENE, passing (with positions from Maiden Island (in the middle of the harbour)):

2 NNW of Irish Bank (2½ miles SW) (5.401), thence:

SSE of Pelican Shoal (1¾ miles W), which lies in the approach to the harbour, thence:

NNW of Five Islands (1¾ miles WSW) (5.401), thence:

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Antigua Jolly Harbour

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3 NNW of Pearns Point (1½ miles SW), the low and rocky extremity of a peninsula which rises near the centre to Pearns Hill (5.403), thence:

SSE of Pelican Island (1¼ miles WNW) (5.382), thence:

4 NNW of Bakers Cellar (1¼ miles WSW) which is faced by a distinctive red cliff, about 9 m high, and:

Clear of a dangerous rock (1 mile WSW), thence:

5 Clear of Cook Shoal (7½ cables WSW) a small rocky head situated near to the middle of the entrance, thence:

Clear of Maiden Island which is rocky, with precipitous sides and small trees on its summit. It is joined to the coast E by a shoal spit.

5.415

1 **Clearing lines:**

The line of bearing, more than 037°, of Great Sister (17°10′N 61°52′W) (5.377) open NW of Guard Point (3 miles SW) (5.381) clears NW of Irish Bank.

2 The line of bearing, 083°, of Belmont Hill (17°06′N 61°49′W), a distinctive peak at the SE end of a small, flat, wooded ridge, just open S of Maiden Island, clears to the S of Pelican Shoal.

Jolly Harbour

Chart 2064

General information

5.416

1 **Jolly Harbour** (17°04′·2N 61°53′·1W), in the N part of Morris Bay (5.408), is a modern small harbour approached via a dredged channel through the outer shallows of Mosquito Cove (5.410).

Directions *(continued from 5.410)*

5.417

1 **South approach.** From a position WSW of Reeds Point (17°04′·3N 61°53′·7W) (5.410) the track leads NE to the entrance channel.

West approach. The track leads ESE between Irish Bank (17°04′·3N 61°55′·4W) (5.401) and Five Islands, 6 cables NE, (5.401) to a position about 4 cables S of the Five Islands, thence E to the entrance channnel.

2 **Entrance channel** is marked on its S side by a light (orange pile 6 m in height) 3 cables SSE of Pearns Point (17°04′·7N 62°54′·3W) (5.414). The dredged entrance channel, marked by buoys, leads ENE then SE as shown on the plan. The channel has a reported (2002) depth of 4·0 m. Vessels with a draught over 3·3 m should obtain up to date depth information from the harbour authority prior to entry.

3 The plan of the approaches to Jolly Harbour is for guidance only and is not updated for changes. It should not be used for navigation.

Harbour

5.418

1 **Port of Entry.** Jolly Harbour is a port of entry. Anchoring is not permitted in the harbour but moorings are available.

Facilities

5.419

1 Fuel, fresh water, provisions and chandlery are available

Carlisle Bay

5.420

1 **Description.** Anchorage can be obtained, in depths of about 10 m, in the entrance to Carlisle Bay (17°01′N 61°50′W), about midway between Old Road Bluff (5.404) and Road Fort (5.408). The shores are reported to be rimmed with coral but a sandy beach borders the head of the bay.

2 This anchorage is reported to be calm, provided the wind is not S of E. When the wind is from the S a long ground swell usually sets into the bay from the S causing heavy rolling and a surf which breaks a considerable distance offshore, making landing difficult.

3 **Useful mark:**

Curtain Bluff Hotel (5 cables W of the bay) (5.400).

ANTIGUA — NORTH AND NORTH–EAST SIDES

General information

Charts 2065, 2064, 584

Route

5.421

1 From a position W of Diamond Bank (17°12′N 61°53′W), the route leads ENE 17 miles to a position NE of Four Fathom Bank (17°11′N 61°42′W) from whence the track leads SE for about 6 miles to a position NE of Indian Town Point (17°06′N 61°41′W).

Topography

5.422

1 General topography (5.333).

The N side of Antigua is particularly indented, with many bays and creeks.

2 This side of the island is from 30 to 90 m high, which is higher than the coast to the S. A range of hills extending SE from Weatherills Point (17°10′N 61°51′W) runs parallel to a chain of irregular hills extending about 2 miles SE from Boon Point (1 mile ENE) which culminates in Mount Pleasant, at its SE end, which may be identified by its flattened summit.

3 A chain of reefs and shoals extend around the N side of Antigua, from 1½ to 2½ miles offshore, from Diamond Bank (17°12′N 61°53′W) to Bird Island Reef (8 miles E).

4 **Caution.** It is reported that many consider the NE coast of Antigua to be a most dangerous area for small vessels. It is generally low and featureless with reefs extending up to 5 miles offshore.

Depths

5.423

1 General remarks (5.327).

The channel lying between Diamond Bank (5.377) and Codrington Bank (15 miles NNE) (5.428) is encumbered by banks with depths of less than 20 m over them.

Caution is necessary, with continuous sounding, to avoid the dangerous reefs and shoals along the major part of this coast.

Fishing

5.424

1 Fishing floats (5.328).

Pilotage

5.425

1 A pilot is recommended for vessels proceeding to Parham Harbour (17°08′N 61°46′W) (5.443) or High Point (17°09′N 61°48′W) (5.442).

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Natural conditions

5.426

1 **Current.** General remarks (5.329).

Swell General remarks (1.220).

Sea state. It is reported that, during times of the North–east Trade Winds, the E coast of Antigua from Bird Island Channel (17°10′N 61°44′W) to Nonsuch Bay (6 miles SE) is very difficult to approach, owing to immense seas near the rocky coast.

Principal marks

5.427

1 **Landmarks**, (with positions from Beggars (Hodge) Point (17°10′N 61°48′W)):

Hodge Hill (2 cables W), on which stands a tower, which is prominent.

Hotel (2¾ cables S).

Tank (1 mile SSE) charted as 2 tanks.

Radar dish antenna (2½ miles SE) marked by red lights.

2 Great Bird Island (4½ miles ESE), the highest and most conspicuous of the islands to the NE of Antigua, is low on its W side but its E side consists of a narrow strip of black rock rising perpendicular from the sea. Its N extremity is a bold headland, which may be identified from a distance.

Directions

(continued from 5.351)

Antigua — north side

5.428

1 From a position W of Diamond Bank (17°12′N 61°53′W), about 7 miles NW of Saint John's, the track leads ENE passing (with position from Beggars (Hodge) Point (17°10′N 61°48′W):

NNW of Diamond Bank (5 miles WNW) (5.377), thence:

2 NNW of Salt Fish Tail, which extends about 3½ miles E from its W end (4 miles WNW) on which there are numerous coral heads which dry in places. The reef can clearly be seen under favourable conditions. Thence:

NNW of a dangerous rock about 1¼ cables N of Jarvis Shoal, which dries, (1¾ miles NNW), thence:

3 NNW of Harney Shoal (1½ miles N) on which there are dangerous rocks, thence:

NNW of Horse Shoe (1½ miles NNE) which is awash at high water, thence:

SSE of Codrington Bank, with a least depth of 9·4 m (15 miles N) and shoal patches up to 4 miles WSW, over which there may be less water than charted, see 5.327. A shoal with 5 m of water over it lies 2¾ miles ENE. Thence:

4 SSE of a detached shoal with a least depth of 12 m (12 miles N), thence:

NNW of Kettle Bottom Shoals (extending from 1½ miles NE to 3½ miles E) with depths of less than 1·8 m, on which lie dangerous rocks; and:

5 Clear of an isolated patch with a charted depth of 6·4 m (3½ miles ENE), thence:

NNW of Three Fathom Bank (4½ miles ENE).

6 From this position the track continues ENE for about 4 miles to a position NE of Four Fathoms Bank (6 miles ENE) which is the outermost danger lying off the NE coast of Antigua.

5.429

1 **Useful marks:**

Weatherills Point (17°10′N 61°51′W) is a prominent dark cliff. A white cliff is situated about 2 cables NE.

Wind turbine (with an elevation of 168 m) (17°09′N 61°49′W) standing on New Winthorpes Hill.

Antigua — north–east side

(continued from 5.343)

5.430

1 From a position NE of Four Fathoms Bank (17°11′N 61°42′W) the track leads SE passing (with positions from Hell's Gate Island (17°09′N 61°43′W)):

NE of Bird Island Reef (about 2 miles NNW) on which lie many rocky heads, extending about 1¼ miles NW from Long Island (5.437), and:

2 Clear of Four Fathoms Bank (3¼ miles NNE) (5.428) and of Three Fathoms Bank (2½ miles N), thence:

NE of Great Bird Island (3 cables NNW) (5.427) which is situated near the centre of a coral reef, steep–to on its E side, and on which lie numerous islets, which extend about 2 miles N from the N side of Guiana Island.

3 From this position the track continues SE for about 4 miles to a position NE of Indian Town Point (3½ miles SE) (5.448).

(Directions continue for passage SE of Antigua at 5.455)

Diamond Channel

Chart 2065

Route

5.431

1 **Description.** Diamond Channel (17°12′N 61°52′W), between Diamond Bank and Salt Fish Tail, with a least charted depth of 5 m in the centre of the fairway, is suitable for coasters. It is not recommended for use at night.

2 **Local knowledge** is required.

Directions

5.432

1 From a position N of Diamond Channel, the alignment (176°) of the E edge of Great Sister (17°10′N 61°52′W) (5.377) with the ruins of Denfields Mill (white tower, without vanes) (3 miles S) leads through the channel, passing (with positions from Great Sister):

2 E of Diamond Bank (2½ miles NNW) (5.377) and:

Very close E of the least depth in the fairway (2¼ miles N) (5.431) and:

W of the NW extremity of Salt Fish Tail, with a least depth of 1·2 m (2¼ miles N), situated about 1½ cables W of a dangerous reef, thence:

3 W of a drying reef (1½ miles NNE) at the SW extremity of Salt Fish Tail, thence:

E of Bannister Bank (1½ miles NNW).

Boon Channel

Route

5.433

1 Boon Channel, entered N of Great Sister (17°10′N 61°52′W), leads round the N coast of Antigua, into Parham Sound (about 5 miles E) becoming narrow and tortuous at its E end.

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Directions

5.434

1 From a position on the coastal route the recommended track leads ENE, passing (with positions from Boon Point (17°10′N 61°50′W)):

SSE of Bannister Bank (2¾ miles WNW) and isolated shoal patches close NE, thence:

NNW of Great Sister (2¼ miles WSW) (5.377), thence:

2 NNW of Little Sister (2 miles WSW) a group of rocks situated on a bank extending from the coast, thence:

Between the N coast of Antigua and Salt Fish Tail (1 mile N) (5.428), thence:

3 SSE of an isolated shoal patch with a depth of 8·2 m (1 mile WNW) thence:

NNW of Boon Point and the bay extending 1½ miles E, the shore of which is low, rocky and fringed by sunken shoals, thence:

NNW of an isolated shoal patch with a charted depth of 6·9 m (7 cables NE), thence:

4 SSE of drying rocks (1¼ miles NE) which form the E end of Salt Fish Tail, thence:

SSE of Silver Rock, (1¾ miles NE) on which there is charted a dangerous rock, thence:

NNW of a bank, on which there are dangerous rocks (1½ miles ENE), extending about 7 cables N from Beggars Point.

5.435

1 **Clearing mark.** A local chart shows that the line of bearing, 252°, on Boon Point (5.434) clears to the N of the bank extending N from Beggars Point.

(Directions continue for Parham Sound at 5.439)

Port Royal Bay

5.436

1 Port Royal Bay (17°10′N 61°49′W), about 4½ cables WSW of Beggars Point, is the only effective landing place in Boon Channel. An abandoned submarine cable is landed in the vicinity, as shown on the chart.

Parham Sound

General information

5.437

1 **Description.** Parham Sound (17°09′N 61°47′W) is protected from the E by Long Island, which is low with some trees on its W side, and from the N by Kettle Bottom Shoals (5.428) and Salt Fish Tail (5.428).

2 **Depths.** There are several isolated patches of 8·7 m in the fairway, as shown on the chart.

Aids to navigation. Dangers in the entrance are not marked by navigation aids. However it was reported in 1987 that a flashing light had been established W of Long Island.

Approach

5.438

1 Parham Sound is best approached through Boon Channel (5.433), in periods of good light, when the shoals can be seen clearly.

It may also be approached as follows:

2 Through Horse Channel (17°11′·5N 61°48′·5W), between Harney Shoal (NE) and Jarvis Shoal and Silver Rock (SW), which has been swept to a depth of 7 m.

3 Through the channel between Harney Shoal and Horse Shoe (5.428).

Through the channel E of Horse Shoe (5.428).

Through Kettle Bottom Shoals (5.428).

Directions

(continued from 5.435)

5.439

1 From position 17°11′N 61°48′W, the alignment (117°) of Moor Islet (17°10′N 61°45′W) with the summit of Great Bird Island (2 miles SE) (5.427) leads towards Parham Sound, passing (with positions from Shoal Point (17°10′N 61°47′W)):

SW of Horse Shoe (2 miles N) (5.428), thence:

2 Close NE of a rocky bank extending 2 cables N from Prickly Pear Island (2 miles E).

5.440

1 When Prickly Pear Island bears SW the track leads SE into Parham Sound, passing:

SW of Ward Shoal (1¼ miles NE), thence:

NE of the reef extending 2 cables N from Shoal Point, on which stands an old mill without sails, and a radio beacon, and:

SW of Scott Shoal (7 cables NE), close N of which lies a dangerous rock, thence:

2 SW of Yam Piece Shoals (extending SE from Scott Shoal) on which there are many dangerous rocks and which dries in places.

(Directions continue for Parham Harbour at 5.444)

Anchorages

5.441

1 **Parham Sound** affords anchorage in depths of 6 to 13 m, the holding ground is good and the anchorage is protected from rollers. Buoys are reported to be laid in the sound, as follows:

Port hand (17°09′·3N 61°46′·6W).

Yellow and black sphere (17°09′·4N 61°46′·5W).

Local knowledge is required.

Berth

5.442

1 A jetty, with a length of about 107 m and depths of 7·3 to 7·6 m alongside its outer part, extends E from High Point (17°09′N 61°47′W). Shoal water lies 1 cable N and S of the jetty, as shown on the chart; and a considerable swell is experienced at the jetty during periods of strong winds.

2 High Point is a liquefied gas terminal, normally used by tankers. Ro–Ro facilities are reported to be available.

Parham Harbour

General information

5.443

1 **Description.** Parham Harbour (17°08′N 61°46′W) is entered between Barnacle Point, to the W, and Crabs Point (1¼ miles E), the NW extremity of Crabs Peninsula which is low and swampy and forms the E side of the harbour.

2 **Limiting conditions.** The harbour can accommodate coasters with a draught of 4 m but the approaches are narrow and intricate, limiting vessels in length.

Directions for entering harbour

(continued from 5.440)

5.444

1 **Maiden Island Channel.** A buoyed channel, ½ cable wide and dredged to a least depth of 4·9 m, passes through the bank joining Long Island to the coast SW, which separates Parham Sound from North Sound (5.445). This channel is not recommended for use at night.

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2 **Directions.** From the vicinity of 17°09′N 61°46′W the channel leads SSE, passing (with positions from Barnacle Point (17°08′·5N 61°46′·5W)):
ENE of Barnacle Point, the NE extremity of the peninsula on which stands VC Bird International Airport, thence:
3 Close WSW of Maiden Island (6 cables NE), thence:
ENE of Fellingo Shoal (5 cables SE) on which there are submerged rocks.

Anchorages
5.445

1 Convenient anchorage may be had in North Sound (17°09′N 61°45′W) in a depth of 13 m about 4 cables E of Maiden Island, as shown on the chart, keeping clear of a submarine water pipeline, the position of which is approximate, which is laid across North Sound.

Berths
5.446

1 **Cement berth.** A T–headed pier, with a depth of 6·1 m alongside the head, projects ¾ cable from the shore, 5 cables SW of Crabs Point. This jetty has bulk handling facilities for cement and facilities for Ro–Ro vessels.
2 **Development.** In 1986 the small jetty in position 17°07′·5N 61°45′·7W was extended to 120 m from the shore.
3 **Caution**. Four concrete mooring blocks are laid in the vicinity as follows:
Two abreast the head of the jetty, 55 m on either side; one of which dries (SW block) and the other with a depth of 0·5 m (SE block) over it at MLLW.
Two at a distance of 160 m farther to seaward from the inner blocks, parallel to the line of the jetty, with depths of 1 m (NW block) and 0·5 m (NE block) over them at MLLW.
4 It was reported in 1987 that these blocks were marked by oil drums.
It is also planned to construct an additional jetty to the W of the existing jetty.

5.447

1 **Landing** is possible at Jordans Pier (17°07′N 61°46′W) which extends about 100 m N from the town. This is the largest of several piers charted in the vicinity of Parham.

ANTIGUA — SOUTH–EAST SIDE

General information

Chart 2064

Route
5.448

1 From a position NE of Indian Town Point (17°06′N 61°41′W), the route leads S for about 6 miles to a position E of Friars Head (17°03′N 61°40′W) from whence the route leads SW for about 8 miles, keeping outside the coastal bank, to a position S of English Harbour (17°00′N 61°46′W) (5.456).

Topography
5.449

1 General topography for Antigua (5.333).
The SE coast is generally fringed with reefs, with the exception of that part from Willoughby Bay (17°02′N 61°44′W) to English Harbour (3 miles WSW) where the coast is bold and steep–to.

Depths
5.450

1 General remarks on depths are given at 5.327.
From the NE corner of Antigua, at Indian Town Point, to the S coast there are no off–lying dangers.

Fishing
5.451

1 Fishing floats (5.328).

Rescue
5.452

1 A lifeboat is stationed at English Harbour (17°00′N 61°46′W), (5.456).

Natural conditions
5.453

1 **Current.** General remarks (5.329).
Swell. General remarks(1.220).
Sea state. See 5.426.

Principal mark
5.454

1 **Landmark:**
White house (17°03′N 61°40′W) standing on Friars Head.
Major light:
Cape Shirley Light (metal mast 21 m high) (17°00′N 61°45′W).

Directions
(continued from 5.430)

5.455

1 From a position NE of Indian Town Point (17°06′N 61°41′W), the track leads S passing (with positions from Man–of–War Point (17°04′N 61°39′W)):
E of Man of War Point, the E extremity of Green Island, the E extremity of Antigua, a rocky headland steep–to but appears rounded at a distance of 1 mile, thence:
2 E of York Island (1¼ miles SW) which is rocky and almost connected with the coast W of it by reefs, thence:
E of the reef bordering the coast between York Island and Hudson Point (below) which may, in moderate weather, be approached to within 1 mile, thence:
E of Friars Head (1½ miles SW), a bold promontory surrounded by rocks.
3 From this position the track leads SW passing:
SE of Hudson Point (3 miles SW), a bold, precipitous, rocky headland which rises to an elevation of about 65 m; and of a similar point (1 cable NE of Hudson Point), situated on the E side of Little Cove. Both headlands show up well from the E, especially in the morning when the sun highlights the white cliffs, thence:
4 SE of Cape Shirley (6½ miles SW) a prominent rocky promontory which rises almost vertically to a flat summit, on which stands Cape Shirley Light (5.454) near to some buildings and a fort.

(Directions continue for English Harbour at 5.460, and for Falmouth Harbour at 5.472. Directions for passage S of Antigua are given at 5.404)

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ENGLISH HARBOUR AND FALMOUTH HARBOUR

English Harbour

Chart 2064, plan of Falmouth Harbour and English Harbour

General information

5.456

1 **Position.** English Harbour (17°00′N 61°46′W) is situated on the S coast of Antigua, close E of Falmouth Harbour (5.467). Berkeley Point, the W entrance point into English Harbour and the E extremity of Middle Ground peninsula, will be used in this text as a general reference object.

This is a Port of Entry.

The port is a popular tourist attraction with deep rooted historical connections as mentioned at 1.82.

2 **Topography.** Middle Ground peninsula, which separates English Harbour from Falmouth Harbour, is connected with the main island by a low, narrow, sandy ridge, about 1 cable wide. The ruins of a fort stand near the summit of the peninsula.

3 **Approach and entry.** English Harbour is approached in clear water from the S and entered between Berkeley Point (5.456) and Charlotte Point (1 cable SE).

Port Authority is the English Harbour Authority, on behalf of the Antigua Port Authority.

Limiting conditions

5.457

1 **Limiting draught** is 6·1 m.

Limiting length is 50 m in the inner harbour. The entrance channel is narrow and intricate, limiting the maximum length of vessels which can be turned around Berkeley Point (5.456). Longer craft are restricted to Freemans Bay (5.462).

Arrival information

5.458

1 **Outer anchorage.** Good anchorage is available, in a depth of 27 m, 3½ cables SW of Berkeley Point, sheltered from N winds.

Quarantine. It is reported that newly arrived mariners should wait in Freemans Bay (1½ cables E of Berkeley Point) (5.462) and request clearance on VHF. Yellow quarantine buoys are available in the bay.

Harbour

5.459

1 English Harbour is a bay, practically landlocked, providing an ideal haven.

Current S of Antigua is described at 5.329.

Directions for entering harbour

(continued from 5.406 and 5.455)

5.460

1 The entrance channel, with a depth of over 5 m in the fairway, is less than ½ cable wide; however the least charted depth along the recommended leading line is 6·4 m. For limitations in length see 5.457.

5.461

Leading lights:

Front light (17°00′·5N 61°45′·6W).

Rear light (340 m NNE of the front light).

From a position on the coastal route the alignment (025°) of these leading lights leads into the harbour entrance, passing (with positions from Berkeley Point):

1 ESE of Snapper Point (5 cables WSW) the steep–to S extremity of Middle Ground peninsula (5.456), thence:

WNW of the reef and bank, with a charted depth of 3·7 m (¾ cable S), which extends about ¾ cable NW from Charlotte Point, the N extremity of a short stretch of cliff known locally as the Pillars of Hercules, thence:

2 ESE of the bank, with a depth of 4·6 m over it, extending ½ cable SE from Berkeley Point, a long, narrow, rocky ridge, on which stands the ruins of some fortifications.

From a position ENE of Berkeley Point the track leads NW, in mid channel.

Berkley Point *Charlotte Point*

English Harbour entrance from S (5.461)

(Original dated 2002)

(Photograph – Paul Duffy)

Anchorages

5.462

1 **Freemans Bay** (2 cables SE) close N of Charlotte Point, is easy of access and affords better accommodation than the inner harbour, in a depth of about 7·3 m; but vessels with a draught of 5·5 m must be moored head and stern as there is insufficient swinging room. Use of this bay is recommended for securing vessels which are too long (5.457) to proceed into harbour. A recommended anchorage, with a depth of 7 m, situated in mid–channel, is positioned by the following:

Berkeley Point bearing 265°.

Freeman Point (1½ cables NNE) bearing 353°.

2 **Commissioners Bay** (2½ cables N) affords secure anchorage, in soft mud, off Nelson's Dockyard, with a stern line secured on Pitch Kettle Point.

5.463

1 **Anchorage is prohibited** within 30 m of a submarine power cable which crosses the harbour from Pitch Kettle Point (3 cables N), to the NE extremity of Nelson's Dockyard, on which stand two beacons indicating the line of the cable.

Alongside berths

5.464

1 There are depths of about 2·1 to 3·4 m alongside Nelson's Dockyard Wharf. The N wharf in Nelson's Dockyard (3 cables NNW) can accommodate craft with a draught of 5·8 m, alongside the wharf, using an anchor laid–out to the E.

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Port services

5.465

1 **Repairs.** English Harbour is reported to offer the best repair facilities for yachts in the E Caribbean, with a slipway reportedly capable of hauling craft up to 120 tonnes displacement, 7·3 m beam and draught of 4·0 m; a mobile crane of 7 tonnes capacity, and full shipwright, engineering, electronic, sail and hull restoration facilities.

5.466

1 **Supplies** are available as follows:

Diesel fuel and gasoline.
Water.
Fresh provisions.
Stores, from a well stocked marine chandlery.

2 **Deratting Exemption Certificates** can be issued.

Falmouth Harbour

General information

5.467

1 **Position.** Falmouth Harbour (17°01′N 61°47′W) is situated on the S coast of Antigua, close W of English Harbour (5.456). Proctors Point (17°00′N 61°47′W) will be used in this text as a general reference object.

2 **Approach and entry.** Falmouth Harbour is approached in clear water from the S and entered between Proctors Point and Blacks Point (3 cables E) (5.473).

Limiting conditions

5.468

1 **Limiting draught** is 6·1 m but coral heads, with depths of less than 5 m are prevalent in all areas, and local knowledge is required to enter with a craft of more than 4 m draught.

Limiting length is 50 m.

Arrival information

5.469

1 **Outer anchorage.** HMS *Fox* (950 tonnes) found reasonable anchorage, with good holding, in position 17°00′N 61°47′W, off Falmouth Harbour in January 1985, subject to a swell of up to 2·5 m from ENE.

Harbour

5.470

1 Falmouth Harbour is a large bay able to provide shelter in all kinds of weather. The harbour may be considered as being divided into two parts: the NE (inner) part being separated from the SW (outer) part by a spit extending more than halfway across the harbour SE from Blake Island (5 cables NNE).

Flow

5.471

1 **Current** S of Antigua is described at 5.329.

Directions for entering harbour

(continued from 5.406 and 5.455)

5.472

1 **The channel** leading to the inner part of the harbour is narrow and marked with buoys. It leads ENE on the leading line. The least depth on the leading line, continuing to Falmouth, is 2·6 m.

5.473

1 **Directions.** From a position S of Proctors Point (17°00′N 61°47′W) the alignment (029°) of the leading lights at the head of the harbour (1¼ miles NNE) (red triangular daymark, point up, on wooden pile structures, 10 m in height),), leads through the entrance, passing (with positions from Proctors Point):

2 ESE of Proctors Point, thence:
WNW of Blacks Point (3 cables E), the W extremity of Middle Ground peninsula thence:
WNW of a light–buoy (starboard hand) (2¾ cables NE) marking the W edge of Bishop Reef, a series

Blacks Point

Proctors Point

Catamaran Marina

Falmouth Harbour from Monka Hill (5.467)

(Original dated 2002)

(Photograph – Paul Duffy)

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of very shallow reefs which are always visible, extending 2 cables NW from the coast, thence:

3 WNW of a light–buoy (starboard hand) (3¼ cables NE) NW of Bishop Reef, thence:

To the vicinity of the Spit Shoal Light–buoy (preferred channel to starboard) (3¾ cables NE).

(Directions continue for the deep water channel at 5.475)

5.474

1 **To Falmouth.** From the vicinity of the Spit Shoal Light–buoy (preferred channel to starboard) (3¾ cables NE) the alignment (029°) of the leading lights (5.473) continues NNE, passing:

2 WNW of an unmarked coral patch with a depth of 2·3 m over it (4½ cables NE), and:

Over a spit extending 2¾ cables SE from Blake Island (4¾ cables NNE) with depths of 4 m; the 2·3 m patch is at the SE end of the spit. thence:

3 WNW of a C1 Buoy (starboard hand) (6½ cables NE) marking the SW edge of a shoal area with least depth of 0·8 m, thence:

Through a channel marked by buoys (lateral) and:

Close ESE of bank (7¾ cables NNE) with depths less than 2 m and extending 3 cables S from the head of the bay.

5.475

1 **Deep water channel** (*continued from 5.473*). From the vicinity of the Spit Shoal Light–buoy (preferred channel to starboard) (3¾ cables NE) a channel, with a least depth of 6·3 m, and marked by light–buoys and buoys (lateral) leads ENE passing:

2 Close SSE of an unmarked coral patch with a depth of 2·3 m over it (4½ cables NE), thence:

NNW of a spit with a depth of 1·8 m (5½ cables ENE) extending NW from Saint Anne's Point.

5.476

1 **Useful marks:**

Monks Hill (17°02′N 61°46′W) standing to the N of Falmouth Harbour, is a prominent elevation.

Oil tank, white (17°00′·7N 61°46′·1W).

Anchorages

5.477

1 **The outer harbour** affords anchorage in depths of 6 to 7 m, about 3 cables NNE of Proctors Point.

The inner harbour affords anchorage as follows:

To vessels of draught of 4 m, in the deep water anchorage, in depths of 5 to 10 m, 2 cables SW of Chapel Point (1 mile ENE), keeping clear of the buoyed channel (5.475).

2 To craft with a draught of 3 m, S of Falmouth, in depths of 3 to 5 m, clear of shoal patches shown on the chart.

Alongside berths

5.478

1 Falmouth jetty (1 mile NNE) can accommodate vessels up to 20 m in length with a draught of 2 m.

Fuelling Jetty (9½ cables ENE) can accommodate yachts for fuelling only.

Port services

5.479

Supplies: fuel; fresh water, which may be rationed at times; provisions.

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NOTES

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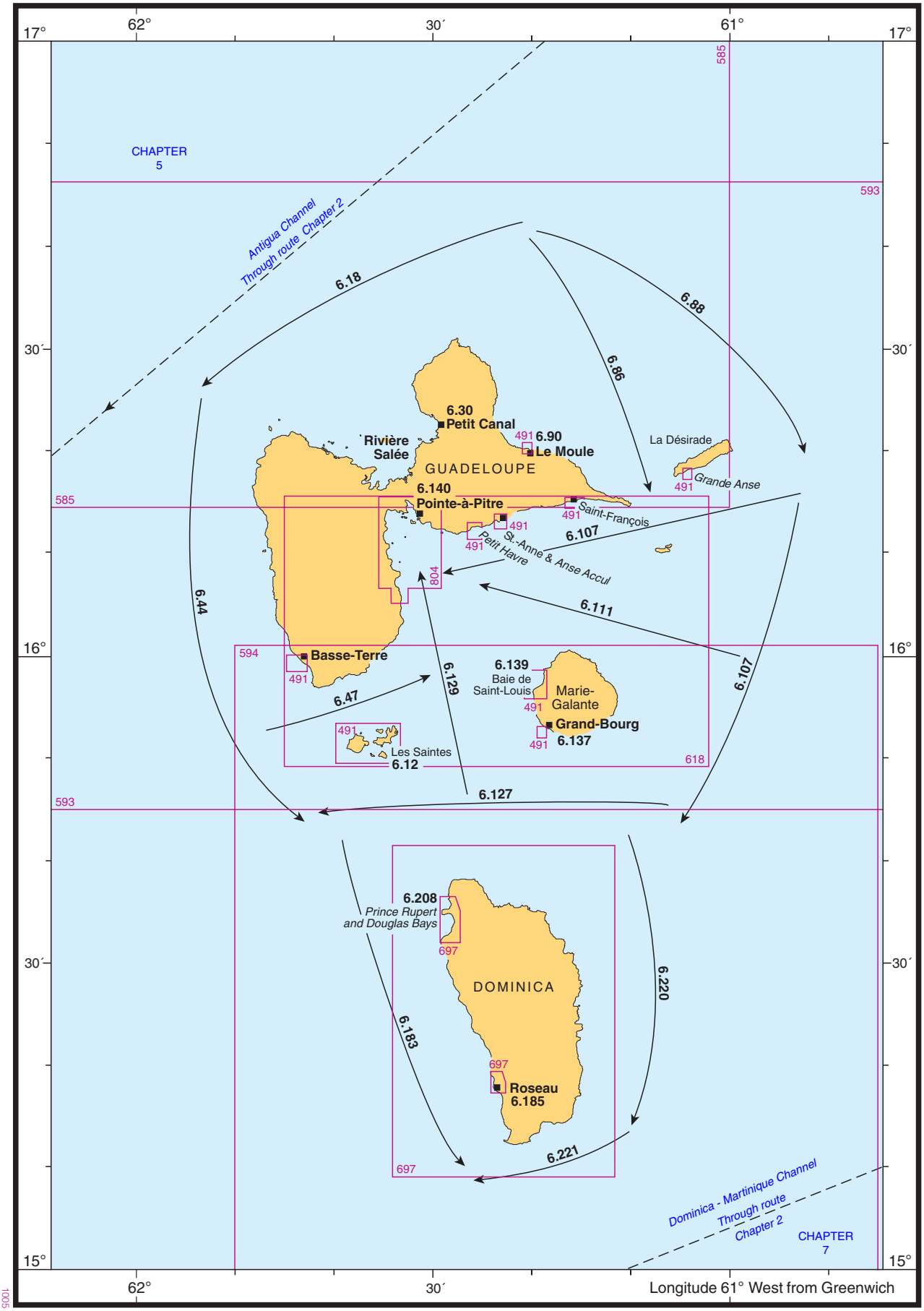
Chapter 6 - Leeward and Windward Islands - Guadeloupe and Dominica



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CHAPTER 6

GUADELOUPE AND DOMINICA

GENERAL INFORMATION

Charts 593, 594

Scope of the chapter

6.1

1 This chapter describes the S part of the Leeward Islands and the N part of the Windward Islands, presenting the coastal and inter island waterways around Guadeloupe (16°20′N 61°30′W) and Dominica (15°25′N 61°20′W).

Directions are given for coastal passage on both sides of the island chain; for all routes between the islands; and for entry into all harbours and significant bays; as shown on the index chartlet.

International boundary

6.2

1 Guadeloupe and its dependent islands (6.7) form an administrative Region of France as given at 1.126.

The Commonwealth of Dominica is an independent nation within the Commonwealth described at 1.107.

The international boundary between these two nations passes through the main channel separating the islands.

Harbours

6.3

1 **Major harbours**

Pointe–à–Pitre (Guadeloupe) (16°14′N 61°32′W) (6.140).

Roseau (Dominica) (15°18′N 61°23′W) (6.185).

6.4

1 **Minor harbours**

Basse–Terre (Guadeloupe) (16°00′N 61°44′W) (6.49).

Les Saintes (15°52′N 61°37′W) (6.68).

2 Le Moule (Guadeloupe) (16°20′N 61°21′W) (6.90).

Grand–Bourg (Marie–Galante) (15°53′N 61°19′W) (6.137).

Pointe du Folle Anse (Marie–Galante) (15°56′N 61°20′W) (6.138).

Topography

6.5

1 General topography:

Guadeloupe at 6.8.

Marie–Galante at 6.11.

Les Saintes (Îles des Saintes) at 6.12.

La Désirade at 6.13.

Dominica at 6.175.

Currents

6.6

1 In the vicinity of Guadeloupe and Dominica the predominant currents flow W or NW with moderate constancy.

2 In the passage between Guadeloupe and Dominica the current is reported to set NNW. However, in November 1977, MV *Yorkshire* recorded an E current of about 1 kn between the positions of (15°34′N 60°45′W) and (15°44′N 61°20′W).

Mean rates are 1 to 1¼ kn from February to June and ¾ to 1 kn in the second half of the year.

GUADELOUPE

GENERAL INFORMATION

Chart 593

Area covered

6.7

1 This section describes the sea area around Guadeloupe (16°20′N 61°30′W) (1.126) and its dependent islands of Marie–Galante (6.11), La Désirade (6.13) and Les Saintes (6.12); all of which lie near the S end of the Leeward Islands, in the Lesser Antilles (1.69).

2 Guadeloupe is the proper name for the W of the two large islands, as well as being the name used for the national group. The W island is also called Basse–Terre which is also the name of the capital town of the group, which is a port on the SW side of the W island. In this text names will be used as follows:

3 Guadeloupe for the group.

Basse–Terre for the capital town and port.

The island of Basse–Terre for the W island.

Grande–Terre for the E island.

This section also describes the passage between Guadeloupe and Dominica, including the N coast of Dominica.

Topography

6.8

1 The islands of Basse–Terre and Grande–Terre are of equal size, formed in the shape of a butterfly. These islands, which are separated by a large bay to the N (Grand Cul–de–Sac Marin) (6.20) and another to the S (Petit Cul–de–Sac Marin) (6.142), are divided by Rivière Salée (6.31) which connects the two bays.

The two islands differ greatly in both physical structure and appearance, as described below:

2 The island of Basse–Terre (to the W) is of volcanic origin, its surface being very hilly. It is traversed NNW and SSE by a chain of almost inaccessible mountains, the principal summits of which attain an elevation of nearly 1500 m, down the sides of which flow mountain torrents. The slopes of these mountains are comparatively gentle on their E sides but on their W sides they are steeper. All the slopes are wooded, with the exception of La Soufrière (16°03′N 61°40′W), near the S end of the range, which is an active volcano with three peaks. Smoke rises continuously from the crater of La Soufrière and flames are frequently visible.

3 Grande–Terre (the E island) is low in comparison with its W neighbour and is of limestone formation. There are

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two chains of hills. The N chain forms a tableland about 95 m high which falls vertically on its S side. The S chain is composed of rugged bluffs, about 115 m high, running almost parallel with the coast. These bluffs are intersected by deep gorges through which flow shallow streams closed at their mouths by banks of sand.

4 When approaching Guadeloupe from the E it is possible to recognise La Désirade (16°19′N 61°03′W) (6.13), visible at 30 miles against the background of smoke rising from La Soufrière.

Fishing

6.9

1 Offshore fishing is a traditional industry.

Local weather

6.10

1 The climate is hot and humid (1.227) but the extreme heat is often tempered by NE winds from the sea. Rainfall is abundant in the mountain regions of the island of Basse–Terre but sparse over the lower island of Grande–Terre. There are generally three seasons, as follows:

2 Cool season from November to April.
Warm and dry season from April to July.
Warm and wet season from July to November.

The hurricane season (1.235) from July to November is significant in Guadeloupe as it lies in the hurricane path and has, at times, been heavily storm damaged.

Principal islands

Marie–Galante

6.11

1 **Position**. Marie–Galante (15°55′N 61°15′W), lies with Grosse Pointe (Pointe du Nord), its N extremity, about 15 miles SSW of Point des Châteaux, the SE extremity of Grande–Terre.

2 **Function.** This small island, with a population of 12 488 in 1999 exports sugar and molasses. Some cotton is grown and fishing contributes to the economy.

Topography. Marie–Galante is a limestone island, more or less circular, with a diameter of about 7 miles.

3 There are two tablelands on the island, both in the N part. The N–most of the two (about 100 m high) is separated from the higher tableland, close S, by a river which crosses the island from E to W, discharging at Vieux Fort, on the NW coast. The S tableland is edged on its S side by a river, which almost traverses the island in a WNW direction, to discharge on the W coast, about 1 mile NE of Pointe de Folle Anse (the W extremity).

4 Coastal descriptions are given as follows:
E coast at 6.101.
S coast at 6.119.

Les Saintes

6.12

1 **Position.** Les Saintes (Îsles des Saintes) (15°52′N 61°37′W) are situated with Gros Cap (the W extremity of the group) about 6½ miles SSE of Pointe du Vieux Fort (the SW extremity of the island of Basse–Terre).

2 **Function**. These islands, with a population of 2 998 in 1999 depend on farming and fishing as the mainstay of the economy, with salt extraction as an alternative occupation. It is a destination for cruise liners.

Anchorage within the islands (6.68), provides good shelter in normal weather, close to Pointe–à–Pitre (6.140).

3 **Topography.** The group consists of two large islands and a number of small islets, all lying close together. The two islands, Terre–de–Haut (to the E) and Terre–de–Bas (to the W), separated by Passe du Sud (6.73), have the following characteristics:

4 Terre–de–Haut, the most important and highest in the group, is about 3 miles in length, rising near its SW end to Mont Rossel (313 m. At the NE end stands Morne Morel (136 m high) (about 5 cables S of Pointe Morel, the N extremity of the island) which is steep on its W side.

5 Terre–de–Bas is not as hilly as Terre–de–Haut; it forms a tableland in the centre of which rise two rounded summits, Morne Abymes (8 cables S of Pointe à Vache (15°52′N 61°38′W)) and Morne Paquette (273 m high) (1¼ miles S of Pointe à Vache). The S side of the tableland rises more abruptly than the the other sides.

La Désirade

6.13

1 **Position.** La Désirade (16°19′N 61°03′W) is situated 5 miles ENE of the SE extremity of Grande–Terre.

Function. This island, with a population of 1 620 in 1999, produces some cotton and maize but the main occupation is fishing. The island has also been reported to be a peaceful tourist attraction.

2 **Topography.** La Désirade, a limestone island with a length of 6½ miles and a width of about 1 mile, rises to a wooded tableland (280 m high) which is slightly higher at the SW end and crossed by a deep ravine at the NE end of the island.

3 Coastal descriptions are given as follows:
N side at 6.82.
S side at 6.99.

Depths. Except on its S side the island is surrounded by considerable depths from a distance of about 1 mile offshore. However, within 9 cables of the shore on the N side, and 3 cables elsewhere, the waters have been incompletely surveyed and uncharted shoals may exist.

GUADELOUPE — NORTH–WEST PART

General information

Chart 593

Route

6.14

1 From a position NE of Pointe de la Grande Vigie (16°31′N 61°28′W), the route leads SW, for about 35 miles to a position WNW of Îlet à Kahouanne (16°22′N 61°47′W).

Topography

6.15

1 General topography for Guadeloupe (6.8).
Topography for Grand Cul–de–Sac Marin (6.20).

Depths

6.16

1 General description of the depths in Antigua Channel (2.67).

Coastal depths. Between Pointe de la Grande Vigie and Pointe d'Antigues (6½ miles SW) the coast is steep–to and free from danger. Continuing S, from Pointe d'Antigues to Port Louis (1½ miles S) the coast is fringed with reefs.

Depths within Grand Cul–de–Sac Marin are given at 6.20.

2 From Pointe Allègre (16°22′N 61°45′W), the coastal bank, with depths of 44 m, extends 4½ miles NNW.

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Currents

6.17

1 General information (6.6).

Directions

6.18

1 From a position NE of Pointe de la Grande Vigie (16°31′N 61°28′W), the track leads SW passing (with positions from Anse Bertrand Light (16°28′N 61°31′W)):

Clear of an offshore bank (10 miles N) (2.70), thence:

2 NNW of Pointe de la Grande Vigie (3½ miles NE), the N extremity of Grande–Terre, which terminates in a sharp angle, the vertical side of which is slightly concave while its summit is flat. When seen from E or W it resembles the bow of a ship. Thence:

3 About 6 miles NNW of Pointe Allègre (15 miles WSW), the N extremity of the island of Basse–Terre, which is a low point on which stands a clump of trees, thence:

NNW of Tête à l'Anglais (16 miles WSW) which is steep–to only on its W side.

4 From this position the track continues SW for about 6 miles to a position WNW of Îlet à Kahouanne (17 miles WSW), which is steep–to, except on its NE side and has, on its summit, a slight ridge sloping away on either side. The island is wooded, except on its SE side where it is covered with undergrowth and bordered by a sandy beach.

Useful marks

6.19

1 Anse–Bertrand Light (white pylon, 8 m in height) situated at the head of the bay.

Port–Louis Light (W cardinal, on yellow framework tower with a black band, on a hut, 10 m in height) (3¾ miles SSW).

(Directions continue for passage W of Guadeloupe at 6.44)

Grand Cul–de–Sac Marin

Chart 593 (see 1.20)

General information

6.20

1 **Description.** Grand Cul–de–Sac Marin (16°20′N 61°35′W), situated on the N side of Guadeloupe, is a deep bight formed between the island of Basse–Terre and Grande–Terre which is entered between Pointe Gris–gris (16°24′N 61°31′W) and Pointe Allègre (13 miles WSW). The bay is encumbered with islets and reefs of hard coral which extend from 1 to 3 miles offshore. In places, especially near its outer edge, there are several coral heads awash on which the sea breaks during NE winds. Grand Cul–de–Sac Marin is a nature reserve (see 1.53).

2 **Topography.** The head of the bay is backed by an extensive plain, separated from the sea by a fringe of mangroves, interrupted here and there by salient points. The W side of the bay is composed of sandy beaches, separated by small rocky points.

3 **Passes.** There are six passes through the reefs which give access to three basins, five anchorages and a boat passage through Rivière Salée (6.31) which connects with Pointe–à–Pitre (6.140). These passes are tortuous and the marks, many of which are not charted, are not to be relied upon.

4 In 1990 it was reported that silting was taking place to the E of Sainte–Rose (6.34) and depths up to 1 m less than charted could be encountered in this area.

Local knowledge is essential.

Pilots are mostly local fishermen. It is their practice to navigate the channel with the sun behind them, enabling the reefs to be seen.

Basins

6.21

1 Within the reefs of Grand Cul–de–Sac Marin there are three basins connected by narrow and tortuous channels which can be used only by coasters of shallow draught. These basins are as follows:

2 The E and largest basin (16°20′N 61°37′W) with depths of 7 to 20 m in it, extends SE from Passe à Caret (16°22′N 61°38′W) (6.25) and divides into several branches, as shown on the French chart. This basin, which incorporates Mouillage de la Rivière Salée (6.31), Mouillage de la Baie Mahault (6.32) and Mouillage de la Baie Cercelle (6.33), can be approached through Passe à Colas (6.23), Passe à Fajou (6.24) or Passe à Caret (6.25).

3 The SW basin, lying S of Îlets du Carénage (16°21′N 61°41′W), has general depths of 7 to 8 m in it and is connected to the NW basin (below). This basin can be approached through Passe de la Grande Coulée (6.26).

4 The NW basin, lying N and NW of Îlets du Carénage (above) has depths of 10 to 13 m in it. This basin can also be approached through Passe de la Grande Coulée (6.26).

Directions

6.22

1 **Approach.** Depths of 10 m will be found about 2 cables outside the reefs, seaward of which they increase rapidly, except to the N of Passe de la Grande Coulée (16°24′N 61°44′W) (6.26), to depths of 100 m 1½ miles from the banks.

6.23

1 **Passe à Colas,** which is entered about 1 mile NNE of Îlet à Colas (16°21′N 61°34′W), has a width of about ½ cable and a least depth of 8·2 m. The channel is very winding and, except when entering in the morning, the banks are difficult to distinguish.

2 From the vicinity of 16°22′N 61°34′W, the entrance into Passe à Colas leads SSE, passing (with positions from Îlet à Colas):

Between two light–buoys (lateral) (1 mile N) marking the entrance to the channel, thence:

3 Between the E end of the reef off the N side of Îlet à Fajou (4 cables W), which is flat and covered with mangroves over its S part, and the W end of a second reef (1¾ miles ENE). This gap is 4 cables wide but is further constrained by shallow banks.

4 The channel then leads generally S, marked along its length to Rivière Salée (3¾ miles SSE) (6.31) by light–buoys, passing E of Îlet à Colas, a small rocky plateau that is difficult to identify.

6.24

1 **Passe à Fajou.** From the vicinity of 16°22′N 61°36′W, the entrance into Passe á Fajou leads SSW then generally S over a least depth of 5·1 m, passing (with positions from Pointe Granger):

2 WNW of the W end of the reef off the N side of Îlet à Fajou (6.23), thence:

ESE of the reef extending E from Îlet à Caret (2½ miles NNE) (6.25), thence:

ESE of Gros Mouton de Caret (2¼ miles NNE) which is a small reef with 1·3 m of water over it.

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6.25

1 **Passe à Caret,** which is entered about 5 cables NNW of Îlet à Caret (16°21′N 61°37′W), has a width of about ½ cable and a least depth of 8·7 m but the channel is tortuous.

From a position 8 cables NNW of Îlet à Caret (a flat and grassy islet with a clump of trees near its centre, fringed by sandy beaches), a track of 170° leads into Passe à Caret, passing (with positions from Îlet à Caret):

2 Between the reefs 3 cables N of Îlet à Caret (to the E) and the E extremity of the reefs extending about 4 miles ESE from a position 3 miles ENE of Pointe Allègre (16°22′N 61°45′W), to the W. A group of wrecks (1¼ miles WNW) lie on the reef.

From a position 2 cables NW of Îlet à Caret the channel alters towards the SW to pass W of that island.

6.26

1 **Passe de la Grande Coulée,** which is entered about 1½ miles NE of Pointe Allègre (16°22′N 61°45′W), is bordered by banks on both sides and has a least depth in the channel of about 6 m.

2 From a position 2 miles N of Pointe Allègre the track leads SE into the entrance to Passe de la Grande Coulée passing (with positions from Pointe Allègre):

NE of Tête à l'Anglais (1¾ miles NW) (6.18), thence:

NE of PGC Light–buoy (safe water) (1¾ miles NW), thence:

3 Very close NE of PGC1 Light–buoy (starboard hand) (1¼ miles NE), marking a coral patch with a least charted depth of 3·2 m. This section of the channel requires caution. Thence:

SW of the W end of the reef extending WNW from Passe á Caret (6.25).

4 When the summit of Îlet à Kahouanne (2 miles WNW) (6.18) bears 270° the track alters to the S and leads towards the anchorage in Mouillage de Sainte–Rose (6.34), passing:

W of SR Light–buoy (safe water) (1¾ miles ESE) situated near the middle of the channel.

6.27

1 **North–east of Îlet à Kahouanne** (16°22′N 61°47′W), lies a pass in which the depths, although irregular, are greater than 5 m.

From a position N of Îlet à Kahouanne, the line of bearing, 150°, of Pointe Vieux Fort (1½ miles SE of Îlet à Kahouanne) leads midway between the shoals extending E from Îlet à Kahouanne (6.18) and those extending S from Tête à l'Anglais (1¼ miles NE) (6.18).

2 When Pointe Allègre (2 miles ESE of Îlet à Kahouanne) bears 092° the track alters to the E to pass 2½ cables N of the point.

When Pointe Allègre bears 180°, the track leads 105° to pass about 3 cables N of Pointe Nogent (3 miles ESE of Îlet à Kahouanne).

3 When Pointe Madame (3½ miles ESE) bears 190° the track leads SSE, following the track for Passe de la Grande Coulée (6.26).

6.28

1 **South of Îlet à Kahouanne** (16°22′N 61°47′W), lies a pass with a least depth of 6·2 m.

From a position SW of Îlet à Kahouanne, the line of bearing, 084½°, of Pointe Allègre (2 miles ESE of Îlet à Kahouanne) leads through the pass between Îlet à Kahouanne and the coast to the S.

From a position SE of Îlet à Kahouanne the track alters to the E to join the second leg of the track at 6.27.

Anchorages

General information

6.29

1 There are five anchorages in Grand Cul–de–Sac Marin. Of these only Mouillage de Petit Canal (16°23′N 61°31′W) is situated outside the reefs which cover the major part of the bay.

Mouillage de Petit Canal

6.30

1 **Description,** About 1 mile WSW of Pointe de Fer à Cheval (16°23′N 61°30′W) is a low point bordered by sandy beaches, situated at the NE end of Grand Cul–de–Sac Marin. The bay affords anchorage in depths of about 11 m. Anchor bearings are as follows (with positions from Pointe du Fer à Cheval):

2 The line of bearing, 098°, of the church in the village of Petit Canal (8 cables SE) which is prominent.

The line of bearing, 346°, of Pointe d'Antigues (3½ miles NNW) (6.36).

3 **Directions.** From the vicinity of 16°23′N 61°33′W, the line of bearing, 098°, of the church in the village of Petit Canal, in the green sector (091° to 119°) of Petit Canal Light (16°23′N 61°30′W) leads to the anchorage.

4 **Useful mark:**

Pointe à Macou (2½ miles SSW) which is dominated by a hillock 31 m high. Îlet à Macou, which is covered in trees, lies 2 cables NW of the point.

Mouillage de la Rivière Salée

6.31

1 **Description,** about 9 cables N of Îlet à Christophe (16°18′N 61°34′W), the rounded summit of which is covered with trees, affords anchorage between that island and a light–buoy (port hand) marking the SW extremity of a bank (1¼ miles N).

The recommended approach to this anchorage is through Passe à Colas (16°21′N 61°34′W) (6.23).

Mouillage de la Baie Mahault

6.32

1 **Description.** The bay is entered between the banks extending from the following points:

Pointe Madeleine (16°17′N 61°35′W) which may be identified by a house with 2 chimneys (one red and the other white), which stands amidst trees, on a hill about 6 cables S of the point.

Pointe à Nègre, situated 1¼ miles W of Pointe Madeleine.

2 **Directions**. The recommended approach to the anchorage is through Passe à Colas (16°21′N 61°34′W) (6.23). The centre line of the final approach to the bay is encumbered by a detached bank which dries in places. The anchorage is in a depth of 4 m in the N part of the bay.

Mouillage de la Baie Cercelle

6.33

1 **Description.** The bay, (7 cables SE of Pointe de la Grande Rivière (16°18′N 61°36′W), lies at the mouth of Rivière à Goyaves) and affords anchorage between this point, which is very low and may be identified by several isolated clumps of trees on it, and Pointe à Nègre (1¼ miles SSE), using the alignment of the clearing marks.

2 **Description.** The recommended approach to the anchorage is through Passe à Colas (16°21′N 61°34′W) (6.23). In the final approach to the anchorage lie two banks (5 cables E of Pointe de la Grande Rivière). The alignment (191°) of Pointe à Nègre with the ruins of a house standing

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on a small hill 3½ cables S of the point passes E of these banks.

Mouillage de Sainte–Rose

6.34

1 **Description.** The area (1½ miles ESE of Pointe Allègre (16°22′N 61°45′W)) affords anchorage in a depth of 9 m muddy sand, as shown on the charts.

Directions. The recommended approach to the anchorage is through Passe de la Grande Coulée (16°23′N 61°44′W) (6.26) or through either of the passes N or S of Îlet à Kahouanne (16°22′N 61°47′W) given at 6.27 and 6.28.

2 **Landing** at Sainte–Rose, 1½ miles SE of the anchorage, is facilitated by a jetty, on the head of which stands a light.

Anse–Bertrand

6.35

1 **Anchorage**, which is not safe before May, is available off Anse–Bertrand (16°28′N 61°31′W), a small sandy cove almost closed by rocks on which the sea breaks, in depths of 10 m sand and coral, as shown on the charts.

Port–Louis

6.36

1 **Description.** Anchorage is available in an open roadstead off Port–Louis (16°25′N 61°32′W) in a depth of about 12 m sand and rock, about 3 cables offshore, as shown on the chart. The N anchorage is situated with the distinctive church steeple (clock tower) (about 1 cable SE of Port–Louis Light (6.19)), bearing 090°.

2 **Directions.** Approach to Port–Louis should be made from the W as follows:

Along a line of bearing, less than 090°, of the church steeple (above) or:

Along the line of bearing, 135°, of Port–Louis Light (6.19).

3 **Clearing line**. The line of bearing, 000°, of Pointe d'Antigues (1¼ miles N of Port–Louis) a salient point which rises to a conical hillock, clears to the W of the fringing reef.

Harbour. A small fishing harbour is situated at the S end of the town.

GUADELOUPE — WEST SIDE AND WEST APPROACH TO POINTE–A–PITRE.

General information

Charts 618, 593

Route

6.37

1 From a position WNW of Îlet à Kahouanne (16°22′N 61°47′W) the route leads S for about 25 miles to a position W of Pointe des Peres (16°01′N 61°45′W) from whence the route leads SE, for about 16 miles to a position SW of Les Saintes (Îles des Saintes) (15°52′N 61°37′W).

Approach to Pointe–à–Pitre from west

6.38

1 **Route** From a position NW of Les Saintes (15°52′N 61°37′W) the route leads ENE for about 18 miles, passing through Canal des Saintes (16°55′N 61°40′W) between Les Saintes and the island of Basse–Terre to a position SE of Capesterre Belle–Eau (16°03′N 61°34′W).

Firing practice area

6.39

1 A firing practice area has been established NW of the port of Basse–Terre, approximately between latitudes 16°01′N and 16°04′N, and extending 3½ miles from the shore, as shown on the chart.

Topography

6.40

1 Guadeloupe at 6.8.

Les Saintes at 6.12.

West coast. Notable features within the mountain chain along the W coast of the island of Basse–Terre are as follows:

2 Piton de Sainte–Rose (16°20′N 61°46′W) which is a conical peak.

Gros Morne (16°19′N 61°48′W) an isolated peak with a flattened summit, the W face of which is scored with deep ravines.

Les Mamelles (16°11′N 61°45′W) (6.43).

3 Houëlmont (15°59′N 61°43′W) (Chart 618) situated about 4 cables inland, is a prominent, steep–sided mountain with a flattened summit. The W coast in this vicinity consists of steep cliffs backed by precipitous spurs of the mountain range.

4 **South coast.** At the W end of the S coast the land rises in gentle slopes towards Col de Gourbeyre (15°59′N 61°42′W), which separates the mass of La Soufrière (3½ miles NNE) (6.8) from the group of mountains at the SW end of the island of Basse–Terre.

5 Farther E, from a position SW of Pointe des Bananiers (16°00′N 61°36′W) the land rises steeply from the coast, forming the spurs of La Soufrière. This part of the coast is dominated by Petite Montagne (Montagne du Trou aux Chiens) (1 mile W of Pointe des Bananiers), about 2 miles NW of which rises La Madeleine, on the steep slopes of which can be seen several waterfalls.

Depths

6.41

1 The coastal bank, with depths of less than 70 m, extends up to 2½ miles offshore from the N part of the W coast, decreasing to less than 1 mile at the S end. The edge of this bank is not fully defined.

2 Le Grand Sec (16°20′N 61°49′W) is a narrow rocky bank, with general depths of 12 to 25 m over it, which extends about 6½ miles SSW from Îlet à Kahouanne (16°22′N 61°47′W) (6.18). Least depths exist over the N part of the bank which borders the NW coast of the island of Basse–Terre. The S part of the bank lies between 5 and 8 cables offshore. Detached coral patches, with depths of 9·1 m, 10·5 m and 8·7 m, lie on the bank, 1 and 1½ miles SW and 2 miles SSW of Îlet à Kahouanne respectively.

Currents

6.42

1 General information (6.6).

Along the W coast of the island of Basse–Terre, a SE current, which can attain a considerable rate, is often experienced, varying according to the direction and force of the wind.

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2 Details of local currents are given as follows:
Off Basse–Terre (16°00′N 61°44′W) (6.54).
Within Les Saintes (15°52′N 61°37′W) (6.76).

Principal marks

6.43

1 **Landmark:**
Television mast (16°11′N 61°45′W) standing on the NW peak of Les Mamelles, which are two adjacent mountains close together.

2 **Major light:**
Pointe du Vieux Fort Light (white tower, grey top, 23 m in height) (15°57′N 61°43′W).

Directions

(continued from 2.70, 5.281, 5.321 and 6.19)

6.44

1 From a position WNW of Îlet à Kahouanne (16°22′N 61°47′W) the track leads S passing (with positions from Anse à la Barque Entrance Light (16°05′N 61°46′W)):
W of Îlet à Kahouanne (16½ miles N) (6.18), thence:

2 W of La Perle (15½ miles N), a coral rock which lies inside Le Grand Sec (6.41), thence:
W of Pointe du Gros Morne) (13½ miles N), situated close NW of Gros Morne (6.40). Close NW of the point stands a black jagged rock which has the shape of a pyramid. Thence:

3 W of Pointe Ferry (20 m high) (11¼ miles N), a salient point that is flat and wooded, thence:
W of Pointe Noire (9¾ miles N) which is composed of black rocks, slightly whitened at their bases. There are some trees on this point. The village of Pointe Noire is situated 1 mile farther SE. Thence:

4 W of a shoal, with a depth of 1·3 m over it, lying about 1 cable W of Pointe Mahaut (6¼ miles N), a whitish cliff, on which stands a white hospital with a red roof, thence:
W of Îlets à Goyaves (4¾ miles N), two precipitous rocky islets connected by a reef which dries. The larger and higher islet (35m high) has a white cross on its summit. Thence:

5 W of a 4·3 m patch lying close W of Pointe à Lézard (3 miles N) which is composed of steep black rocks, to the SE of which extend yellow cliffs, thence:

6 W of Pointe des Pères (5 miles SSE), a steep–to point, with a depth of about 100 m 2 cables offshore, situated about 7 cables S of Baillif which can be identified by a white square tower within the village.

7 From this position the track leads SE passing:
SW of Basse–Terre (6 miles SSE) (6.49), thence:
SW of Pointe du Vieux Fort (9 miles SSE), the SW extremity of the island of Basse–Terre, which is composed of blackish rocks, on which stands Pointe du Vieux Fort Light (6.43). This point is steep–to and clear of danger but a large rock stands S of the point.

8 From this position the track continues SE for about 6½ miles to a position SW of Gros Cap (16 miles SSE), the SW extremity of Les Saints (6.12), which is a high cliff covered with bushes, at the foot of which lie masses of rocks.

6.45

1 **Useful marks:**
Distinctive white cross on one of Les Trois Tortues (5 cables NNW).
Anse à la Barque Entrance Light (W cardinal on yellow framework tower with a black band, 7 m in height).

2 Anse à la Barque Head Light (white tower, 11 m in height) (3 cables E).
Basse–Terre Quay Light (white pylon with a green top, 12 m in height) (6 miles SSE).
For other features in the vicinity of Basse–Terre (6.50).

(Directions continue for passage W of Dominica at 6.183.
Directions for passage between Guadeloupe and Dominica are given at 6.127)

Approach to Pointe–à–Pitre from west

6.46

1 **Canal des Saintes** (15°55′N 61°40′W), between Les Saintes and the island of Basse–Terre, has depths of over 200 m in the fairway, as shown on the chart. However to the S of this deep channel, the water shoals rapidly and depths of less than 50 m will be found within 3 cables of the 200 m depth contour. To the N, the coastal bank, with a depth of less than 20 m over it, extends up to 8 cables offshore. Between Grande Pointe (Pointe à la Taste) (15°58′N 61°37′W) and Pointe de la Capesterre (6 miles NNE) (6.129) the depths are irregular for about 1 mile offshore.

2 **Topography** of the S coast of the island of Basse–Terre is decribed at 6.40 and for Les Saintes at 6.12.

Directions

6.47

1 From a position on the coastal route SW of Pointe du Vieux Fort (15°57′N 61°42′W), the approach to Pointe–à–Pitre leads ENE, passing (with positions from Pointe des Trois Rivière Light (15°58′N 61°39′W)):
SSE of Pointe du Vieux Fort (3½ miles WSW) (6.44), thence:

2 NNW of Pointe du Gouvernail (6½ miles S) which is easily identified by a prominent rock, within which there is a steep cliff surmounted by an isolated tree, thence:
Clear of an isolated shoal patch with a charted depth of 12·5 m (4 miles S), thence:

3 NNW of Pointe à Vache (20 m high) (5¾ miles S), the N extremity of Terre–de–Bas, the summit of which is ill defined and on which stands a solitary tree, thence:

4 SSE of shoal patches, with charted depths of 8·3 to 8·9 m (8 cables SW), which lie about 5 cables SSE of Pointe de la Grande Anse which is rounded and on which stands a ruined battery, partly hidden by trees, thence:

5 SSE of the bank of sand and coral, with a depth of about 9 m over it, which extends about 6 cables S from Pointe des Trois Rivière, which is fringed by a reef which dries. Pointe des Trois Rivière Light (white tower with a green top, 10 m in height) stands close NW of the point. Thence:
NNW of Îlet à Cabrit (6 miles SSE) (6.69), thence:

6 At least 1 mile SSE of Grande Pointe (Pointe à la Taste) (1½ miles E), a wide, low promontory, terminating in large black rocks some of which are detached, thence:
NNW of Pointe Morel (6½ miles SE) (6.77), thence:

7 SSE of the coastal bank, with a depth of less than 20 m, extending up to 1 mile from Pointe du Petit Marigot (5½ miles NE) which can be identified by a water mill surmounted by a tall chimney. An

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archway is formed in the wall surrounding the mill.

8 From this position the track continues ENE for about 6½ miles to a position SE of Capesterre–Belle–Eau (16°03′N 61°34′W).

6.48

1 **Useful mark:**

Tour Modèle (15°51′·5N 61°35′·8W) (6.126).

(Directions for approach to Pointe–à–Pitre from S are given at 6.129)

Basse–Terre

Charts 491 plan of Basse Terre, 618

General information

6.49

1 **Description.** Basse–Terre (16°00′N 61°44′W), situated near the S end of the W coast of the island of Basse–Terre, is the capital of Guadeloupe, being the seat of government and administration centre for the Guadeloupe Region of the French Antilles (1.126). It is a port of entry and had a population of 14 082 in 1990.

6.50

1 **Topography.** La Soufrière (6.8), which rises about 5 miles inland from Basse–Terre, is distinctive in the approach but is frequently obscured by clouds.

Closer to Basse–Terre, which is backed by an amphitheatre of hills, the following features may be identified (with positions from Basse–Terre Quay Light, which stands inshore of the quay, near the NW end of the town):

2 Cemetery (4½ cables NW) situated on the coast, the white tombstones of which are distinctive.

Basse–Terre Quay Light (6.45).

Fort Sainte Charles (7 cables SE) built on a cliff facing S over the mouth of Le Galion.

6.51

1 **Port limits.** Rade de Basse–Terre, from a position abreast the mouth of Le Galion, extends NW to the parallel of the cemetery, out to the 40 m depth contour.

Approach and entry. Rade de Basse–Terre is approached from seaward and entered as required, without restriction.

2 **Traffic.** In 2004, 52 vessels with a total dwt of 192 478 tonnes, used the port.

Port Authority. See 6.145.

Limiting conditions

6.52

1 **Density of water:** 1·025 g/cm^3.

Maximum size of vessel handled. Length of 300 m, beam of 30 m, draught of 8·8 m.

Local weather. Rade de Basse–Terre is an open roadstead which affords no shelter, especially from winds between S and SW, and is sometimes subject to violent squalls from the SE. A heavy swell will affect vessels alongside.

2 **Haven.** The nearest hurricane haven for coasters is Anse à la Barque (6 miles NNW of Basse–Terre) (6.64).

Arrival information

6.53

1 **Port radio.** See *Admiralty List of Radio Signals Volume 6(5).*

Notice of ETA should be confirmed 24 hours in advance via the agent and or the Port Authority in Point à Pitre (6.145).

2 **Pilotage,** available 24 hours, is compulsory for inwards vessels over 120 m LOA, and outwards vessels over 160 m LOA. See *Admiralty List of Radio Signals Volume 6(5).*

3 **Tugs** are available.

Currents

6.54

1 In the anchorage flows vary in direction between NW and SE and sometimes attain a rate of 2 kn.

Anchorages and berths

6.55

1 **Anchorages** to the NW of the town, on the wider part of the coastal bank, the bottom consisting of sand, gravel and rocks, are as follows:

In a depth of 33 m, with the cathedral (1¼ cables E of Basse–Terre Quay Light), which has a distinctive adjoining building but requires care in its identification, bearing 105°, 6 cables, as shown on the chart.

2 In a depth of about 70 m, with the cathedral (above) bearing 085°, 7 cables, as shown on the chart.

3 Vessels should anchor using both anchors following the running moor procedure by letting go the starboard anchor first, then middling the vessel between the anchors. The vessel should then lie on a SE heading with Marine de Riviere Sens right ahead from which direction violent squalls may be experienced.

Prohibited anchorages

6.56

1 Anchoring elsewhere than in the recommended anchorages as shown on the chart is unwise due to the presence of disused submarine cables. Anchoring is prohibited N 16°N on a line extending W from the conspicuous cemetary.

Vessels should not be anchored near the mooring buoy W of the quay.

Berths

6.57

1 **A mooring buoy** is available W of the quay.

Alongside berths. A concrete quay, with a length of 304 m and a depth alongside of 9 to 10 m, is situated abreast the centre of the town.

Port services

6.58

1 **Facilities:** hospital**;** oily waste reception facilities are not available.

Supplies: fuel by road tanker; fresh water; provisions.

Anchorages and harbours

Chart 593

Anse Deshaies

6.59

1 **Description.** Anse Deshaies (16°18′N 61°48′W) is a well sheltered bay, with a depth of 24 m in the entrance. There is a depth of 13 m in the middle, decreasing rapidly towards its N and S sides but more gradually towards the beach at its head. The bottom is sand but there are some rocks in the bay.

2 **Anchorage.** The recommended anchorage, in a depth of about 24 m, sand, lies with the white church, with a red roof, at the head of the bay, bearing 100°, 5 cables.

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Anse Ferry
6.60

1 **Anchorage** is available in Anse Ferry, situated on the N side of Pointe Ferry (16°16′N 61°49′W), in a depth of about 15 m, sand, about 2 cables offshore.

Baie Pointe Noire
6.61

1 **Anchorage** is available in Baie Pointe Noire (16°14′N 61°48′W) in a depth of 12 m about 1 cable offshore, abreast the village of Pointe Noire, which may be identified by the church with a square belfry, situated at the head of the bay.

Anse de Pigeon
6.62

1 **Anchorage** is available, in a depth of 20 m, about 2 cables off the village of Pigeon (16°09′N 61°47′W).

Anse Bouillante
6.63

1 **Anchorage** is available in a depth of 20 m, sand and rock, about 2 cables offshore, SW of the village of Bouillante (16°08′N 61°46′W).

Anse à la Barque
6.64

1 **Description.** Anse à la Barque (16°05′N 61°46′W), a small harbour, well sheltered except from the W, affords refuge during a hurricane, in depths of 9 to 10 m. This refuge is particularly convenient for those coasters which usually call at Basse–Terre (6.49).

2 Details of the lights at Anse à la Barque are given at 6.45.

There is a small pier, with a least depth of 4 m alongside.

Chart 618

Bananier
6.65

1 **Description.** There is a jetty, from which a light is exhibited (16°00′N 61°36′W).

Grande Anse
6.66

1 **Anchorage** is available in Grande Anse (15°58′N 61°40′W), in depths of about 10 m, sand and rocks, about 3 cables offshore, as shown on the chart. The alignment of Pointe de la Grande Anse with the S extremity of the coast to the E, passes through the anchorage position.

Landing place
6.67

1 A landing pier, marked by a light at its head, is situated in Anse des Trois Rivières (15°58′N 61°39′W), close to Pointe des Trois Rivières Light (6.47).

Anchorages off the north–west side of Les Saintes

Charts 491 plan of Les Saintes, 618

Main anchorage
6.68

1 **Description.** Les Saintes (15°52′N 61°37′W) (6.12) provides good anchorage in the middle bay of three, on the NW side of Terre–de–Haut. This wide bay, entered between Pain de Sucre (15°52′N 61°36′W) and Pointe à l'Eau (1½ miles NE), is sheltered by Îlet à Cabrit. The head of the bay is bordered by beaches of sand and pebbles, within which stands the town of Terre–de–Haut (Bourg des Saintes) and, nearby, a number of ancient fortifications, covered with undergrowth.

2 **Anchorage** in Les Saintes is prohibited for vessels over 1600 grt carrying hydrocarbons or dangerous cargoes (see 1.49). It has been reported (2004) that three mooring buoys are moored close S of the anchorage, the N–most bearing 052° distant 2·6 cables from Tete Rouge the others in a line trending S for about 1½ cables into Añse du Fond Curé. These would appear to restrict the approach to the anchorage.

Topography
6.69

1 Les Saintes at 6.13.

Îlet à Cabrit (5 cables NE of Pain de Sucre) consists of three promontories which rise to hills (60 to 80 m high) partly covered with bushes.

2 On the S and highest hill stand several buildings, one of which (Fort Joséphine) is big and windowless with a large gateway. At night the lights at, and marking the approach to, a large house on this hill are prominent.

The N side of the islet, between Pointe de l'Anse à Chaux, the NE extremity, and Pointe à Cabrit, the W extremity, is fringed by a shoal bank, on which lies a coral reef part of which is above water.

3 The SE side of the islet, which contains a cliff which has been used as a naval gunfire target, is bordered by large stones and rocks.

Directions for entering the main anchorage
6.70

1 The anchorage is entered by one of the following passes (with positions from Pain de Sucre):

From W, using Passe du Pain de Sucre (2 cables N) (6.71).

From N, using Passe de la Baleine (1 mile NE) (6.76).

Passe du Pain de Sucre

Description
6.71

1 Passe du Pain de Sucre, passing S of Îlet à Cabrit, is about 4 cables wide with a least charted depth of 13·2 m in the fairway.

Approach from north
6.72

1 From a position NW of Îlet à Cabrit, the approach leads generally S, passing (with positions from Pain de Sucre (15°52′N 61°36′W)):

W of Pointe à Cabrit (8 cables N), 2 cables ENE of which stands a large, prominent rock (6.77), thence:

2 E of Le Pâté (28 m high) (1¾ miles WNW) a jagged rock which is steep–to on its E side but has foul ground, with a depth of 4·1 m over it, extending about 2 cables W, towards Pointe à Vache, thence:

E of Pointe Noire (1½ miles W) which consists of dark cliffs.

Approach from south
6.73

(continued from 6.133 and 6.134).

1 Passe du Sud (8 cables SW of Pain de Sucre), passing between Terre–de–Bas (6.13) and Terre–de–Haut (6.68), which is 4½ cables wide, deep and clear of dangers, leads generally N, passing (with positions from Pain de Sucre):

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2 E of Pointe du Fer à Cheval (1 mile SW) the E extremity of Terre–de–Bas, which is high and wooded, and:

W of Pointe de Bois Joli (6½ cables SW), the SW extremity of Terre–de–Haut, formed of piled masses of rock, several of which have fallen into the sea, thence:

3 E of Caye Crapaud (about 1 mile W) which has a depth of 8·5 m over it.

Entry from west

6.74

1 From a position 5 cables WNW of Pain de Sucre, the line of bearing, 090°, of the church with a belfry at Terre–de–Haut (9½ cables E), leads along the S side of Passe du Pain de Sucre, as shown on the chart, passing (with positions from Pain de Sucre):

2 N of Pain de Sucre (53 m high) which is a conical hill rising from a rocky peninsula, thence:

S of a detached coral patch, with a least depth of 1·4 m over it (5½ cables NE) which is steep–to on all sides and is marked on its SE side by a buoy (isolated danger), and:

3 Close N of a detached shoal patch, with a depth of 4·2 m over it (4½ cables ENE) situated 1 cable NW of Tête Rouge, a rocky point which rises to a small pointed hillock on the summit of which stands an old gun battery. A radio mast stands on the point.

4 When the old battery on Tête Rouge bears 180° the track alters ENE along the line of bearing, 065°, of the conspicuous white house (1 mile ENE), situated on the coast at the N end of Anse du Bourg, which resembles the bow of a ship, complete with hawse–pipe and cable. This track leads to the anchorage (6.79), as shown on the chart.

5 An alternative track leads 051°, on the alignment (231°) astern of the NW extremity of Pain de Sucre with Pointe du Fer à Cheval (about 1 mile SW) (6.73), passing between Pointe Sable (the S extremity of Îlet à Cabrit) and the coral patch (5½ cables NE) (above).

6.75

1 **Useful mark:**

Fort Napoleon (1¼ miles NE) standing on a hill, within a series of cliffs.

Passe de la Baleine

Description

6.76

1 Passe de la Baleine (1 mile NE of Pain de Sucre (15°52′N 61°36′W)) is about 2 cables wide and deep in the fairway. A current which flows S through Passe de la Baleine, thence across the roadstead in a SW direction at 2 kn, is especially evident when the North–east Trade Wind blows and caution is required.

Approach from east

6.77

1 From a position N of Pointe Morel (15°53′N 61°34′W), the NE extremity of Terre–de–Haut, the line of bearing, less than 243°, of Pointe de l'Anse à Chaux (9 cables NNE), leads towards Passe de la Baleine, passing (with positions from Pain de Sucre):

2 NNW of Caye Marigot (1½ miles NE) a rock on which the sea breaks during heavy weather, situated close NE of Pointe à l'Eau, thence:

NNW of La Baleine du Large (1¼ miles NE) (6.78).

3 **Clearing marks:**

The alignment (257°) of a large and prominent rock resembling a tower (8 cables N) with Pointe à Vache (2 miles WNW) (6.47), passes very close NNW of Caye Marigot and close NNW of La Baleine du Large.

Entry from north

6.78

1 From a position about 1¼ miles NNE of Pain de Sucre the track leads S into Passe de la Baleine, as shown on the chart, passing (with positions from Pain de Sucre):

2 E of the coastal bank, with a depth of about 14 m over it (1 mile NNE), extending NE from Pointe de l'Anse à Chaux, thence:

3 W of La Baleine du Large (1¼ miles NE), a rock which is steep–to on its N and W sides, with a shoal extending about ¼ cable to the S. In calm weather it is easily seen and in heavy weather the sea breaks on it. This shoal is marked off its W side by BA Light–beacon (port hand), thence:

W of La Baleine (about 1 mile NE) which is 0·6 m high.

4 From a position E of Pointe Bombarde (9 cables NE) the line of bearing, 150°, of a conspicuous cross (1 mile E) which is situated near a chapel and illuminated at night, leads towards the anchorage, as shown on the chart.

5 **Clearing bearing:**

The line of bearing, 155°, of the church in Terre–de–Haut (9½ cables E) (6.74), open SW of Pointe Anse à Mire (1 mile NE), passes close WSW of La Baleine du Large and La Baleine.

6 At night, the white sector (142° to 154°) of Terre–de–Haut Pier Light (white metal framework tower, 8 m in height) (1 mile ENE) leads through Passe de la Baleine.

7 Side channels which approach Passe de la Baleine from NE, passing inside La Baleine du Large are constrained in width and depth.

Local knowledge is required.

Useful mark is given at 6.75.

Anchorages

6.79

1 **Anchorage** is available, in depths of 14 to 16 m about 9 cables ENE of Pain de Sucre (15°52′N 61°36′W), as shown on the chart, which is positioned as follows:

The line of bearing, 132°, of the church (6.74), situated in Terre–de–Haut.

The alignment (353°) of Pointe Anse à Mire with La Baleine (6.78).

2 This anchorage is well protected from the prevailing winds but is exposed to winds from W and NW. It is reported that winds between W and NE (through N) produce a N swell at the anchorage.

A French cruiser has anchored with the church (above) bearing 115°, distant 3 cables.

Good anchorage, in sand, is available for smaller vessels off the town, clear of the pier.

3 **Prohibited anchorage** areas, owing to submarine cables, are established as follows, as shown on the chart:

In an area N of Pain de Sucre.

In Passe du Sud (8 cables SW of Pain de Sucre) (6.73).

4 Anchoring and trawling are prohibited in an area extending NNW from Pain de Sucre, as shown on the chart.

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Berths

6.80

1 An L–shaped pier, with a length of about 40 m, extends from the coast at the town of Terre–de–Haut; on its seaward side there are depths of 6 m at the N end and more than 7 m at the S end. It is reported to be used by ferries.

2 A Ro–Ro berth, with a depth of 2·2 m, able to accommodate 40 m barges, is situated in Anse du Fond Curé (8½ cables E of Pain de Sucre).

GUADELOUPE — NORTH–EAST SIDE

General information

Charts 593, 1025

Routes

6.81

1 **Coastal route.** From a position NE of Pointe de la Grande Vigie (16°31′N 61°28′W), the N extremity of Grande–Terre, the route leads SSE for about 32 miles, passing through the channel between the SE extremity of Grande–Terre (16°15′N 61°11′W) and La Désirade (5 miles NE), to a position SE of Pointe des Colibris (16°15′N 61°10′W) the SE extremity of Grande–Terre.

2 **Offshore route** From a position NE of Pointe de la Grande Vigie (16°31′N 61°28′W), the N extremity of Grande–Terre, the route leads SE for about 35 miles, to a position SE of Le Mouton on the E extremity of La Désirade (16°20′N 61°00′W).

Topography

6.82

1 General topography (6.8).

From Pointe de la Grande Vigie (16°31′N 61°28′W) to Anse Sainte Marguerite (8 miles SSE) the E coast of Grande–Terre consists of steep cliffs about 60 m high. At the base of these cliffs there are numerous hollow rocks into which the sea rushes frequently throwing up tremendous jets of spray.

2 From Anse Sainte Marguerite (16°24′N 61°25′W) to Le Moule (5 miles SE) the coast consists of sandy beaches, separated by sandy points.

3 From Le Moule (16°20′N 61°21′W) to Pointe des Châteaux (11 miles SE) the coast is again comprised of cliffs, which at first increase in elevation towards Pointe Malherbe (4½ miles SE), where they are about 52 m high forming the highest part of this stretch of coast, then towards the SE they are sometimes lower but again increase in elevation in the vicinity of Pointe des Châteaux, the SE extremity of Grande–Terre.

4 **La Désirade.** General topography (6.13).

The N side of the island is precipitous with a high waterfall at its NE end.

Depths

6.83

1 The coast of Grande–Terre, N of Anse Sainte Marguerite, is generally steep–to and free from dangers, whereas to the SE of this bay it is bordered by a coral reef, extending from 1 to 2 cables offshore, all the way to Pointe des Châteaux. However, within 3 cables of the shore there are areas which are incompletely surveyed, within which uncharted shoals may exist.

2 For details of depths around La Désirade see 6.13.

The N coast is steep–to beyond a row of fringing rocks.

The channel between Pointe des Châteaux (16°15′N 61°11′W) and Pointe des Colibris (5 miles ENE) has deep water in the middle and is clear of dangers. For depths to the S of this channel see 6.103.

Natural conditions

6.84

1 **Sea state.** A heavy cross–sea always runs along this part of the coast and breaks heavily against the cliffs.

Currents. General information (6.6).

A strong NW current is reported to occur between Grande–Terre and La Désirade. A fresh E wind causes a W–going current in the vicinity of Pointe des Colibris (at the W end of La Désirade) with a rate of about 2 kn. It is reported that currents in the vicinity of La Désirade will affect the making of a landfall.

Principal marks

6.85

1 **Landmark:**

Chimney (16°20′N 61°20′W), with a water tower 3 cables NW.

Major light:

La Désirade Light (16°20′N 61°01′W) (6.106).

Directions

Coastal route

6.86

1 From a position NE of Pointe de la Grande Vigie (16°31′N 61°28′W), the N extremity of Grande–Terre, the track leads SSE passing (with positions from Port du Moule West–side Light (16°20′N 61°21′W)):

ENE of Pointe de la Grande Vigie (13 miles NNW) (6.18), thence:

2 ENE of L'Éperon (16 m high) (9 miles ESE), a grey mushroom–shaped rock lying about 4 cables offshore. From a distance it has the appearance of the roof of a thatched cottage, weathered by time, and:

WSW of Pointe des Colibris (14½ miles ESE), the SW extremity of La Désirade, which has a white cross standing on its S end, thence:

3 ENE of Pointe des Châteaux (11 miles ESE), the extremity of a narrow promontory extending 3 to 4 miles ESE from Grande–Terre, formed by conspicuous crags (about 40 m high), surmounted by a conspicuous cross. Two large, pointed rocks lie close off its NE extremity but the approaches to the point are clear of danger.

4 From this position the track continues SE for about 3 miles to a position SE of Pointe des Colibris (16°15′N 61°10′W) the SE extremity of Grande–Terre.

6.87

1 **Useful marks:**

Sainte–Marguerite Chapel (5¾ miles NW).

Pylon (5 cables N of Pointe des Colibris (above)).

Lights in the vicinity of Le Moule (6.94).

(Directions for the aproach to Pointe–à–Pitre from E are given at 6.108)

Offshore route

6.88

1 From a position NE of Pointe de la Grande Vigie (16°31′N 61°28′W), the N extremity of Grande–Terre, the route leads SE passing (with positions from La Désirade Light (16°20′N 61°01′W)):

2 ENE of Le Mouton (charted as dangerous rock) (6 cables ENE), a small rock with a depth of 1·5 m

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over it, on which the sea usually breaks, situated about 3 cables SE of the SE extremity of La Désirade, and:

SW of Banc Flandre (8 miles NE).

3 From this position the track continues SE for about 5 miles to a position SE of Le Mouton on the E extremity of La Désirade (16°20′N 61°00′W).

6.89

1 **Useful mark:**

La Désirade Light (6.106).

(Directions continue for passage SE of Guadeloupe at 6.107, and for approach to Pointe–à–Pitre from E at 6.108)

Le Moule

Charts 491 plan of Le Moule, 593

General information

6.90

1 **Description.** Le Moule (16°20′N 61°21′W), the only port on the NE side of Grande–Terre, is partly sheltered by reefs but the anchorage space and period of use are limited. The port is little used except by coasters.

2 **Local knowledge** is essential for entering harbour.

Pilots can be obtained from Pointe–à–Pitre (6.155).

Relative positions in the following text are taken from Port du Moule West side Light, situated on the W entrance point.

Limiting conditions

6.91

1 **Controlling depth** entering harbour is 4 m when crossing Le Baril de Boeuf (6.95) in Passe Hasting (6.95).

Weather. The harbour cannot be entered at any time in bad weather. From October to the end of March the outer anchorage is unsafe.

Outer anchorage

6.92

1 Fine weather anchorage, with good holding, in depths of 15 to 18 m, exists 4½ cables N of Port du Moule West side Light, as shown on the chart.

At night the recommended anchorage lies within the lines of bearing, 158° to 168°, of Port du Moule West side Light.

Principal marks

6.93

1 By day the situation of the harbour may be identified from its position in relation to the following:

A tall chimney at Duchassaing Sugar Factory (1¼ miles SW).

Chimney (8 cables ESE).

Directions for approaching harbour

6.94

1 From the vicinity of 16°22′N 61°20′W, the line of bearing, less than 201°, of Port du Moule West side Light (white pylon with a green top, on a hut, 11 m in height) leads towards the vicinity of the outer anchorage.

2 At night, the line of bearing, 201°, remains within the red sector of the light but leads towards a position 2 cables E of the outer anchorage (6.92).

Directions for entering harbour

6.95

1 **Passe Hastings** is a narrow passage through the sheltering reef and into the port.

In the following directions, positions are given from Port du Moule West side Light.

Initial position: 4½ cables NNW of Port du Moule West side Light.

2 The track leads SSE, between the 10 m depth contours, passing:

SSW of M2 Buoy (port hand) (3½ cables NNW), thence:

NNE of the bank, with depths of 3 m over it, (3 cables NW) extending NNE from the N point of La Moule.

3 From this position the track leads SE in the white sector (133°–138°) of Port du Moule East side Light (white pylon with a red top, 7 m in height) (1½ cables E), passing:

SW of a 4 m patch 1¾ cables NNW), thence:

SW of, or over, Le Baril de Bœuf (1½ cables N), and:

4 NE of Mouton de Bas (1 cable N), a reef fronting the NE side of the town, the NE extremity of which is marked by M1 Light–beacon (starboard hand, triangular topmark), thence:

SW of Mouton de Haut (1¼ cables NNE) a reef which dries, extending about 1½ cables NW from the E entrance point.

Anchorage and harbour

Chart 593

Mouillage du Galet

6.96

1 **Description.** Mouillage du Galet (16°18′N 61°06′W), at the W end of La Désirade, affords some shelter but is not considered a safe anchorage. A water supply pipeline, as shown on the chart, has been laid just ½ cable north of what used to be the recommended anchorage position in Le Galet.

2 **Useful mark:** Pylon (5 cables N of Pointe de Colibris).

Landing can be effected on the beach, through a break in the reef which extends some distance offshore.

Local knowledge is required.

GUADELOUPE — SOUTH–EAST PART AND EAST APPROACH TO POINTE–A–PITRE

General information

Charts 618, 593

Route

6.97

1 From a position SE of La Désirade (16°19′N 61°03′W), the route leads SSW for about 35 miles, to a position SE of Marie–Galante (15°55′N 61°15′W).

Approaches to Pointe–à–Pitre

6.98

1 **From east.** From a position SE of La Désirade (above), the approach route leads WSW, along the S side of La Désirade and the S coast of Grande–Terre, passing over the coastal bank (6.103), to a position SE of Pointe–à–Pitre (16°14′N 61°32′W).

2 **From south–east.** From a position ENE of Marie–Galante (above), the approach route leads WNW, in deep water outside the coastal bank, to a position SE of Pointe–à–Pitre.

Topography

6.99

1 **La Désirade.** General topography is given at 6.13.

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The S side of the island, from Baie Mahault (16°20′N 61°01′W) to Pointe des Colibris (5½ miles WSW) is fringed with coral reefs extending up to 3 cables offshore.

6.100

1 **Îles de la Petite Terre** (16°10′N 61°07′W) consist of two low, sandy islands separated by a narrow, shallow channel. Terre de Haut is the NE island and Terre de Bas, the other, is 12 m high at its E end. Both islands are, for the most part, covered with vegetation and their coasts are formed by narrow, sandy beaches, fringed with groups of rocks on all sides.

2 The islands and adjacent waters are a Nature Reserve, as shown on the chart (see 1.53).

6.101

1 **Marie–Galante.** General topography (6.11).

The E coast of the island, S of Pointe Saragot (15°58′N 61°13′W), is fringed with flat rocks, on the tops of which sand lies and forms, here and there, small white patches. At the S end, there are several sandy beaches off which cays, that usually dry, extend offshore. North of Pointe Saragot, the coast consists of steep cliffs divided into several bays, some of which have considerable depths in them and are bordered by sandy beaches.

6.102

1 **Grande–Terre.** General topography (6.8).

The S coast of the island, to the W of Pointe des Châteaux (16°15′N 61°11′W), is composed of sandy beaches, fringed with coral and separated by irregular pointed crags.

Depths

6.103

1 A large bank, with depths of less than 40 m over it, extends S and E from the S side of Grande–Terre. La Désirade (16°19′N 61°03′W) is situated on the NE extremity of the bank and Îles de la Petite Terre (10 miles SSW) are situated about 2 miles N of its SE extremity. Near the SW edge of the bank lies Banc des Vaisseaux (16°08′N 61°17′W) which is steep–to on its S side and may be recognised by the change in colour of the water over the bank. Shoal patches, with a least depth of 11·9 m over them lie between Banc des Vaisseaux and the bank surrounding Îles de la Petite Terre.

2 **Channels** (with positions from the SW extremity of La Désirade):

The centre of the channel between La Désirade and Îles de la Petite Terre has a least depth of 13·2 m (3 miles SSE). In favourable light the bottom in certain places can be clearly seen.

3 The channel between Pointe des Châteaux and Îles de la Petite Terre has a least depth of 19 m (4½ miles SSW) and is clear of dangers in the fairway but the bottom is very irregular within 2 miles of Îles de la Petite Terre.

4 **Coastal bank.** The S coast of Grande–Terre is bordered by coral reefs, which extend, in places, about 1 mile offshore. Between Anse à la Barque (16°15′N 61°19′W) and Sainte Anne (3½ miles WSW), the coastal bank, with a depth of less than 10 m over it, extends as much as 1 mile offshore, with shoal patches near the edge. Farther W, a bank, with depths of 14·6 to 17·5 m over it, extends about 1¼ miles offshore close W of Petit Havre (16°12′N 61°26′W). Isolated shoal patches, with charted depths of less than 13·7 m, which lie up to 2½ miles from the coast, are mentioned at 6.108.

Fishing

6.104

1 Bamboo floats are used to mark numerous lobster pots moored on Banc des Vaisseaux (16°08′N 61°17′W), which are often hard to see.

Currents

6.105

1 General information (6.6).

In the vicinity of La Désirade (6.13).

Principal marks

6.106

1 **Landmarks:**

Petite Terre Lighthouse (grey tower, with a green top, on a house, 26 m in height) (16°10′N 61°07′W) situated near the E end of Terre de Bas.

Cross standing on Pointe des Châteaux (16°15′N 61°11′W) (6.86).

2 **Major lights:**

Petite Terre Light—as above.

La Désirade Light (white structure with a red top, 20 m in height) (16°20′N 61°00′W), situated near the NE end of La Désirade.

Îlet du Gosier Light (16°12′N 61°29′W) (6.159).

Directions

(continued from 6.89)

Charts 618, 593

Coastal passage

6.107

1 From a position SE of La Désirade (16°20′N 61°00′W), the track leads SSW passing (with positions from Terre de Bas Light (16°10′N 61°07′W)):

ESE of the bank (11 miles NNE) (6.103) extending SSW from La Désirade, thence:

2 ESE of Îles de la Petite Terre (6.100), thence:

ESE of the bank extending about 1 mile E from Pointe de Tali (15 miles SSW), the SE extremity of Marie–Galante, identified by a prominent rock lying close to. Thence:

ESE of Capesterre Light (17½ miles SSW) (white square tower, red bands, 6 m in height).

3 From this position the track continues SSW for about 7 miles to a position SE of Capesterre Light (15°54′N 61°13′W).

(Directions continue for passage E of Dominica at 6.220, and for passage between Guadeloupe and Dominica at 6.127)

Approach to Pointe–à–Pitre from east

(continued from 6.87 and 6.89)

6.108

1 From the vicinity of 16°15′N 60°56′W, the approach to Pointe–à–Pitre leads WSW, passing (with positions from Pointe des Châteaux (16°15′N 61°10′W)):

SSE of Le Mouton (11 miles ENE) (6.88), thence:

2 SSE of a shoal, with a least charted depth of 9·2 m (7¼ miles ENE), thence:

SSE of a shoal, with a least charted depth of 9·8 m (7 miles ENE), thence:

SSE of Pointe des Colibris (5 miles ENE) (6.86), thence:

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3 At least 2 miles NNW of Terre de Haut (5 miles SE) (6.100) to avoid the coastal bank extending N, with a charted depth of 9·2 m 1 mile NNE of the NE extremity of the island. Thence:

4 NNW of Baleine de l'Ouest (5 miles SSE) (6.111), thence:

SSE of Pointe des Châteaux (6.86), thence:

NNW of Banc des Vaisseaux (9 miles SW) (6.103), thence:

5 SSE of an isolated patch, with a charted depth of 13·4 m (8 miles WSW), lying 2¾ miles SSE of Anse à la Barque, which may be identified by a yellowish cliff close W of it, thence:

SSE of a shoal, with a least depth of 4·7 m (10½ miles W), lying near the edge of the coastal bank, thence:

6 SSE of a wreck, with a depth of 6·1 m over it (15¼ miles W), lying 147°, 4 cables from Le Diamant, (16°12′·1N 61°26′·2W), a rock 3·5 m high lying at the E edge of a drying reef off the centre of Petit Havre, thence:

At a distance of 1½ or 2 miles SSE of Îlet du Gosier (16°12′N 61°29′W) (6.159).

6.109

1 **Clearing bearing.** The line of bearing, more than 270°, of Pointe de l'Accul (13 miles W), a sandy point situated on the W side of Mouillage de Sainte Anne, clears to the S of the coastal bank E of Sainte Anne. This point stands out prominently from the cliffs behind it.

6.110

1 **Useful marks:**

Baie Mahault Leading Lights (white pylons with red tops, 5 m in height, 35 m apart) (10¼ miles ENE).

Grande Anse Direction Light (6½ miles ENE) (6.112).

Marks in the vicinity of Sainte–François (6 miles W) (6.115).

(Directions continue for Pointe–à–Pitre at 6.160)

Approach to Pointe–à–Pitre from south–east

6.111

1 From the vicinity of 16°00′N 61°00′W, the approach to Pointe–à–Pitre from SE leads WNW, passing (with positions from Petite Terre Light (16°10′N 61°07′W)):

SSW of Baleine du Sud (4 cables SSW) a rock, partly awash and about 0·9 m high at one end, thence:

SSW of a rock, with a depth of 8·7 m over it (1½ miles WSW), thence:

2 NNE of La Frégate (13½ miles SSW), a high, needle rock lying about 3 cables NW of Pointe Saragot, thence:

3 SSW of Baleine de l'Ouest (1½ miles W), a rock with a depth of 1·5 m over it, extending about 7 cables W from the W end of Terre de Bas, thence:

4 NNE of Gueule Grand Gouffre (Pointe du Grand Gouffre) (13½ miles SW) which is prominent. Scooped out behind the cliff is a deep hollow, into which the sea penetrates under a bridge–like form. Thence:

5 NNE of Grosse Pointe (Pointe du Nord) (13½ miles SW) a salient rocky point at the E end of a bay, the shores of which consist of masses of rocks piled one upon another, thence:

6 SSW of Banc des Vaisseaux (10 miles WSW) (6.103)

(Directions continue for Pointe–à–Pitre at 6.160)

Anchorages and Harbours

Chart 491 plan of Grande Anse

Grande Anse

6.112

1 **Anchorage** is available in an open bay off Grande Anse (16°18′N 61°05′W), outside the reefs, about 4 cables offshore, as follows:

On the approach line, 337°, and:

With Pointe des Colibris (1½ miles WSW (6.86)) bearing 270°.

Depths decrease regularly towards the the shore to about 10 m, whence they shoal rapidly.

2 **Directions.** From the vicinity of 16°16′N 61°04′W, the white sector (335° to 339°) of Grande Anse Direction Light (white pylon with red top, 7 m in height) (at Grande Anse) leads towards the anchorage, passing (with positions from the light):

3 Between two patches with depths of 9·8 and 10 m over them (1¾ miles SSE) (6.108), thence:

WSW of a patch (1¼ miles SE) with a depth of 9·2 m over it, (6.108).

Small craft can continue along this line, through a buoyed channel in the reef, to a position off Grande Anse.

Local knowledge is required.

6.113

1 **Useful mark**:

Radio mast standing close to a church in Grande Anse.

Berth. A jetty, 30 m in length with a depth of 1·8 m alongside its head.

Chart 618

Îles de la Petite Terre

6.114

1 **Anchorage** is available off Îles de la Petite Terre (16°10′N 61°07′W) (6.100) and clear of the Nature Reserve (6.100), as follows:

During S winds: N of Terre de Bas, in depths of 12 to 13 m, sand and coral.

During NE winds: S of Terre de Bas, in a depth of about 10 m, sand and coral, clear of Baleine du Sud (4 cables SSW of Petite Terre Light) (6.106) and shoal patches extending over 1 mile S from the W end of Terre de Bas.

2 Waters around Îles de la Petite Terre have been incompletely surveyed and uncharted shoals may exist within 3 cables of the shore.

Charts 491 plan of Saint–François, 618

Saint–François

6.115

1 **Anchorage** is available, during NE winds, off Saint–François (16°15′N 61°16′W), in depths of 11 to 12 m, sand and broken shells, about 5 cables S of the village; or closer–in, as shown an the plan.

Local knowledge is required.

2 **Directions for entering harbour.** From a position S of Saint–François, the white sector (358° to 002°) of Port de Saint–François Direction Light (white metal framework tower, on a hut, elevation 10 m) situated at the head of the harbour, leads towards the anchorage, passing over a charted depth of 11·8 m (1½ miles S of the light).

3 This sector continues to lead into harbour through a buoyed channel that is accessible to small craft only.

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Useful marks:

The church (belfry) at Saint–François is distinctive.

4 A light (white pylon with a green top, elevation 9 m) situated on the head of the jetty.

Berth. A jetty extends about 60 m SW from a point on the coast, S of the church.

Chart 491 plan of Saint–Anne and Anse Accul

Sainte–Anne

6.116

1 **Anchorage** is available for coasters in the port of Sainte–Anne (16°13′N 61°23′W), in a depth of 5 m inside the coastal reef.

Local knowledge is required.

2 **Directions for entering harbour.** The entrance to the bay is encumbered by a chain of reefs through which there are 2 passes:

Petite Passe, to the W, has a least charted depth of 2 m in it.

Grande Passe, to the E, which is about 30 m wide with a depth of about 6·9 m in it, is the recommended entrance channel.

3 From a position about 6 cables SSE of the village the track leads NNW through Grande Passe, passing:

SW of a light–buoy (starboard hand) (16°13′·1N 61°23′·0W) moored at the entrance to Grande Passe.

A second light–buoy (starboard hand) (2½ cables farther NW) is moored inshore of the anchorage.

4 **Useful mark:**

A church with a white belfry, 34 m in height (16°14′N 61°23′W).

5 **Berth.** A T–shaped pier, 60 m in length, lies 4¼ cables WSW of the church and provides a fishing harbour with depths of 1 to 2 m in it. It is protected by an L–shaped breakwater the head of which is marked by a light.

GUADELOUPE — SOUTH SIDE AND SOUTH APPROACHES TO POINTE–A–PITRE

General information

Charts 594, 593, 618, 956, 804

Route

6.117

1 From a position SE of Capesterre Light (15°54′N 61°13′W), the route between the N coast of Dominica (15°38′N 61°27′W), to the S, and the dependent islands of Guadeloupe, 15 miles to the N, leads WNW for about 35 miles, to a position SW of Gros Cap the SW extremity of Les Saintes (15°52′N 61°37′W).

Approach to Pointe–à–Pitre from south

6.118

1 From a position on the coastal route SSW of Grand Bourg Light (15°53′N 61°19′W) on the SW extremity of Marie–Galante, the route leads NNW, between Les Saintes and Marie–Galante, to the pilot boarding ground SE of Pointe–à–Pitre (16°14′N 61°32′W).

Topography

6.119

1 General topography for the islands of Basse–Terre and Grande–Terre (6.8). and for Marie–Galante at (6.11).

Topography for the E coast of Marie–Galante is given at 6.101.

The S coast of Marie–Galante consists of bluffs which extend inland, the slopes of which are developed into townships.

Les Saintes

6.120

1 General topography (6.12) (see Chart 491, plan of Les Saintes).

The SE side of Terre–de–Haut (15°52′N 61°35′W), the E island, is very irregular and is indented by a number of coves separated by rocky points. Grande Anse, the largest bay on this coast, is sandy throughout its length. Morne Rouge (103 m high) (7½ cables N of Pointe Rodriguez, the SE extremity of the island) is barren and isolated with a reddish bluff on its W face and a fort on its summit.

2 The SW coast of Terre–de–Bas (15°51′N 61°38′W), the W island, consists of steep cliffs, with landslips in some places. Grande Ravine (about 7 cables SE of Gros Cap, the W extremity of the island) in which lies the bed of a stream that is often dry, is flanked by two cliffs, one slate coloured and the other bright red.

Dominica

6.121

1 General topography (6.175).

From Crompton (Crumpton) Point (15°35′N 61°18′W), the NE extremity of Dominica, the N coast of the island is composed of cliffs alternating with sandy bays for about 5 miles then becomes higher and more rugged towards Pointe Jaco (Carib Point) (8 miles WNW). From Pointe Jaco to Capucin (Cape Melville), the NW extremity of Dominica, (about 2 miles W) the coast consists of high cliffs which are highest near the centre.

Depths

6.122

1 **Marie–Galante.** The S coast of Marie–Galante, from Capesterre (15°54′N 61°13′W) to Grand–Bourg (5½ miles W) is fringed for almost its entire length by reefs and rocks, extending about 3 cables offshore, which completely encumber the shallow bays. The waters off the S and E coasts of the island, up to about 4 cables from the shore, have been incompletely surveyed, and uncharted shoals may exist.

2 The W side of the island is bordered by a narrow bank, with depths of less than 5·5 m over it, which extends up to 7 cables offshore between Grand–Bourg (above) and Pointe Ménard (Pointe Vieux Fort) (16°00′N 61°18′W). Depths of less than 18 m are charted up to 1¼ miles from this coast.

Les Saintes

6.123

1 Depths off some parts of the coast of Les Saintes (15°52′N 61°37′W) are not fully established for a distance of up to 1¼ cables offshore and uncharted dangers may exist in the following areas (with positions from Pointe Rodriguez (15°52′N 61°35′W):

2 S coast of Terre–de–Haut, from the E side of Anse Crawen (1½ miles W) to the E side of Anse Rodriguez (2½ cables WSW).

SE coast of Terre–de–Bas, from Pointe du Cap (3¾ miles WSW) to Anse du Petit Étang (3 miles WSW).

S and SE coasts of La Coche (2¼ miles SW).

S and E coasts of Grand Îlet (1½ miles SSW).

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Swell

6.124

1 The NW coast of Marie–Galante, N of Pointe Cimetière (15°59′N 61°19′W) is always subject to a swell during NE winds.

Currents

6.125

1 In the passage between Guadeloupe and Dominica. (6.6).

Principal marks

6.126

1 **Landmark:**
Tour Modèle, a tower standing at an elevation of 318 m on the summit of Mont Rossel (15°52′N 61°36′W) (6.12).

2 **Major lights:**
Pointe du Vieux Fort Light (15°57′N 61°43′W) (6.43).
Îlet du Gosier Light (16°12′N 61°29′W) (6.159).

Directions

(continued from 6.107)

Between Guadeloupe and Dominica

6.127

1 From a position SE of Capesterre Light (15°54′N 61°13′W), the route between the N coast of Dominica (15°38′N 61°27′W) and the dependent islands of Guadeloupe, 15 miles to the N, leads WNW passing (with positions from Grand Bourg Light (15°53′N 61°19′W)):

2 SSW of Pointe du Gros Cap (6½ miles ENE) (6.107), thence:
SSW of Pointe des Basses (2¼ miles ESE), the S extremity of Marie–Galante (6.11), thence:
NNE of Crompton Point (18 miles S) (6.121), thence:
NNE of Capucin (17 miles SSW) (6.121), thence:

3 SSW of Grand Îlet (16 miles WSW), the SE island of Les Saintes (6.12), which rises steeply to its summit near Pointe des Colibris, its SE extremity. For depths in the vicinity of Grand Îlet see 6.123. Thence:

4 SSW of La Coche (44 m high) (17 miles WSW), a small islet which is steep on its S side and covered with cactus and stunted bushes, with an isolated tree on its W side, thence:

5 SSW of Pointe Sud (18½ miles WSW), the S extremity of Terre–de–Bas (the W island of Les Saintes), a salient point consisting of precipitous cliffs 10 m high. The cliffs to the W of the point are high and bordered by large rocks.

6 From this position the track continues WSW for about 3 miles to a position SW of Gros Cap the SW extremity of Les Saintes (15°52′N 61°37′W).

6.128

1 **Useful marks** on Marie–Galante are as follows:
Capesterre Leading Lights (white square towers with red bands, 7 m and 6 m in height) (6 miles ENE).
Red and white television mast (15°54′N 61°19′W).
Radio mast (15°54′N 61°16′W).

(Directions continue for passage W of Dominica at 6.183)

Approach to Pointe–à–Pitre from south

6.129

1 From a position on the coastal route SSW of Grand Bourg Light (15°53′N 61°19′W) the track leads NNW passing (with positions from Saint–Louis Light (15°57′N 61°19′W)):
ENE of a dangerous rock (17 miles WSW), with a depth of 1 m over it, situated about 2 cables NE of Pointe de Colibris, thence:

2 WSW of Grand–Bourg (4½ miles S) (6.137) which may be identified by Grand–Bourg Pier Head Light (white column with a green top, 7 m in height), thence:

3 ENE of Roches Percées (15 miles WSW), three perforated rocks (30 to 45 m high) which are bordered on their N and W sides by foul ground. The middle rock appears to be scored obliquely and has a very pointed conical summit. Thence:

4 WSW of Pointe de Folle Anse (1½ miles SW) which is steep–to with depths of 10 m within 2 cables of the point, and may be identified by a white storage shed at the root of the jetty (6.138), thence:

5 At least 1 mile WSW of Pointe du Cimetière (1¼ miles N), a low point on which stand some trees, that is bordered by foul ground, and:
Clear or over Banc Colombie (7 miles W), thence:
WSW of Îlet du Vieux Fort (2½ miles NNE), situated about 4 cables offshore, 6 m high, covered with bushes and with rocks lying off its W side, thence:

6 ENE of Pointe de la Capesterre (15 miles WNW), forming the N side of the delta of Grande Rivière de la Capesterre, which discharges through a pebble beach. The bay S of the point is dominated by a cliff on which stands Capesterre–Belle–Eau in which a church with a red roof is visible (9 cables SSW of Pointe de la Capesterre). Thence:

7 ENE of Le Gros Loup (16 miles NW), a reef composed of coral patches, some of which dry, lying parallel to the coast about 5 cables E of Baie de Sainte–Marie, thence:
ENE of Caye de la Loire (16°07′N 61°34′W), a detached bank lying in the middle of the entrance to Baie de Sainte Marie, thence:

8 ENE of Pointe de la Rivière à Goyave (16°08′N 61°34′W), situated at the N end of Baie de Sainte–Marie at the head of which are three distinctive red cliffs as shown on the chart.

9 From this position the track continues NNW for about 1½ miles to the pilot boarding ground (16°10′N 61°31′W).

6.130

1 **Clearing marks.** The alignment (205°) astern, of Pointe de la Capesterre (15 miles WNW) with the W extremity of Les Saintes (20 miles WSW) (6.12) passes E of the coastal bank from a position N of Baie de Sainte–Marie to the vicinity of PP Light–buoy (17 miles NW) (6.161).

Useful marks

6.131

1 Saint–Louis Light (white square tower with a green top, 9 m in height), situated close NW of the church at Saint–Louis (6.139).
Mast (3½ miles S) (6.128).

(Directions continue for Pointe–à–Pitre at 6.160)

Channels on the south–east side of Les Saintes

Chart 491 plan of Les Saintes

Passe du Grand Îlet

6.132

1 **Description.** Passe du Grand Îlet, a deep water channel about 2 cables S of La Redonde (15°51′·1N 61°35′·6W), is clear of dangers in the fairway.

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Depths along the S side of Terre–de–Haut (6.123).

2 **Currents.** Strong E winds cause a fairly strong W–going current in Passe du Grand Îlet, especially between La Redonde and the S side of Terre–de–Haut (close N).

Tide–rips, created by the currents, are heavy between La Redonde and Terre–de–Haut.

Directions

6.133

1 From a position 1½ miles E of La Redonde the route through Passe du Grand Îlet leads generally W, passing (with positions from La Redonde):

S of Pointe Rodriguez (1 mile ENE), the SE extremity of Terre–de–Haut, which is steep–to, thence:

2 N of Pointe Plate (5 cables S) the N extremity of Grand Îlet, the E coast of which consists of cliffs, whilst the W coast is low, thence:

S of La Redonde (46 m high), a rock with a rounded summit, covered with vegetation, down the sides of which are vertical fissures, which is surrounded by several smaller rocks, thence:

3 S of a bank, with a depth of 5·9 m over it (4 cables W), which extends up to 2 cables from the SW coast of Terre–de–Haut.

(Directions continue for Passe du Sud at 6.73)

Passe du Sud–Ouest

6.134

1 **Description**. Passe du Sud–Ouest, a deep water channel, about 4 cables NW of Les Augustins (15°50′·5N 61°37′·1W), passes between Terre–de–Bas and the offshore islands about 5 cables SE. Les Augustins will be used as a reference object in this text.

2 **Directions.** From a position about 6 cables SSE of Pointe Sud (1 mile W) (6.127), the alignment (042°) of Pointe de Bois Joli (1 mile NNE) (6.73) with the SE extremity of Îlet à Cabrit (2¼ miles NNE) (6.69), leads through the pass, on the SE side of the fairway, passing:

3 NW of the foul ground extending about 1½ cables NW from Les Augustins, a group of large, steep rocks of unequal size and height which are irregular in outline and riddled with caves. The largest rock has been eroded to form an arch.

(Directions continue for Passe du Sud at 6.73)

Minor channels

6.135

1 **Passe des Dames** (15°50′N 61°36′W), which has a width of 1 cable and a least depth of 7·9 m in the fairway, leads generally N, passing (with positions from Pointe Basse, the W extremity of Grand Îlet (15°50′N 61°36′W) (6.123)):

2 W of foul ground extending 1¾ cables WSW from Pointe Basse, thence:

W of Les Quilles (1 cable N), a group of high, slender rocks.

6.136

1 **Passe du Souffleur** (15°50′N 61°37′W) which is narrow, with a least charted depth of 7·9 m in the fairway, leads generally NNE passing between La Coche (6.127), to the SE, and the reef extending SE from Les Augustins (6.134), to the NW.

Anchorages and harbours

Chart 491 plan of Grand–Bourg, 618

Grand–Bourg

6.137

1 **Description.** Grand–Bourg (15°53′N 61°19′W), situated on the SW side of Marie–Galante, is the chief settlement in the island and affords some shelter inside the fringing reefs which lie about 3½ cables offshore. It had a population of 6611 in 1994.

2 **Topography.** The town is surrounded by numerous mills.

Traffic. In 2001, 3 vessels with a total dwt of 18 747 tonnes, used the port.

Approach from north should be made at least 1 mile offshore to avoid the coastal bank (6.122), until nearing the outer anchorage.

3 **Outer anchorage** is available, in depths of about 15 m on a narrow, steep–to ledge, outside the reef, on the alignment (045°) of the NW end of the reefs (SW of the town) with the prominent belfry of the church on the NE side of town.

4 **Entering harbour.** A buoyed passage, suitable for coasters of draught 3·4 m or less (2 cables NW of Grand–Bourg Pier Head Light) passes between the NW end of the fringing reefs and Caye à Mayeux, as shown on the plan.

Clearing bearing. The line of bearing, 063°, of the belfry (above), passes SE of Caye à Mayeux.

5 **Useful marks:**

Grand–Bourg Pier Head Light (6.129)

The fort and the hospital, both situated on the NW side of the town, are prominent.

6 **Anchorage** is available inside the reef, in a depth of about 4 m about 1 cable W of the pierhead, as shown on the plan.

Alongside berth. A T–shaped pier extends about 160 m from the shore abreast the middle of the town. The pierhead has a length of 33·5 m, with a depth of 4·3 m alongside and is able to accommodate coasters with a draught of 3 m.

A new L–shaped jetty has been constructed parallel to, and 1 cable E of, the pier.

Chart 491 plan of Baie de Saint Louis

Pointe de Folle Anse

6.138

1 **Description.** A T–shaped pier extends about 1 cable WNW from Pointe de Folle Anse (15°57′N 61°20′W). The head of the pier is about 80 m in length, on a line of 023°, with a depth of about 10 m alongside. Mooring buoys, positioned off the N and S ends of the pierhead, assist in securing larger vessels alongside.

2 **Port Authority.** See 6.145.

Pilotage is optional and can be obtained from Pointe–à–Pitre, on 48 hours notice. The Pilot will board in Pointe–à–Pitre Roads at 0400 to allow for a dawn berthing.

Chart 491 plan of Baie de Saint–Louis

Baie de Saint–Louis

6.139

1 **Description.** Baie de Saint–Louis (15°57′N 61°19′W) affords the best anchorage off Marie–Galante for larger sized vessels, in depths of about 7 m good holding, 4½ cables WSW of Saint–Louis Light (6.131). However, winds from the NE cause a slight swell in the bay.

Three submarine power cables are laid across the S end of the bay, as shown on the chart.

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2 Vessels over 1600 grt carrying hydrocarbons or dangerous cargoes (1.49) must anchor 7 cables WNW of Saint Louis as shown on the chart.

A buoy for discharging hydrocarbons, and another mooring buoy, are positioned 4 cables SW and WSW of Saint Louis light.

3 **Recommended approach** is from seaward, keeping at least 1 mile off the coast on either side of the anchorage.

An obstruction. A replacement cable is laid along the 10 m depth contour from the vicinity of 15°58′N 61°20′W to the vicinity of 16°00′N 61°19′W.

Landing is possible for small craft at the local pier.

POINTE–À–PITRE

General information

Chart 804

Position

6.140

1 The harbour of Pointe–à–Pitre, situated at the head of Petit Cul–de–Sac Marin, about 3 miles NW of Îlet du Gosier (16°12′N 61°29′W), lies between the SW side of Grande–Terre and the SE side of the island of Basse–Terre.

Function

6.141

1 Pointe–à–Pitre is the most important commercial harbour in Guadeloupe; it is well protected and considered to be the best harbour in the French Antilles (1.126). It is a customs port of entry and container transhipment port.

The town of Pointe–à–Pitre, standing on the SW coast of Grande–Terre, close within the harbour, is the commercial centre of Guadeloupe, with a population of 20 948 in 1999.

Topography

6.142

1 General topography for Guadeloupe (6.8).

In the following text positions are given from Îlet du Gosier Light.

2 **Petit Cul–de–Sac Marin**:

The W side of the bay, between Pointe de la Rivière à Goyave (6 miles SW) and Petit Bourg (6 miles W), is bordered by shallow flats which extend as much as 1 mile offshore, on which lie several islets. From Pointe à Bacchus (5½ miles W) a narrow spit extends 2 miles ESE, near the extremity of which lies Frégate–de–Haut (3½ miles WSW). Farther N, the coastal bank extends about 1½ miles E, near the extremity of which lies Caye à l'Anglais (4 miles WNW). The N side of the bay is dominated by the widespread village of Le Gosier (4 cables N) built on a cliff to the N of Îlet du Gosier (6.159), and well lit at night.

3 **Harbour**: The coast on the E side of the harbour, to the S of the town, is dominated by the buildings of Usine d'Arbousier (3¼ miles NW), with a dark grey tank visible over the buildings. The W side of the harbour, N of Îlet à Cochons (3 miles WNW) (6.163), is formed by an extensive shallow bank, on which lie isolated drying patches.

4 The head of the harbour is encumbered by a shallow bank extending about 8 cables S from the mouth of Rivière Salée (4½ miles NW) (6.31).

Approach and entry

6.143

1 Pointe–à–Pitre is approached through Petit Cul–de–Sac Marin, a deep bight formed between Grande–Terre and the island of Basse–Terre, (6.8), and entered through a dredged channel which passes between the coast of Grande–Terre and the offshore islands.

2 **Local knowledge** is required.

Traffic

6.144

1 In 2004, 1310 vessels with a total dwt of 8 064 169 tonnes, used the port.

Port Authority

6.145

1 The Port Authority for Pointe–à–Pitre, the port of Basse Terre (6.49) and the jetty at Pointe du Folle Anse (in Marie–Galante) (6.138) is: Port Autonome de la Guadeloupe, Gare Maritime, PO Box 485, 97165 Pointe–à–Pitre, Guadeloupe, Cedex. Local rules and regulations are enforced by a Captain of the Port.

Limiting conditions

Controlling depth

6.146

1 **Approach.** Passe Ouest (6.160) has depths greater than 10 m in the fairway.

Entrance. The channel into and through the harbour, as far as Bassin de Jarry Sud (6.169), was dredged to a depth of 11 m in 1983.

Deepest and longest berths

6.147

1 The deepest and longest berths are at the Terminal à Conteneurs (Container Terminal) (6.169).

Mean tidal levels

6.148

1 MHHW 0·8 m.
MLLW 0·5 m.

Density of water

6.149

1 1·024 g/cm^3.

Maximum size of vessel handled

6.150

1 Under normal conditions the maximum size of vessel handled is 26 000 grt with a length of 220 m and a draught of 10 m.

2 Vessels with a length of 350 m can be accommodated at the Terminal à Conteneurs (6.169), but normally the length is restricted because, with a fresh breeze, the narrow entrance channel can be difficult for longer vessels.

Local weather

6.151

1 It was reported in 1987 that it was advisable to enter harbour before 0800 owing to a NE wind of up to 15 kn which rapidly gets–up soon thereafter.

During the hurricane season (6.10), vessels must be moored. Pointe–à–Pitre is not considered to be a safe haven in a hurricane.

Arrival information

Port radio

6.152

1 See *Admiralty List of Radio Signals Volume 6(5)*.

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Notice of ETA

6.153

1 Notice of ETA should be given at least 24 hours in advance, repeated 1 hour before arrival. Messages can be sent through Fort–de–France. See *Admiralty List of Radio Signals Volume 6(5).*

Outer anchorages

6.154

1 Waiting anchorages:

Mouillage de Fleur d'Épée (3 miles WNW of Îlet du Gosier Light (16°12′N 61°29′W) (6.159)), situated 1½ cables S of Îlet à Cochons (6.165), which affords temporary anchorage being, as it is, exposed to S winds.

2 In a depth of 23 m, 8 cables S of Îlet à Cochons, as shown on the chart. Vessels over 1600 grt carrying hydrocarbons or dangerous cargoes must use this anchorage (1.49).

Anchorage to the E of the leading line (6.165) is not recommended owing to shallow water.

3 **Anchoring is prohibited** in the vicinity of submarine cables laid to the S of Îlet du Gosier, for a distance of about 1½ miles, as shown on the chart.

Pilots

6.155

1 **Pilotage,** available 24 hours, is compulsory for vessels over 50 m LOA. Pilots are also provided for other ports in Guadeloupe. See *Admiralty List of Radio Signals Volume 6(5).*

2 Pilots board in the following positions:

2½ cables SSE of PP Light–beacon (safe water) (16°10′·4N 61°30′·5W) as shown on the chart;

Between PP3 and PP8 light–buoys (lateral), 1½ miles WNW, for a vessel whose Master is familiar with the port;

1 cable E of MC Light–buoy (E cardinal), 9½ cables NW, for vessels with a draught less than 7·0 m.

Tugs

6.156

1 It is reported that there is one tug to assist berthing at the container terminal which must be requested in advance.

Quarantine

6.157

1 Port Health officials board on arrival.

Harbour

General layout

6.158

1 A landlocked harbour with berths on both its E and W sides divided into three ports:

Tourist port, fronting the town on the E side (6.169).

Commercial port, to the N of the Tourist port, (6.169).

Industrial port, on the W side of the harbour (6.169), opposite the town.

2 All parts of the harbour are approached through the same channels (6.160 and 6.164).

Principal marks

6.159

1 **Landmarks** (with positions from Îlet du Gosier Light (16°12′N 61°29′W):

Îlet du Gosier Light–tower (white tower with a red top, 21 m in height) standing on the S side of Îlet du Gosier (lying 3 cables offshore) which is almost entirely wooded and is rocky on its S side.

2 A stranded wreck (4 miles SW), broken into three sections, which lies off the N side of Caye à Dupont.

Television mast (elevation 152 m) (6¼ miles WNW).

Hospital (3 miles NNW) standing close E of the old hospital.

3 Church (spire) (3¼ miles NW) standing on a hill to the E of the town, with a block of flats close E of it.

Two radio towers (68 and 80 m in height) (4 miles NW).

Major light:

Îlet du Gosier Light—above.

Directions for entering harbour

(continued from 6.110, 6.111 and 6.131)

Passe Ouest

6.160

1 Passe Ouest, the principal channel through Petit Cul–de–Sac Marin, has a length of 3½ miles from PP Light–beacon (2 miles SSW of Îlet du Gosier Light (16°12′N 61°29′W)) to Pointe–à–Pitre, and a least depth as given at 6.146.

6.161

1 From a position 2 miles SSW of Îlet du Gosier Light, the initial track through Passe Ouest leads generally WNW for about 1¼ miles then NW for 1 mile, passing (with positions from Îlet du Gosier Light):

SSW of PP Light–beacon (safe water) (2 miles SW) the landfall buoy that is situated close N of the pilot boarding position (6.155), thence:

2 NNE of PP2 Light–buoy (port hand) (2½ miles SW) marking a depth of 9·7 m on the S side of the channel, thence:

SSW of PP1 Light–buoy (starboard hand) (2½ miles SW) marking the SW extremity of several patches, with a depth of less than 8·2 m over them, thence:

3 NE of a bank, with a least depth of 8·2 m over it (2¾ miles SW) which is marked off its E side by PP4 Light–buoy (port hand). This bank extends 6½ cables ENE from Mouton–vert, which consists of several coral patches. Thence:

4 NE of Caye Ronde (2¾ miles WSW) marked on its NE side by PP6 Light–buoy (port hand), thence:

SW of Mouchoir Carré (2½ miles WSW), consisting of 2 coral patches on which lie several heads, marked off its W extremity by PP3 Light–buoy (starboard hand).

6.162

1 From a position W of Mouchoir Carré (above) the track leads N then NE for about 1 mile, passing:

E of Caye Plate (3 miles WSW) an isolated patch, marked on its E side by PP8 Light–buoy (port hand), thence:

2 SE of a light–buoy (S cardinal) marking the extremity of Frégate–de–Haut (3½ miles WSW), which is almost awash, near the extremity of a bank, extending about 2¼ miles ESE from Pointe à Bacchus (6.172), thence:

3 SE of an isolated coral patch, with a least depth of 7·9 m (3¼ miles W), thence:

Clear of a shoal with a least charted depth 12·5 m (2½ miles WSW), and:

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4 NW of a depth of 11·1 m (2¼ miles WSW) which lies about 1½ cables NW of the NW edge of the bank, with depths of less than 10 m over it, extending SW from Pointe de la Verdure (1 mile WNW) to Mouchoir Carré (above), thence:

Passe Est

6.163

1 The route which leads from a position 1 mile NW of PP Light–beacon (2 miles SSW of Îlet du Gosier Light) (6.159), along the alignment of the leading lights (6.165), has a length of 1¾ miles and a least depth of 8 m (2¼ miles SSE of the front light), situated close E of MC Light–buoy (E cardinal); this is also a pilot boarding position, see 6.155. The track then passes very close to a charted depth of 7·8 m (1¾ miles SSE of the front light).

2 Under the obligatory access routes for vessels of 1000 gt carrying hydrocarbons or dangerous cargoes (1.49), the Passe Est is limited to vessels with a draught of less than 7·4 m.

Entrance channel

6.164

1 The entrance channel (2½ miles WNW) has a least width of ¾ cable in the fairway, which is winding. During fresh winds, the entry can be difficult for a long vessel. The least depth in this channel is given at 6.146.

6.165

1 **Initial position:** 2 miles W of Îlet du Gosier Light.
Pointe–à–Pitre Leading Lights:
Front light (white column on a white pylon, 14 m in height) (2¾ miles NW) standing near the middle of Presqu'île à Monroux.

2 Rear light (white column on a white mast, 20 m in height) (3½ cables NNW of the front light), standing close S of Pointe Fouillole, with a distinctive yellow building close SE.

3 It has been reported that the lights and their structures are difficult to identify until close to either by day or by night. They are, however, conveniently situated in an obvious gap between the blocks of buildings. They resemble basketball backboards. The rear light may be obscured by trees.

4 The alignment (348°) of the leading lights leads into the harbour entrance, passing (with positions from Îlet du Gosier Light):
WSW of Pointe de la Verdure (1 mile WNW) the SE entrance point of La Grande Baie, thence:

5 ENE of a 7·9 m patch (3¼ miles W) (6.162), thence:
ENE of Caye Gros Loup (Banc du Mazarin) (3¾ miles WNW) on which the sea always breaks, thence:

6 WSW of the coastal bank, with a charted depth of 3·9 m, extending ¾ cable SW from Caye d'Argent (2¼ miles WNW), which is awash and marked on its SW side by No 1 Light–buoy (starboard hand), thence:

7 Close ENE of the coral reef which extends 2½ cables E from the E extremity of Îlet à Cochons (2¾ miles WNW), the largest islet in the bay, which is low and wooded, with embankments along its S side. The edge of the reef is marked by No 2 Light–buoy (port hand) positioned about ½ cable NW of the SE extremity of the reef; thus it does not mark the first point of danger from seaward.

6.166

1 From a position 3½ cables SSE of the front leading light (above), the channel into harbour leads generally NNW for about 1¾ miles, with a least depth as given at 6.146, marked on both sides by light–buoys.

6.167

1 **Useful mark:**
White water tank (21 m in height) (3½ miles NW) standing near the waterfront between No 2 and No 3 berths, and showing just above the neighbouring buildings. In 1987 this mark was reported to be difficult to find.

Basins and berths

Anchorages and moorings

6.168

1 There are a number of good anchorages, suitable for vessels under 60 m in length, which are allocated by the Harbour Authority, on request. These anchorages are the only ones available in the hurricane season.

2 **Mooring berths** in the harbour can accommodate vessels with a draught of 4·3 m.

Alongside berths

6.169

1 There are fourteen numbered berths in the harbour, which are grouped into three ports (with positions from the front leading light (6.165)).

2 **Tourist port** (1 mile NNW) fronting the town, on the E side of the harbour, contains four berths (No 1 to No 4); the largest of these (No 3 and No 4) have a combined length of 283 m, with depths alongside of 7·2 to 8·8 m. A hauling–off buoy is positioned about ¾ cable SW of the junction of No 2 and No 3 berths.

3 **Commercial port** (1¼ miles NNW), which is a continuation N from the Tourist port, contains four berths (No 5 to No 8); the largest of these (No 7 and No 8) have a combined length of 306 m with a depth alongside of 8·2 m. A Ro–Ro Terminal, positioned between No 6 and No 7 berths, as shown on the chart, can accommodate vessels with a draught of 7·8 m. In 1990 a 4·7 m shoal patch existed at the centre of No 5 berth.

4 **Industrial port**, on the W side of the harbour, consists of two basins, as follows:
Bassin de Jarry Nord (1¼ miles NW), which has a width of 300 m, contains four berths (No 9 to No 12); of which the deepest are No 11 and No 12, with a depth alongside of 10 m, situated on the SE side of the basin.

5 Bassin de Jarry Sud (9 cables NW), which has been dredged to 10 m, contains two berths (No 13 and No 14) which have a combined length of 400 m and are able to accommodate vessels with a draught of 10 m. These berths comprise the Terminal à Conteneurs (Container Terminal).

6.170

1 Berths for local coasters are available as follows (with positions from the front leading light (6.165)):
At jetties which extend into a basin (5 cables N), situated to the S of the town, which can accommodate vessels up to 140 m in length, with a draught of 5·5 m.

2 In a basin (8½ cables N), which is available for vessels with a draught of less than 5 m.

Port services

6.171

1 **Repairs:** minor repairs to hull and machinery.

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Other facilities: deratting and and exemption certificates; two hospitals; limited facilities for the reception of oily waste.

2 **Supplies:** fuel oil; fresh water; provisions.

Anchorages and harbours

Mouillage de Petit Bourg
6.172

1 **Description.** Mouillage de Petit Bourg (5½ miles W of Îlet du Gosier Light (16°12′N 61°29′W)) affords anchorage in a depth of about 7 m about 5 cables E of the village, within a deep bight in the coastal bank, as shown on the chart. The channels leading to the anchorage are complicated.

2 **Directions:**

Initial position: about 4 miles SSW of Îlet du Gosier Light (6.159).

3 **Leading marks:**

Front mark: the W extremity of Îlet à Cabrit (5 miles W of Îlet du Gosier Light).

Rear mark: Pointe à Bacchus (6 cables NW of the front mark) which is marked by a triangular yellowish scar, the base resting on the sea, crossed by horizontal ledges at different levels. On the summit of the point, 2 conical hills (42 m high) stand side by side.

4 The alignment (317°) of these marks leads into Petit Cul–de–Sac Marin (6.162), passing (with positions from Caye à Dupont (4 miles SW of Îlet du Gosier Light)):

NE of a bank, with a least depth of 3·8 m (7 cables S), thence:

5 Close NE of the bank extending 3 cables SE from Caye à Dupont, marked at its S extremity by Dupont Light–buoy (S cardinal), and:

SW of shallow patches, with a least charted depth of 5 m (3¾ cables NE), which lie 3½ cables SSW of Mouton–vert (6.161), thence:

6 NE of the conspicuous wreck (1 cable N) (6.159), thence:

SW of an isolated coral patch with a depth of 2·6 m (8 cables N), thence:

Two cables SW of Îlet à la Hatche (2¼ miles NNW) which is submerged.

7 From a position SW of Îlet à la Hatche the track alters WNW towards the anchorage, passing 3 cables SSW of Îlet à Cabrit (2¾ miles NW).

These channels are complicated and the use of a pilot is essential.

8 **Petit Bourg** (16°12′N 61°35′W) (6.172) is a fishing port with a slipway protected by a breakwater, about 40 m long, from which a light is exhibited.

Mouillage de Goyave
6.173

1 **Description.** Mouillage de Goyave (5½ miles SW of Îlet du Gosier Light) affords anchorage in a depth of about 7 m, between Pointe la Rose and Îlet Fortune, about 7 cables NNE of the village, within a bight in the coastal bank, as shown on the chart.

2 **Directions.** The initial approach follows the same route as for Mouillage de Petit Bourg (6.172).

From a position N of Caye à Dupont (6.172) the passage leads WSW to close N of Fortune Light–buoy (N cardinal) lying 1 cable N of the drying bank which extends 2 cables NNW from Îlet Fortune; thence:

SSW to the anchorage; thence:

Via the buoyed channel to the port.

3 **Goyave** (16°08′N 61°34′W) is a fishing port sheltered by a 160 m breakwater from which a light is exhibited.

DOMINICA

GENERAL INFORMATION

Chart 697

Area covered
6.174

1 This section describes the area around Dominica (15°25′N 61°20′W) (1.107) except for the passage N of the island, which is given at 6.117.

Dominica, N–most of the Windward Islands, lies between the French islands of Guadeloupe, to the N, and Martinique, to the S.

Topography
6.175

1 Dominica is of volcanic origin, with lofty, rugged mountains running through its centre. This range, which extends generally SSE from Morne aux Diables (15°37′N 61°26′W), situated in the centre of a broad promontory forming the NW end of the island, rises to its highest point in Morne Diablotins (15°30′N 61°24′W), which is prominent. About 10 miles SSE the range rises to the three peaks of Morne Trois Pitons, which are also prominent, then continues to the S end of the island.

2 The slopes of the mountains are covered by tropical rain forests and traversed by more than 350 rivers, with many lakes and waterfalls. The highest mountains are usually obscured by cloud.

3 Topography of the coast is given as follows:

N coast at 6.121.

W coast at 6.179.

E coast at 6.217.

Radar characteristics
6.176

1 Good radar echoes are received from Dominica.

Local weather
6.177

1 **The climate** is tropical (1.227), modified by the North–east Trade Wind.

Rainfall, which is very high in the mountains and about 1400 mm along the coast, falls mainly in the wet season (May to August) and partly in the dry season (January to April). However, a local seafarer is quoted as saying that "during the wet season it rains all the time, and during the dry season it rains most of the time".

2 **Wind.** Heavy squalls, likely during strong trade winds, are liable to come off the high land and through the deep valleys around the island. The most dangerous areas are off the W coast, in the vicinity of the following:

Layou River (15°23′N 61°26′W) (6.213).

Soufrière Bay (15°13′N 61°23′W).

3 Dominica lies within the hurricane belt and suffered severe damage in 1979 and again in 1981.

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DOMINICA — WEST SIDE

General information

Chart 697, 594

Route

6.178

1 From a position SW of Gros Cap the SW extremity of Les Saintes (15°52′N 61°37′W) the route leads SSE for about 44 miles, to a position SW of Scotts Head (15°13′N 61°23′W).

Topography

6.179

1 General topography for Dominica (6.175).

From Capucin to Douglas Point (2 miles S) the coast consists of a high cliff. At the N end of Douglas Bay, a conspicuous blue house stands on the hillside.

2 Other significant features along the coast to the S are described in Directions at 6.183.

There are several good but open bays on the W side of the island; notable among these being:

Prince Rupert Bay (15°34′N 61°29′W) (6.208).

Woodbridge Bay (15°18′N 61°24′W) (6.185).

Depths

6.180

1 Depths are considerable outside a narrow, steep–to coastal bank which extends less than 1 mile from the coast.

Natural conditions

6.181

1 **Flow.** General information on currents is given at 6.6.

Off the W coast of Dominica the current may set either N or S for several consecutive days, masking any tidal stream.

2 **Wind.** The high mountains of Dominica effectively block the prevailing winds, creating a virtual calm in the lee of the island, however, see 6.177 regarding local squalls.

Principal marks

6.182

1 **Landmarks** (with positions from Grande Savane (Grand Savanna) (15°27′N 61°27′W):

White church (Catholic church) (squat tower with reddish–brown roof) (6½ miles SSE) which is situated near the coast.

2 Two white silos (18 m in height) (7¾ miles SSE) situated at the root of a jetty, 1½ cables S of Boeri River. An airport lies about 4 cables NNE of the silos.

Directions

(continued from 6.45 and 6.128)

6.183

1 From a position SW of Gros Cap the SW extremity of Les Saintes (15°52′N 61°37′W) the track leads SSE passing (with positions from Grande Savane (15°27′N 61°27′W):

WSW of Capucin (15°38′N 61°28′W) (6.121), thence:

2 WSW of Prince Rupert Bluff (15°35′N 61°29′W) which is steep–sided and rises to two hills (West Cabrit and East Cabrit). From N or S these hills appear as an island, being connected with the mainland by a low neck of swampy ground. Thence:

3 WSW of dangerous rocks reported in 1985 to extend from Pointe Ronde or Rollo Head (6 miles NNW) situated about 1 mile NNW of Morne Espagnol (Barbers Block), a prominent hill which, when seen from N or S, resembles a head, the facial part being formed by the summit and shoulders of the hill. From W it appears as a sharp cone. A radar station stands on the summit of Morne Espagnol and, on a clear night, the lights in the building may be seen for some distance. A red and white chequered tower with a dish aerial stands mear the summit; lights are exhibited from the tower. Thence:

4 WSW of Grande Savane (Grand Savanna), which is the largest area of sloping land on the W side of the island. It is usually very parched in appearance, with little or no cultivation. The coast for about 4 miles N is steeper and more rugged than that immediately to the S, with high cliffs terminating the long regular slopes descending from Morne Diablotins (6.175). A radio mast, with red obstruction lights, stands at Barroui (1 mile SE). Thence:

5 WSW of the mouth of Layou River (3½ miles SSE) (6.213) which is easily identified from W by the low nature of the land. A radar mast (red and white bands) stands 6 cables NE of the river mouth. Thence:

6 WSW of Belfast tanker berth (5½ miles SSE) (6.214) which can be identified by large oil tanks, thence:

WSW of the rounded, N entrance point of Woodbridge Bay (8 miles SSE) which rises close inland to Morne Daniel and has, in the vicinity, a radar mast, as shown on the chart, thence:

WSW of Roseau (15°18′N 61°23′W) (6.185).

7 From this position the track continues SSE for about 9½ miles to a position SW of Scotts Head (15°13′N 61°23′W).

Useful marks

6.184

1 Church, close within Pointe Michel (Michelle Point) (15°15′N 61°23′W).

Marks in the vicinity of Prince Rupert Bay (7 miles NNW) are given at 6.208.

(Directions continue for approach to Roseau at 6.204 and for passage W of Martinique at 7.21)

ROSEAU

General information

Chart 697 plan of Woodbridge Bay and Roseau Roads

Position

6.185

1 Roseau Roads (15°18′N 61°23′W) lie off the W side of Dominica, about 5 miles N of the SW extremity. The town of Roseau stands on the S entrance point of Woodbridge Bay, which lies to the N of Roseau Roads.

Fort Young (15°18′N 61°23′W) will be used in this text as a general reference object.

Function

6.186

1 Roseau, with a population of 24 000 in 2001, is the capital of Dominica. Roseau Roads, with Woodbridge Bay, form the main port of the island.

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Topography
6.187

1 General topography (6.175).

Roseau stands on one of the few sloping points along the W coast of Dominica being situated on both sides of Roseau River.

Woodbridge Bay is backed by tablelands, intersected by ravines, which lie between the higher land of Morne Daniel (1½ miles N) and Morne Bruce (5 cables E).

Approach and entry
6.188

1 Roseau Roads and Woodbridge Bay are approached and entered directly from seaward.

Traffic
6.189

1 In 2004, 558 vessels, with a total dwt of 2 811 156 tonnes, used the port.

Port Authority
6.190

1 The Port Authority for all ports in Dominica is: Dominica Port Authority, P O Box 243, Roseau, Dominica. A Port Manager is responsible for Roseau Roads and Woodbridge Bay.

Limiting conditions

Deepest and longest berths
6.191

1 The deepest and longest berth is Woodbridge Bay Ocean Berth.

Mean tidal levels
6.192

1 MHHW 0·6 m.
MLLW 0·3 m.

Density of water
6.193

1 1·025 g/cm^3.

Maximum size of vessel handled
6.194

1 RMS *Oriana*, 43 000 grt, length 245 m with a draught of 9·1 m.

Sea state
6.195

1 A heavy swell has been reported alongside Woodbridge Bay Ocean Berth (6.206), which is very exposed.

Arrival information

Port radio
6.196

1 See *Admiralty List of Radio Signals 6(5).*

Notice of ETA
6.197

1 Required 24 hours notice in advance, confirmed at 2 hours.

Pilotage
6.198

1 Compulsory for vessels over 100 grt.

Pilots are available day and night and will assist vessels anchoring, on request.

Pilots board about 9 cables W of the mouth of Roseau River (3¼ cables NW).

Tugs
6.199

1 None.

Regulations concerning entry
6.200

1 A restricted area, for which permission is required from the Port Manager before entering or anchoring, is established in Woodbridge Bay, as shown on the chart.

Harbour

General layout.
6.201

1 Woodbridge Bay and Roseau Roads are are open roadsteads, containing alongside berths and anchorages.

Natural conditions
6.202

1 **Flow.** General remarks (6.181).

In Roseau Roads, inshore of the deep water anchorage (1¾ cables SW of Fort Young), the current tends to flow in a NW direction.

2 In Woodbridge Bay it has been reported that a set to the E, which was experienced beyond 5 cables from Woodbridge Bay Ocean Berth, changed to a set to the W within 5 cables of the berth.

3 **Wind.** The prevailing E wind has the major effect on vessels at anchor.

Swell. Even with an E wind and calm weather a W swell runs through the anchorages and affects Woodbridge Bay Ocean Berth.

Principal marks
6.203

1 **Landmarks**:

Prominent flagstaff (¼ cable N) on the W corner of Fort Young, slightly higher than other buildings in the vicinity.

The spire of the Roman Catholic cathedral (1 cable NNE) is the most prominent feature in Roseau being distinctly visible from N and S.

2 The Wesleyan church (1 cables N) (close to the cathedral) with its white–washed spire is also prominent.

White cross (4½ cables NE) standing at the NW extremity of Morne Bruce, on the summit of which stand several old buildings.

Silver–grey tanks of the Shell Oil Terminal (1¼ miles N) with a large shed nearby.

Directions for entering harbour
(continued from 6.184 and 6.221)

Approaches
6.204

1 **From north**, approach may be made as required, keeping clear of rocks extending about ¾ cable from the N entrance point to Woodbridge Bay (1½ miles NNW) with patches, with depths of less than 11 m over them, extending about 2½ cables offshore.

2 **From south**, approach may be made as required, keeping clear of a bank, which extends SW from the mouth of Roseau River (3¼ cables NW).

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Ocean Terminal

Fisheries Pier *Roseau Cruise Ship Berth*

Roseau Roads and Woodbridge Bay from SE (6.204)

(Original dated 1999)

(Photograph – HMS Marlborough)

Basins and berths

Anchorages and moorings

6.205

1 **Restricted area** (1 mile NNW of Fort Young).

Anchorage areas recommended for use whilst awaiting a berth or customs clearance are as follows (with positions from Fort Young (15°18′N 61°23′W)):

2 Between the S limit of the restricted area and the mouth of Roseau River (3¼ cables NW). Within this area anchorage with good holding is available, in a depth of 42 m sand (7 cables NW) with a church bearing 090°.

3 Deep water anchorage is available, in a depth of about 50 m (about 1¾ cables SW) with the white

Woodbridge Bay Ocean Berth from SW (6.206)

(Original dated 1997)

(Photograph – HMS Marlborough)

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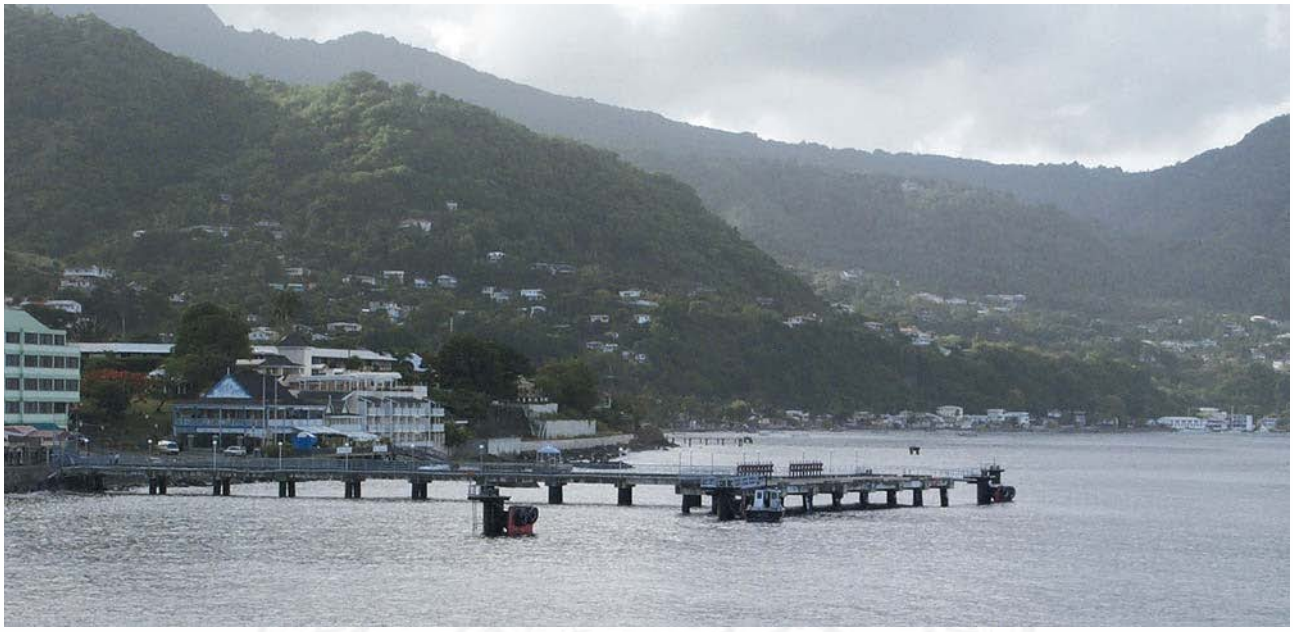

Cruise Ship Jetty from NNW (6.206)

(Original dated 2002)

(Photograph – Gareth Kirk, mv Logos II)

cross (4½ cables NE) bearing 052°, as shown on the chart.

4 **Caution.** Anchorage off the town is treacherous and cannot be recommended owing to the narrowness and steepness of the bank, which, combined with an E wind, has resulted in vessels drifting to seaward during the night.

5 **Moorings.** A mooring buoy, about 2 cables NW of Woodbridge Bay Ocean Berth, is primarily used by water tankers.

6 **A tanker berth**, which combines anchorage with stern lines to a buoy or to the shore is available in Woodbridge Bay for tankers with a maximum draught of 7·3 m. Pilotage is compulsory for approaching this berth.

Alongside berths

6.206

1 **Woodbridge Bay Ocean Berth** (about 1 mile N), situated near the centre of Woodbridge Bay, has a length of 152 m and a least depth alongside of 11 m. The line of the berth is 018°/198°.

2 Ocean Berth is 240 m in length. The least depth alongside the N end of Ocean Berth is less than 11 m. It is reported (1997) that a light is exhibited at the customs house building at Ocean Berth.

3 Ro–Ro barges can be accommodated on the S end of Woodbridge Bay Ocean Berth, which requires a ramp height of 3 m.

A small jetty lies ½ cable N of Woodbridge Bay Ocean Berth.

4 **Import Jetty** (2¼ cables NW), an L–shaped structure which projects about 60 m from the shore fronting the town, is used by ferries to Guadeloupe and Martinique. A foul area, consisting of the remains of an old pier, exists about ½ cable SE of the jetty.

About ½ cable NW of the Import Jetty is a fisheries centre and berths.

5 **Roseau Cruise Ship Berth** (1 cable W) comprises three berthing dolphins spaced at intervals of 47 m and 73 m, as well as four mooring dolphins. Between the largest span of berthing dolphins is a 48 m long landing platform which is joined to the shore by a walkway. Vessels with a straight side greater than 73 m at approximately 1·5 m above the water line, may use the berth. In 1995 the least depth alongside was reported to be 9·6 m.

6 **A small basin** for fishing vessels lies immediately SE of the Roseau River mouth.

Port services

6.207

1 **Repairs:** minor and emergency repairs, including electronic equipment, permission from the Port Manager required before immobilization of engine, cargo or mooring equipment.

Prince Rupert Bay

Chart 697 plan of Prince Rupert and Douglas Bays

General information

6.208

1 **Description.** Prince Rupert Bay (15°34′N 61°29′W), the N side of which is formed by Prince Rupert Bluff (6.183), provides the best open roadstead on the W coast of Dominica, being protected from all but W winds. This roadstead serves the small town of Portsmouth, situated at the head of the bay, which is the second most important town in Dominica. Glánvillia, situated about 1 mile S of Portsmouth, contains a station for the export of bananas.

2 **Port Authority** is the same as for Roseau (6.190), with a residential Port Officer in Charge of Portsmouth.

Pilots are available on request and berthing is available during daylight. See *Admiralty List of Radio Signals, Volume 6(5).*

Fishing pots which are poorly marked, are numerous in the shoaler waters of the bay.

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3 **Useful marks** in the vicinity of Portsmouth (with positions from the Roman Catholic church (15°35′N 61°27′W)):
Grey spire and red roof of the Roman Catholic church.
Methodist chapel (2 cables E) which has a white gable.

Anchorages and berth
6.209

1 **Anchorage.** Prince Rupert Bay, which has good holding ground and is generally clear of dangers, affords the best anchorage around Dominica. Recommended anchorage positions, about 3 cables off the coast, are shown on the plan, noting that depths of over 200 m exist in the middle of the bay. Several stranded wrecks are situated offshore in the vicinity of Portsmouth.

2 In 1984 HMS *Ariadne* (2350 tonnes) anchored 1 mile SW of Portsmouth.

3 **Alongside berth.** An L–shaped pier, which extends about 70 m from the shore S of Glanvillia (above), with a depth of 3·6 m alongside its head, accommodates barges and local traffic.

4 **Passenger terminal**. A T–shaped wooden pier, for the use of passenger vessels, lies in the N part of the bay on the S side of Prince Rupert Bluff Point. The line of its 91 m berth is 059°/239°. Bollards ashore, for head and stern ropes, make the berth available to larger vessels. The pier is 2·4 m above sea level and lies approximately 50 m from the shore. The depths at the berth are between 10·7 and 14·9 m.

Port services
6.210

1 **Supplies**. Fresh water and provisions are available.
Other services see Roseau (6.207).

Anchorages

Douglas Bay
6.211

1 **Description.** Douglas Bay (15°36′N 61°29′W) affords anchorage in depths of 9 to 15 m, sand, about 1½ cables offshore. The bay is exposed to winds from the N and W.

Chart 697

Grande Savane
6.212

1 **Description**. Anchorage is available about 3 cables SW of Grande Savane (15°27′N 61°27′W) (6.183) in depths of 20 to 40 m, sand and rock. Closer inshore, patches of mushroom shaped rocks may foul the cable making it difficult to weigh anchor.

Layou River
6.213

1 **Description.** Anchorage is available N or S of the mouth of Layou River (15°23′N 61°26′W) (6.183) about 2 cables offshore, in depths of 15 to 20 m. The N anchorage is more often used as, to the SW of the river, the coastal bank is very steep, with depths of over 70 m at a safe anchoring distance offshore. These anchorages are exposed to the N and W and are also subject to local squalls, as given at 6.177.

Belfast tanker berth
6.214

1 **Description.** A tanker berth, which comprises a single anchorage with stern mooring and floating hose, situated off Mahaut (Belfast) (15°22′N 61°24′W), is suitable for tankers with a draught of about 8 m.

Pointe Michel
6.215

1 **Description.** Anchorage is available about 1½ cables off Pointe Michel (15°15′N 61°23′W), with the Catholic Church, situated close within the point, bearing more than 090°. Depths increase rapidly with distance offshore.

DOMINICA — EAST AND SOUTH SIDES

General information

Charts 697, 594

Route
6.216

1 **East side.** From a position SE of Capesterre Light (15°54′N 61°13′W) the route continues SSW for about 32 miles, to a position SE of Point Saint Jean (15°15′N 61°16′W) (6.220).

2 **South side**. From a position SE of Point Saint Jean (15°15′N 61°16′W) (6.220), the route leads WSW for about 15 miles, to a position SW of Scotts Head (15°13′N 61°23′W) (6.221).

Topography
6.217

1 General topography for Dominica (6.175).
The NE part of the island presents a distinct contrast to that of any other portion. On this side the land descends less abruptly from the mountains, achieving a gradual slope in places.

2 Significant features, from N to S are as follows (with positions from Pointe à Peine (15°24′N 61°15′W)):
Morne Concorde (7¾ miles NNW) and Morne Grand Bois (7¾ miles NW), which is situated about 3 miles inland.

3 A prominent mountain range, which attains its highest point in Morne Fraser (Bois Diable) (4 miles NNW), runs parallel to the coast for about 4½ miles.

4 Grande Soufrière Hills (6 miles SSW) rise within the coast between La Plaine and Pointe Mulâtre, and are connected by ridges with the main mountain chain running through the island.

5 Morne Paix Bouche (8 miles S) situated near the coast, is at the seaward end of a sharp, well defined ridge of hills which rise for 2 miles WNW to a summit (998 m high).

Depths
6.218

1 The E coast of Dominica, particularly at the N end of the island, continues a gradual slope descending to depths of less than 200 m about 3½ miles offshore.

Flow
6.219

1 General information (6.6).
Off the E coast the current may set N or S for several days. However the N–going current is stronger and lasts longer than the S–going current. Tidal streams are regular. Off Pointe à Peine (15°24′N 61°15′W), near the middle of the E side, the N–going flow attains a rate of 1½ kn, as shown on the chart.

2 The W–going flow divides into its N–going and W–going components in the vicinity of Point Mulâtre (15°17′N 61°15′W).

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Directions
(continued from 6.107)

Coastal passage east of Dominica
6.220

1 From a position SE of Capesterre Light (15°54′N 61°13′W) the track continues SSW passing (with positions from Point à Peine (15°24′N 61°15′W)):

ESE of Crompton Point (15°35′N 61°18′W) (6.121), thence:

2 ESE of Captain Scott's Rock (awash) (15°33′N 61°16′W) lying about 3 cables NE of Pointe Augustine. During the strength of the North–east Trade Wind, the sea breaks heavily on this rock which has depths of 29 to 33 m on its E side, thence:

3 ESE of Pagua or Baraisiri (Pagoua) Pointe (7¼ miles N) which has a radio tower standing near the coast 1¾ miles S of the point, thence:

ESE of Pointe à Peine which is the SE extremity of a promontory which rises to an elevation of 318 m, thence:

4 ESE of Rosalie Point (1 mile SSW), the S entrance point of Petite Soufrière Bay, which rises about 1¼ miles WNW to a hill 446 m high, thence:

ESE of Pointe Giraud (4 miles S), a level, rounded point, on which stands the village of La Plaine which contains a church near the coast, thence:

5 ESE of Point Saint Jean (8½ miles S) situated at the S end of dark, steep, rugged cliffs forming the coast.

6 From this position the track continues SSW for about 1½ miles to a position SE of Point Saint Jean (15°15′N 61°16′W) (6.220).

(Directions for passage N of Martinique are given at 7.20, and for passage E of Martinique at 7.117)

Coastal passage south of Dominica
6.221

1 From a position SE of Point Saint Jean (15°15′N 61°16′W) (6.220) the track leads WSW passing (with positions from Pointe Des Fous (15°12′N 61°20′W)):

SSE of Point Saint Jean (5 miles NE) (6.220), thence:

2 SSE of Pointe Des Fous situated close E of Morne Fous, a prominent conical cliff which falls almost perpendicularly to the sea and has a striking appearance when seen against the background of higher land; when seen clear of the land it appears as a cone, thence:

3 SSE of shoal water, including several dangerous rocks, which extends about 3 cables W from Scotts Head (Cachacrou or Scotts Head), (2½ miles W), the SW extremity of Dominica, on which stands a television mast. Scotts Head, the extremity of a small promontory connected with the main island by a low, narrow neck. It is distinctive when seen from N or S, clear of the land, when it appears as an island.

4 From this position the track continues WSW for about 6 miles to a position SW of Scotts Head (15°13′N 61°23′W) (6.221).

(Directions continue for Martinique — W side at 7.21.
Directions continue for entering Roseau Harbour at 6.204)

Anchorages

South coast
6.222

1 **Grand Bay** (15°14′N 61°18′W) affords sheltered anchorage in the lee of Carib Point (the E entrance point) in depths of 10 to 20 m, when the wind is N of E. This anchorage is not safe when the wind is from SE.

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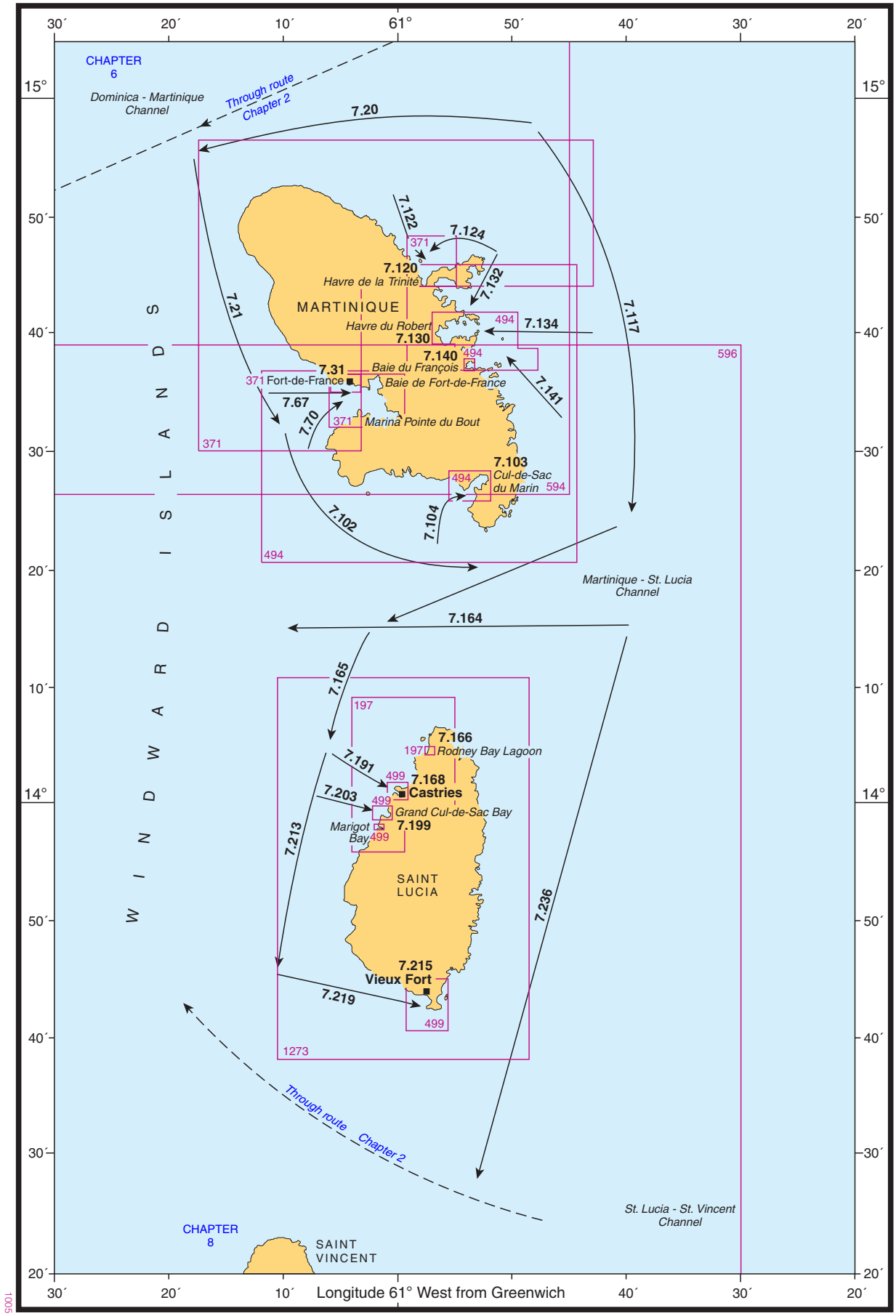
Chapter 7 - Windward Islands - Martinique and Saint Lucia



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CHAPTER 7

WINDWARD ISLANDS — MARTINIQUE AND SAINT LUCIA

GENERAL INFORMATION

Chart 956

Scope of the chapter

7.1

1 This chapter describes that part of the Windward Islands around Martinique (14°40′N 61°00′W) and Saint Lucia (13°55′N 61°00′W), together with their coastal and inter–island waterways.

Directions are given for coastal passage on both sides of the islands; for all routes between the islands; and for entry into all harbours and significant bays; as shown on the index chartlet.

International boundary

7.2

1 Martinique is a Department of France, as given at 1.137. Saint Lucia is an independent nation within the Commonwealth, as given at 1.178. The international boundary between these two nations passes through the Martinique–Saint Lucia Channel, which separates the islands.

Harbours

7.3

1 **Major harbours** described in this chapter, in order of presentation, are:

Baie de Fort–de–France (14°34′N 61°05′W) (7.31).
Port de Fort–de–France (14°36′N 61°4′W) (7.61).
Port Castries (14°01′N 61°00′W) (7.168).
Grand Cul de Sac Bay (13°59′N 61°01′W) (7.199).
Vieux Fort Bay (13°43′N 60°58′W) (7.215).

7.4

1 **Minor harbours** of importance, in order of presentation, are:

Cul–de–Sac du Marin (14°27′N 60°54′W) (7.103).
Havre de la Trinité (14°45′N 60°58′W) (7.120).
Havre du Robert (14°40′N 60°55′W) (7.130).
Baie du François (14°37′N 60°54′W) (7.140).

Topography

7.5

1 General topography for Martinique at 7.8 and for Saint Lucia at 7.154.

Flow

7.6

1 Remarks on currents and flow around Martinique at 7.10 and around Saint Lucia at 7.156.

MARTINIQUE

GENERAL INFORMATION

Charts 371, 494, 594, 596

Area covered

7.7

1 Martinique (14°40′N 61°00′W) lies towards the N end of the Windward Islands (1.69), between Dominica, to the N, and Saint Lucia, to the South.

Topography

7.8

1 Martinique, which is volcanic in origin, is one of the largest islands in the Lesser Antilles (1.69), with an area of 425 square miles.

The island is mountainous and easily identified by three outstanding peaks towering above the main irregular mountain chain that traverses the island NW and SE.

2 Montagne Pelée (14°49′N 61°10′W), a volcano 1397 m in height, situated about 3¾ miles SE of Cap Saint Martin (the NW extremity of the island), is the N of the peaks and visible up to 45 miles.

3 Pitons du Carbet (14°42′N 61°07′W), a group of very steep conical peaks, the highest of which is Piton Lacroix at 1196 m, are situated 4 miles inland between Rade de Saint–Pierre and Baie de Fort–de–France. Their summits are usually in the clouds and seldom visible.

4 Montagne du Vauclin (14°33′N 60°54′W) is a truncated cone, 504 m in height, situated about 9½ miles N of Pointe des Salines (the S extremity of the island).

5 The coast on the E and S sides of the island is particularly irregular and broken. Of these, the E coast, which is partly fringed by low islets and edged by a barrier reef, is the most dangerous.

Local weather

7.9

1 Lying between the Equator and the Tropic of Cancer, Martinique is subject to equable but fairly hot and humid weather (1.227); also to storms and even hurricanes from the S (1.225).

Rainfall is abundant.

December to May are generally the coolest, driest and most comfortable months.

Current

7.10

1 The direction of the predominant current around Martinique fluctuates between WNW in winter and NNW in summer. Its constancy is mainly high from March to September and moderate for the rest of the year. The average rate is about 1 kn.

Along the coast, around Pointe des Salines (at the S end of the island) the current usually sets W.

2 **Caution.** Underestimation of the strength of these currents has led to the stranding of a number of vessels.

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Pilotage

7.11

1 Pilotage in Martinique is provided from Fort–de–France, pilots boarding off the relevant ports or passages as shown on the chart. See *Admiralty List of Radio Signals Volume 6(5).*

Regulations

7.12

1 Vessels carrying hydrocarbons, liquefied gas and other dangerous cargoes must contact SURNAV (1.50) before entering Martinique's territorial waters (1.135).

MARTINIQUE — NORTH AND WEST SIDES

General information

Charts 371, 594

Route

7.13

1 From a position NE of Basse–Pointe (14°52′N 61°07′W) (7.20) the route leads W for about 19 miles to a position NNW of Pointe de Prêcheur (14°48′N 61°13′W) (7.18) from whence the route leads SSE for about 23 miles to a position WSW of Pointe des Nègres the N entrance point into Baie de Fort–de–France (14°34′N 61°05′W) (7.31).

Topography

7.14

1 General topography (7.8).

From Pointe de Macouba (14°52′N 61°09′W), the N extremity of the island, to Rade de Saint–Pierre (8 miles SSW), the NW peninsula presents a rugged coastline backed by the spurs from Montagne Pelée (7.8). There are neither bays nor coves of any significance along this coast.

2 Farther S, near the middle of the W coast, Petit Piton (523 m high) (14°43′N 61°09′W) stands about 2 miles ENE of the village of Le Carbet.

Depths

7.15

1 The N and W coasts of Martinique, from Basse–Pointe (7.20) to Baie de Fort–de–France (7.31), are steep–to and clear of dangers except for Îlet La Perle (14°50′N 61°14′W) (7.21). Depths of 55 to 73 m lie about 3 miles NE of Basse–Pointe.

Natural conditions

7.16

1 **Swell.** There is usually a heavy swell running off the NW peninsula of Martinique.

2 **Currents.** General information (7.10).

Along the NW coast, in the vicinity of Îlet La Perle, the current usually sets W.

In February 1900, USS *Monongahela* experienced a N current with a rate of 1½ kn, close S of Îlet La Perle, but fresh S winds had prevailed for several days previously.

3 Along the W coast, especially off Rade de Saint–Pierre (14°45′N 61°11′W), the current varies between N–going and S–going.

Principal marks

7.17

1 **Landmarks:**

Le Prêcheur (14°48′N 61°14′W), which is easily distinguished from a great distance. This church is situated close SE of Pointe du Prêcheur Light (below).

2 Grey cathedral with 2 towers (14°44′N 61°11′W), standing in Saint–Pierre, about 1 cable W of a prominent cross.

White statue on a column standing on Pointe Sainte–Marthe (14°44′N 61°11′W), situated at the S end of Saint–Pierre

3 Mast (100 m in height) (14°40′N 61°10′W), standing 3 cables NE of the jetty at Bellefontaine (7.28), marked by red obstruction lights.

Chimneys of the power station.

4 The white dome (27 m in height) of Sacré Cœur de Montmartre (14°39′N 61°05′W).

Church with a white belfry, standing in the village of Schœlcher (14°37′N 61°06′W).

Schœlcher Church (7.17)

(Original dated 1998)

(Photograph – Crown Copyright)

7.18

1 **Major lights:**

Pointe du Prêcheur Light (white tower, 12 m in height) (14°48′N 61°14′W).

Pointe des Nègres Light (14°36′N 61°06′W) (7.65).

Seaplanes

7.19

1 Various locations along the W coast of Martinique have been designated for the operation of seaplanes, as shown on the chart. Care should be exercised when in the vicinity of such areas. Anchoring and the use of surface fishing tackle is prohibited.

Directions

Charts 371, 594

North side

7.20

1 From a position NE of Basse–Pointe (14°52′N 61°07′W) (7.20) the route leads W passing (with positions from Îlet La Perle (14°50′N 61°14′W)):

2 N of Basse–Pointe (7 miles ENE) and a light–buoy (special) 1¼ miles N. A prominent white chimney stands 3 cables SSW of the point and a radio mast (elevation 71 m) stands 3½ cables WSW of the point. Thence:

3 N of Pointe de Macouba (5 miles ENE), the N extremity of Martinique. A factory, standing above a distinctive waterfall, is situated about 6 cables W of Macouba village, thence:

4 N of a shallow bank, with a depth of less than 20 m over it, extending 6 cables NNE from Pointe de la Rivière (3½ miles NE), thence:

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N of Cap Saint Martin (1¾ miles NE) a rugged, steep–to headland forming the NW extremity of Martinique.

5 From this position the track continues W for about 8 miles to a position NNW of Pointe de Prêcheur (14°48′N 61°13′W) (7.18).

6 **Useful marks:**

Rocher Burgaux (14°50′N 61°04′W) which can be seen at a distance of about 3 miles.

Church with a red roof, standing in the village of Le Lorrain (14°50′N 61°04′W) which is situated on the SW side of Grande Anse.

West side

(continued from 2.76, 6.184 and 6.221)

7.21

1 From a position NNW of Pointe de Prêcheur (14°48′N 61°13′W) (7.18) the track leads SSE passing (with positions from Îlet La Perle (14°50′N 61°14′W)):

WSW of Cap Saint Martin (7.20), thence:

2 WSW of Îlet La Perle (27 m high), a steep–to rock standing about 4 cables offshore, thence:

WSW of Saint–Pierre (6½ miles SSE) (7.22), thence:

WSW of Le Carbet (8 miles SSE) (7.27).

3 From this position the track continues SSE for about 8 miles to a position WSW of Pointe des Nègres (16 miles SSE) (7.65).

(Directions continue for the coastal passage SW of Martinique at 7.102, and for Baie de Fort–de–France at 7.67 and 7.70)

Rade de Saint–Pierre

Chart 371

General information

7.22

1 **Description.** Rade de Saint–Pierre (14°44′N 61°12′W) extends from Rivière des Pères in the N to the village of Le Carbet (2½ miles S) (7.27). This roadstead serves the town of Saint–Pierre which was rebuilt to the S of the old town, destroyed by volcanic activity in 1902. There is a hospital in the town.

2 **Topography.** The coast consists of sandy beaches and is clear of shallow patches except for an extension of the coastal bank in the S part of Anse Turin (14°44′N 61°11′W) where a depth of 2·5 m will be found 1 cable offshore. There are many wrecks in the area as shown on the chart.

Pilotage is compulsory for vessels over 50 m in length for anchoring or berthing and only available by day. Pilots are provided from Fort–de–France (7.58).

3 **Principal marks:**

Two of the prominent features in Saint–Pierre are given at 7.17.

A tunnel, known as Trou Guéydon, situated about 1½ cables SSW of Pointe Sainte–Marthe (14°44′N 61°11′W) is distinctive from the South.

4 **Seaplanes** operate in the area, see 7.19

Anchorage

7.23

1 **Description** The best anchorage area lies S of Pointe Sainte–Marthe and between that point and Anse Turin (about 4 cables S). The bottom in this part of the roadstead is less steep than elsewhere and forms a shelf extending seaward, known as Plateau du Carbet. Anchorage can be obtained on this plateau, in depths of about 40 m, about 2 cables offshore.

2 It is reported that vessels should not be anchored farther offshore and that a position to the W of a ravine in Anse Turin should be avoided as the bottom is uneven and rocky.

Mooring buoys, for the use of lighters and barges, are situated about ½ cable WNW of the head of the piers (7.24).

Berths

7.24

1 Two piers extend from the coast about 5 cables NNE of Pointe Sainte–Marthe (14°44′N 61°11′W). Surf affects the berths at these piers.

Anchorages and berths

Note

7.25

1 It is difficult to find anchorage off the W coast of Martinique owing to the great depths which are found quite close inshore.

Anse Céron

7.26

1 **Description.** Anse Céron (14°50′N 61°14′W), situated N of Rivière de l'Anse Céron, affords anchorage in depths of 10 m that provides the best shelter from the wind and swell along the NW coast.

Le Carbet

7.27

1 **Anchorage** has been obtained off Le Carbet (14°43′N 61°11′W), in a depth of 46 m, with Petit Piton (2 miles ENE) (7.14) bearing 073° distant about 2¼ miles. This hill, in line with a small ravine S of the village, leads to the anchorage.

2 **Berth**. An L–shaped jetty extends from the coast out to the 10 m depth contour about 3 cables S of Le Carbet.

Landing can be effected on the beach in front of the village.

Bellefontaine

7.28

1 **Berth**. A petroleum pier (14°40′N 61°10′W) extends 140 m WSW from the shore, with a concrete platform (48 m in length) at its head. Dolphins on both sides of the pierhead enable tankers of 15 000 dwt and a draught of 9 m to be berthed alongside.

Close NE of the pier are a pylon and two chimneys (7.17).

2 Vessels over 1600 grt carrying hydrocarbons or dangerous cargoes may not close within 1 mile of the coast except for direct access to the pier from Cap Enragé (1 mile SE) and except during use of the entry channel or leaving the roadstead of Fort–de–France.

3 **Port Authority.** See Fort–de–France (7.38).

Pilotage. Compulsory. The pilot boards 1 mile NW of the berth or at Fort–de–France. See Fort–de–France (7.58) and *Admiralty List of Radio Signals Volume 6(5).*

Traffic. In 2004, 13 vessels, with a total dwt of 138 939 tonnes, used the port.

Anse de Case Pilote

7.29

1 **Description**. Anse de Case Pilote (14°38′N 61°09′W) affords anchorage for small vessels inshore and clear of the fishery area. The coastal bank is very steep.

Local knowledge is required.

Berths. There is a small fishing harbour with a mole protected by a breakwater.

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2 **Restricted area** for seabed study by submarine is situated about 1 mile SSE of the anchorage. When in use four buoys (special) are laid and navigation, anchoring, fishing and diving are prohibited in the area.

Prohibited anchorage

7.30

1 Anchoring and fishing are prohibited in the submarine cable area, shown on the chart, off Schœlcher (14°37′N 61°06′W) (7.17). Seaplanes also operate in the area; see 7.19.

BAIE DE FORT–DE–FRANCE

General information

Chart 371 with plans of Baie de Fort–de–France and of Fort–de–France

Position

7.31

1 Baie de Fort–de–France (14°34′N 61°05′W) is situated on the W coast of Martinique about 20 miles S of the N extremity.

Function

7.32

1 Baie de Fort–de–France contains Port de Fort–de–France, a land–locked harbour providing shelter in all weathers, which serves Fort–de–France, the capital of Martinique, residence of the Governor and headquarters of the French military forces.

In 2004 the population was 403 000.

Topography

7.33

1 Baie de Fort–de–France has a width of about 3½ miles between Pointe des Nègres (14°36′N 61°06′W) and Îlet à Ramiers (to the S); and extends about 6 miles ESE towards Mouillage de la Rivière Salée.

2 Depths in the bay are very irregular and its shores are indented by a number of coves which, whilst affording sheltered anchorage, are not easy of access on account of the numerous banks and shoals. The E coast is bordered by foul ground along its central part.

3 Fort–de–France stands on the N side of the bay, on low, level ground, between two major rivers. A number of radio masts (red and white bands, 25 m in height, red lights) are situated on both sides of the town, extending to the NW of Pointe des Nègres and to the NNE of Pointe des Grives (2½ miles ESE).

Climate

7.34

1 The climate is generally hot and humid. E winds prevail but at other times hot and humid winds bring storms, sometimes of hurricane force from S. Rainfall is abundant averaging about 180 mm annually.

Port limits

7.35

1 The seaward limit is contained within a line drawn from Pointe des Nègres through No 3 Light–beacon (1¾ miles ESE) (7.55) thence to Pointe Desgras (14°35′N 61°02′W).

Approach and entry

7.36

1 Port de Fort–de–France is approached from the W or SW through Baie de Fort–de–France and entered through Passe du Carénage (14°35′N 61°04′W) (7.71).

2 The obligatory approach channel for vessels over 1000 grt carrying hydrocarbons or dangerous cargoes (1.49) is defined as the direct route closest to 090° from 7 miles off the coast to the waiting zone and tanker anchorage (7.47), see 7.67.

Traffic

7.37

1 In 2004 911 vessels, with a total dwt of 7 670 185 tonnes, used the port.

Port Authority

7.38

1 Direction Departementale de l'Equipement (DDE), BP 661, Boulevard du General de Gaulle, 97262, Fort–de–France, Cedex. Local authority is exercised by the Capitainerie du Port, BP 625, 97261 Fort–de–France, Cedex.

Limiting conditions

Controlling depth

7.39

1 The approach to Baie des Tourelles (within the inner port) (7.61) has been dredged to a depth of 11 to 12·5 m.

The approach to the berth at Pointe des Carrières (E of the entrance to the port) (7.73) has charted depths of 17 m or more.

Deepest and longest berths

7.40

1 Deepest berth is Pointe des Carrières (7.73).

Longest berth is Quai de l'Hydrobase (7.73).

Mean tidal levels

7.41

1 MHHW 0·7 m.
MLLW 0·4 m.

Density of water

7.42

1 1·028 g/cm^3.

Maximum size of vessel handled

7.43

1 Within the inner port, vessels with a draught of 11 m and a length as given below can be accommodated:

Length 180 m for vessels with one right–hand propeller only.

Length 250 m for vessels with two propellers and bow thrusters.

2 Bulk carriers and tankers up to 120 000 dwt can be accommodated alongside the berth at Pointe des Carrières (7.73).

Local weather

7.44

1 Daytime winds can hamper berthing. Vessels berth before 0600 or after sunset.

Arrival information

Radio facilities

7.45

1 For details see *Admiralty List of Radio Signals Volume 6(5).*

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Notice of ETA

7.46

1 Required 48 hours and 24 hours before arrival. Before entering the port authorisation must be obtained from the harbour master.

See *Admiralty List of Radio Signals Volume 6(5).*

Outer anchorages

7.47

1 There are a number of good anchorages in Baie de Fort–de–France. Those situated outside the inner port are as follows: (with positions from Fort Saint Louis Light (14°36′N 61°04′W)):

2 Mouillage des Flamands (6 cables WSW) (7.49).
Mouillage de la Dillon (8 cables SE) (7.54).
Mouillage des Trois Îlets (3½ miles SSE) (7.78).
Mouillage de la Rivière Salée (4¼ miles SE) (7.85).
Coché du Lamentin (2 miles E) (7.87).
Tanker anchorage (2½ miles SW) (7.48).

3 Mouillage des Flamands and Mouillage de la Dillon form the roadstead to Port de Fort–de–France are described (including a prohibited anchorage area) before the port details. Other anchorages (including a prohibited anchorage area) are outside the port limits and described after the port details.

Tanker anchorage

7.48

1 Vessels over 1600 grt carrying hydrocarbons or dangerous cargoes must anchor in the tanker anchorage 2 miles S of Pointe des Nègres as shown on the chart. There is a charted obstruction in the SE of the anchorage. For approach see 7.36.

2 An explosives dumping ground, 600 m in diameter, is situated 5 cables SSE of the tanker anchorage as shown on the chart. Anchoring, dredging and fishing are prohibited.

Mouillage des Flamands

7.49

1 Mouillage des Flamands, which extends from Pointe des Nègres (14°36′N 61°06′W) to Fort Saint Louis (1½ miles E) and from the N shore of the bay, S to Banc Mitan (1¼ miles SE of Pointe des Nègres), affords anchorage which is safe from November to July but not during the main hurricane season (1.225).

2 For safe anchorages see 7.54 and 7.78.
For prohibited anchorage see 7.53.

7.50

1 **Directions** (*continued from 7.67*). From the vicinity of 14°35′N 61°05′W, the alignment (041°), as given at 7.70, continues into Mouillage des Flamands, passing (with positions from the front mark):
NW of Banc Mitan (1¼ miles SSW), (7.68), thence:

2 NW of Banc du Fort Saint Louis (7 cables S) (7.68)
SE of Banc Flamands with a depth of 15·1 m.

At night it is possible to approach the anchorage from the W along the line of bearing, 073°, of Fort Saint Louis Light, well open S of Pointe des Nègres Light.

7.51

1 **Alongside berth.** A cruise ship terminal is situated in Baie des Flamands off Pointe Simon (14°36′N 61°05′W). See 7.73.

7.52

1 **Recommended anchorages**, suitable for small vessels, with good holding in sand and mud, are as follows:
On the alignment (041°) as given at 7.70, with the S extremity of Fort Saint Louis bearing 094°.
The line of bearing, 014°, of the mouth of Rivière Madame (3 cables WSW of the front mark), with the S extremity of Fort Saint Louis bearing 088°.

2 In February 1938 the French battleship *Dunkerque* anchored on the 041° transit (7.70) with Pointe des Nègres Light bearing 298°. The bottom was mud and the holding was good.

Prohibited anchorage

7.53

1 Within an area shown on Chart 371 Fort–de–France, W of Fort Saint Louis.

Attention is also drawn to the submarine outfall pipe, shown on the chart, laid NW of Banc du Fort Saint Louis.

Mouillage de la Dillon

7.54

1 Mouillage de la Dillon (14°35′N 61°04′W), situated immediately E of the harbour entrance and formed between Banc de la Carrière (to the N) and Grande Sèche (to the E and S), affords good anchorage in depths of about 25 m mud, which is recommended for use during the hurricane season.

7.55

1 **Directions** (*continued from 7.69*). From the vicinity of 14°34′N 61°05′W, the track into Mouillage de la Dillon leads E, passing (with positions from the pier at Pointe des Carrières (14°36′N 61°04′W)):
N of the NW extremity of Grande Sèche (4½ cables SSW) marked off its NW side by No 3 Light–beacon (starboard hand), thence:
S of Banc de la Carrière (2 cables W) (7.71).

7.56

1 **Anchorage** is available with the pier at Pointe des Carrières bearing 323°, 1·1 cables, but it is not recommended for large chemical or oil tankers due to constriction within the basin.

Regulations

7.57

1 **Submarine cable.** Anchoring, dredging and trawling are prohibited within 300 m of the charted submarine cable which extends W then SSW from a position 2 cables S of Pointe Desgras (7.35) to a position ¾ cable NW of 1L Light–buoy (14°34′N 61°03′W), thence generally W from about 3 cables N of Pointe du Bout (14°34′N 61°03′W).

Pilotage

7.58

1 Pilotage is compulsory as follows:
For vessels carrying hydrocarbons or dangerous goods;
For vessels over 50 m in length proceeding to the port or anchorage; however vessels less than 100 m in length, except those carrying hydrocarbons or dangerous goods, do not require a pilot if anchoring W of a line from Fort Saint Louis (14°36′N 61°04′W) to Pointe du Bout, 2¼ miles SSW.

2 Pilots board
Five cables S of Pointe des Nègres, or;
Seaward of a line between Cap Enragé (14°39′N 61°09′W) (7.28) and Cap Salomon (9 miles SSE) (7.102) for deep draught vessels.

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3 If a Pilot is not available vessels should be anchored in Mouillage des Flamands (14°36′N 61°05′W) (7.49), a waiting area.

Pilotage is compulsory for ports in Martinique and all are linked to the pilot station in Fort–de–France which should be given 2 hours notice.

See *Admiralty List of Radio Signals Volume 6(5).*

Tugs

7.59

1 Commercial tugs: none.

There are two tugs for naval use.

Quarantine

7.60

1 Free pratique may be requested by radio; or on arrival, with presentation of health certificates.

Harbour

General layout

7.61

1 General description (7.33).

The roadstead of Fort–de–France includes the anchorages of Mouillage des Flamands (7.49) and Mouillage de la Dillon (7.54).

2 Port de Fort–de–France (14°36′N 61°04′W) is a well sheltered natural harbour which is entered through Passe du Carénage and opens between Fort Saint Louis and Pointe des Carrières. The harbour, which has been improved and dredged (7.39), has two basins:

Baie du Carénage, to the W.

Baie des Tourelles, to the E.

Development

7.62

1 Works are reported (2005) to be in progress in a position close to the foreshore of Fort–de–France (14°30′N 61°04′W) between a new ferry dock and the cruise liner terminal in the vicinity of a pipeline which extends SE from the shore thence S and SW into Mouillage des Flamands as shown on the chart.

Seaplane area

7.63

1 An area to the N and NE of Îlet à Ramiers (14°32′N 61°05′W), as shown on the chart, is designated as a landing and take–off area for seaplanes (7.19).

Natural conditions

7.64

1 **Climatic table** for Le Lamentin (1.258).

Set. The wind, often blowing from the NE, becomes stronger in the middle of the day. It combines with the current to set vessels to the W when entering through Passe du Carénage.

Principal marks

7.65

1 **Landmarks.** From the approach to Baie de Fort–de–France the most prominent features are as follows, (with positions from Fort Saint Louis Light (14°36′N 61°04′W)):

Pointe des Nègres Light–structure (white metal framework tower, 28 m high) (1½ miles W).

Pointe des Nègres Light (7.65)

(Original dated 2001)

(Photograph – HMS Sheffield)

2 A large, high building (1¼ miles WNW), standing above Pointe des Nègres.

Saint Louis Church (4 cables NNW) with a tall reddish belfry surmounted by a spire.

Chapel Le Calvaire (6 cables N), standing on the slope of the hill above the town, which has a distinct white front, red roof and grey spire.

3 Large grey–green dome of the library (4 cables NNW) situated near the centre of town.

White square tower of the church of Sainte Thérèse (7 cables NE), the cross of which is illuminated at night.

4 Silo (5½ cables ESE) situated on Pointe des Carrières, see view 7.69.

Six–storey hotel (2½ miles SSE), situated about 2 cables S of Pointe du Bout.

7.66

1 **Major lights:**

Pointe des Nègres Light—as above.

Directions for entering harbour

(continued from 7.21)

Approach from west

7.67

1 From a position W of Pointe des Nègres Light (14°36′N 61°06′W), in the vicinity of 14°36′N 61°12′W, the approach leads E passing (with positions from Pointe de Nègres Light):

S of Cap Enragé (4½ miles NW) (7.28), thence:

S of Schœlcher (1¼ miles NW) (7.17).

2 This route is mandatory for certain vessels carrying hydrocarbons or dangerous cargoes; see 7.36. Thence:

S of Pointe des Nègres (7.65), thence:

N of Banc de la Vierge (6½ cables SSE).

(Directions continue for Mouillage des Flamands at 7.50)

7.68

1 From the vicinity of 14°35′N 61°05′W the line of bearing, 096°, of the S end of the settlement on Morne Rouge (14°35′N 61°02′W), reported in 1988 to provide an adequate headmark, leads along the recommended track shown on the chart, towards the harbour, passing (with positions from Pointe des Nègres Light (14°36′N 61°06′W)):

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2 N of Banc Mitan (1¼ miles SE), marked off its N side by Mitan Light–beacon (N cardinal), thence:
S of No 0 Light–beacon (port hand) (5½ cables SW), thence:
Close S of No 2 Light–beacon (port hand) (5 cables S) marking the S extremity of Banc du Fort Saint Louis.

7.69

1 **Useful mark:**
Fort Saint Louis, standing on a promontory which extends about 3 cables S from the town. Fort Saint Louis Light (white pylon, elevation 31 m) stands on the W side of the fort.

Fort Saint Louis Light from W (7.69)
(Original dated 2001)

(Photograph – HMS Sheffield)

(Directions continue for entering harbour at 7.71 and for Mouillage de la Dillon at 7.55)

Approach from south–west

(continued from 7.21)

7.70

1 From a position 2½ miles NW of Cap Salomon (7.102), the alignment (041°) of the spire of Saint Louis Church (7.65) with the Chapel Le Calvaire (3 cables NE) (7.65) leads towards the harbour, passing (with positions from the front mark):
NW of a wreck with 10 m of water over it (5½ miles SW), position approximate, thence:
2 NW of a light–buoy (special) (3¾ miles SSW), thence:
NW of Îlet à Ramiers (3½ miles SSW), 39 m in height and lying 1¼ cables N of Pointe Blanche, thence:
NW of Fond Blanc de l'Îlet à Ramiers (3 miles SSW), which lies across the middle of the seaplane area (7.63), thence:
3 NW of Banc du Gros Îlet (2 miles SSW) (7.79), thence:
NW of a depth of 15·5 m (1¼ miles SW). This shoal extends 4 cables WNW from Banc Mitan (7.68). And:
4 SE of Banc de la Vierge (1¼ miles SW) (7.67).

From a position 1 mile SW of the front mark the track alters to 096°, as for the approach from W given at 7.68.

5 **Clearing bearing.** The line of bearing, 027°, of the Chapel Le Calvaire (3 cables NE) (rear mark, above), clears to the W of all dangers in Baie de Fort–de–France except Banc de la Vierge (1¼ miles SW) (7.67), and a shoal area with depths of less than 20 m extending 4 cables WNW from Banc Mitan.

(Directions continue for Mouillage des Flamands at 7.50)

Entrance channel

(continued from 7.69)

7.71

1 **Passe du Carénage** has a least depth of 10·4 m in position 14°35′N 61°04′W.
Initial position: 5½ cables SSE of Fort Saint Louis Light (14°36′N 61°04′W).
Carénage Leading Lights:
2 Front light (red rectangle on white and black metal framework tower, 12 m in height) (4 cables NE of Fort Saint Louis Light), standing on Morne Pichevin.
Rear light (similar structure, 14 m in height) (145 m from the front light).
3 It is reported that, by day, these transit beacons are partly obscured by buildings.
4 The alignment (004°) of these lights leads through Passe du Carénage, into harbour, passing (with positions from the front light):
W of a light–buoy (S cardinal) (7½ cables S) marking the SW extremity of Banc de la Carrière, thence:
5 E of No 4 Light–beacon (port hand) (7 cables S), marking the SE extremity of Banc du Fort Saint Louis, thence:
W of No 7 Light–beacon (starboard hand) (5½ cables S) marking the W extremity of Banc de la Carrière.

Basins and berths

Anchorage

7.72

1 **Baie du Carénage** (7.61) affords anchorage that is recommended for short stay use during the hurricane season (1.225).

Alongside berths

7.73

1 **Baie des Tourelles:**
Quai de l'Hydrobase (4 cables E of Fort Saint Louis Light), situated along the E side of Baie des Tourelles, has a length of 590 m overall; a deep water quay and container terminal, with a depth of 11 m alongside, occupies the SW end of this wharf
2 There are four other quays to the NW of Quai de l'Hydrobase. Of these, Quai des Tourelles, 300 m in length with a depth of 11 m alongside, provides Ro–Ro facilities at its NE end.

Baie du Carénage:
There is a berth for landing craft on the W side and small craft on the E side (7.92).

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Pointe des Carrières from WSW (7.73)

(Original dated 2000)

(Photograph – HMS Manchester)

3 **Pointe des Carrières:**

A T–headed pier, with a depth of 17 m alongside its head, extends 1 cable SSE from Pointe des Carrières (6 cables SE of Fort Saint Louis Light). Two dolphins standing W of the pierhead and three mooring buoys to the NE enable this berth to accommodate oil tankers and bulk carriers with a length of 300 m, a draught of 15 m and a displacement of 100 000 tonnes. The line of the berth is 071°.

4 An L–shaped jetty with a length of about 183 m extends parrallel to the above pier from the SE extremity of Pointe des Carrières.

5 **Cruise Ship Terminal:**

A terminal, in the form of an L–shaped pier 3½ cables W of Fort Saint Louis, extends into the Baie des Flamands from Pointe Simon in Fort–de–France via a 200 m walkway. The pier head consists of a platform 15 m wide and 72·5 m long on the offshore side and 65 m long on the inshore side and flanked by fendered dolphins.

6 There are two mooring dolphins, 67·5 and 117·5 m off the SW end, for use at both berths, and a single mooring dolphin 115 m off the NE end for use at the offshore berth. Vessels up to 70 000 tonnes, 270 m LOA and a draught of 9 m can use the offshore side. Vessels up to 200 m long and with a draught of 8 m can use the inshore side.

A ferry dock, not charted, lies about 2 cables E of the terminal.

7 **Container Terminal:**

A new container terminal (2002) has been constructed extending SW from Pointe des Grives, 7 cables E of Pointe des Carrières, with a reported dredged depth alongside of 14·0 m; further details should be obtained from the Port Authority. Works are in progress (2004) NW of the terminal.

Port services

Repairs

7.74

1 Minor repairs, including the services of a diver.

A dry dock is situated at the head of the harbour.

Other facilities

7.75

1 Deratting exemption certificates can be issued; medical facilities and hospitals; oily waste facilities not available.

Supplies

7.76

1 Fuel, all grades; fresh water; fresh provisions available though fresh milk is not.

Anchorages in Baie de Fort–de–France

Chart 371 plan of Baie de Fort–de–France

7.77

1 **General information** (7.47)

Regulations. Fishing and anchoring are prohibited in a large area extending SSW from Pointe de Sable (14°35′·4N 61°02′·4W) towards Pointe du Bout (2 miles SSW) then ESE into Baie de Genipa, as shown on the chart. Fishing is prohibited in an area between Îlet à Ramiers (7.70) and Pointe d'Alet, 1 mile ENE, as shown on the chart.

Mouillage des Trois Îlets

7.78

1 **Description.** Mouillage des Trois Îlets (14°33′N 61°02′W), entered between Pointe de la Rose (7.79) and Gros Îlet (1¼ miles ESE) (7.80), affords anchorage in depths of 15 m but the swinging room is severely constrained by isolated shoal patches with depths of 3·6 to 8·9 m over them. This anchorage is recommended for long stay use during the hurricane season (1.225), as it is better sheltered than either Mouillage des Flamands (7.49) or Cohé du Lamentin (7.87); but is said to be unhealthy, with an oppressive heat.

7.79

1 **Directions.** Mouillage des Trois Îlets is approached from the W through Passe des Trois Îlets, passing to the N of Pointe du Bout (14°33′N 61°03′W), which has a least charted depth of 22·5 m in the fairway (14°34′N 61°03′W). However, charted depths at the W end of the recommended track are less than 20 m, but deep water is charted about 2 cables N of the track.

2 **Recommended track.** From the vicinity of 14°35′N 61°06′W the route leads ESE along the recommended track of 110° shown on the chart, passing (with positions from Pointe du Bout):

Over a charted depth of 16·4 m (2 miles WNW), near the N extremity of the shoal extending N from Banc du Gros Îlet, indicated by a change in the colour of the water. No 1 Light–buoy (starboard hand) is moored close N of the bank and about 1 cable SSW of the track. Thence:

3 SSW of Banc Mitan (2 miles NW) (7.68), marked on its S side by "M" Light–buoy (port hand), thence:

SSW of a wreck with 28 m of water over it (1 mile NW), the position of which is doubtful, thence:

NNE of GBB Buoy (N cardinal) (1¾ cables NNW) marking the N edge of Grande Banc de la Pointe du Bout, which extends about 3½ cables WNW from the point, and:

4 SSW of Petit Banc de la Pointe du Bout, a small coral patch with a depth of 5·6 m over it (2½ cables N), marked off its N side (not on the side of the track) by PBB Light–buoy (starboard hand), thence:

5 NNE of a bank extending 1 cable NE from Pointe du Bout. B1 Light–buoy (E cardinal) is moored on

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this bank about ½ cable NE of the E extremity of the point. Thence:

(Directions for Cohe du Lamentin are given at 7.88)

6 SSW of Banc Boucher (5 cables ENE), marked on its N edge (not on the side of the track) by BC Light–buoy (starboard hand), thence:

SSW of Banc Foucambert (6 cables ENE) marked on its NW edge (not on the side of the track) by FCB Buoy (starboard hand), thence:

NNE of a 3·4 m patch (6 cables ESE), thence:

7 NNE of a PR buoy (N cardinal) (9 cables ESE) moored close inside the NE extremity of the bank extending NE from Pointe de la Rose with a hill behind with heights of 40 and 52 m.

7.80

1 Thence the recommended 150° track leads SSE towards a mooring buoy in position 14°32′N 61°02′W, passing (with positions from Pointe de la Rose (14°33′N 61°02′W)):

2 WSW of the SW extremity of Caye à Vache (3½ cables NE) marked on its W side by CV Buoy (S cardinal), thence:

ENE of PR buoy (N cardinal) (1 cable NE) (7.79), thence:

3 WSW of Roche du Mont Kemmel (5 cables ENE) with a depth of 7·2 m, thence:

ENE of a detached patch, with a depth of 8·9 m (3½ cables SE), thence:

4 WSW of T1 Buoy (N cardinal) (5¾ cables ESE), which marks the NW extremity of the bank, which dries in places, extending 5½ cables NW from Gros Îlet, 67 m in height, thence:

ENE of a detached patch, with a depth of 4 m over it (4 cables SE), thence:

5 ENE of a detached patch, with a depth of 5 m over it (6 cables SE).

7.81

1 **Alternative track** through Passe des Trois Îlets, after passing clear of Banc du Gros Îlet (7.79), is along the line of bearing, 107°, of the N extremity of Petit Îlet (14°33′N 61°00′W).

7.82

1 **Clearing marks.** The alignment (121°) of Pointe de la Rose with the SW extremity of Gros Îlet (1 mile farther ESE) clears NNE of the dangers extending NW from Pointe du Bout.

7.83

1 **Anchorage** is available in position 14°32′·8N 61°02′·1W, within a circle of detached coral patches, as shown on the chart.

7.84

1 **Mooring buoy** in position 14°32′·7N 61°01′·9W is moored in a depth of 11 m.

Mouillage de la Rivière Salée

7.85

1 Mouillage de la Rivière Salée (14°33′N 61°01′W) affords anchorage in depths of 11 to 14 m.

Directions. Approach is made from the W, through Passe des Trois Îlets, following the track given at 7.79.

From the vicinity of 14°33′N 61°02′W, the line of bearing, 107°, of the N extremity of Petit Îlet (14°33′N 61°00′W) leads towards the anchorage, passing (with positions from the N extremity of Petit Îlet):

2 NNE of Roche du Mont Kemmel (1½ miles WNW) (7.80), thence:

Close S of a 6·2 m detached patch (1¼ miles WNW).

From the vicinity of 14°33′N 61°01′W, the track alters SE towards the anchorage, passing:

3 Between Roche du Mont Viso (9 cables WNW), with a depth of 5·8 m over it, and a shoal, with a least depth of 1·5 m over it, 1 cable SW, thence:

SW of CS Buoy (S cardinal) (6 cables W), marking the SW extremity of Caye Sobbé, which dries in places.

7.86

1 **Anchorage.** The recommended anchorage is in the area close E of Gros Îlet, in a depth of 13 m. A spit, with depths of less than 2 m over it, projects 1 cable N into the SE part of the anchorage (3½ cables W of Petit Îlet). The N side of this spit is marked by a beacon (starboard–hand).

Small craft anchor in that part of the anchorage to the NW of Petit Îlet.

Cohé du Lamentin

7.87

1 Cohé du Lamentin (14°36′N 61°02′W), situated in the NE corner of Baie de Fort–de–France, affords anchorage in depths of 8 m. Squalls are frequent and violent in this corner of the bay. There are many stranded wrecks inshore of the 5 m depth contour as shown on the chart.

7.88

1 **Directions.** (*continued from 7.79*) Cohé du Lamentin is approached through a well marked channel leading 2 miles NNE from Pointe du Bout (14°33′·6N 61°03′·3W) along the recommended track shown on the chart:

2 SE of Petit Banc de la Pointe du Bout (2½ cables N) (7.79), thence:

NW of Banc Boucher (5 cables ENE) (7.79), thence:

NW of Banc Foucambert (6 cables ENE) (7.79), thence:

SE of Banc Monsigny (7 cables NE), marked on its SE extremity by 2L Light–buoy (port hand). Thence:

3 NNE, passing (with positions from Pointe de Sable (14°35′N 61°02′W)):

WNW of a shallow tongue extending 3 cables SW from Sèche San Justan, (1¼ miles SSE). The SW extremity of this tongue is marked by 1L Light–buoy (starboard hand). Thence:

4 ESE of a detached patch, with a depth of 8·9 m over it (1 mile S). 4L Light–buoy (port hand), moored close NW of this patch, marks the SE extremity of Banc Gamelle (1 mile SSW), which is a narrow coral spit. Thence:

5 Close WNW of a detached patch, with a depth of 6·2 m over it (8 cables S), marked on its N edge by GA Light–buoy (starboard hand), thence:

WNW of the SW extremity of a bank which dries in places (7 cables SSE), thence:

ESE of a detached patch, with a depth of 6·3 m over it, (2 cables SE) marked off its SE side by 6L Light–buoy (port hand) thence:

6 WNW of Morne Rouge Shoal with a depth of 5·4 m over it (4 cables ESE), marked off its W side by MR Light–buoy (starboard hand), thence:

WNW of Banc Carcasse (5 cables ENE), with a depth of 3·5 m over it, marked off its W side by CAR Light–buoy (starboard hand), thence:

7 WNW of 7L Light–buoy (starboard hand), moored off the SW extremity of Banc Grande Savane, which dries in places and forms a coral and gravel bank extending from the coast.

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7.89

1 **Anchorage** may be found in depths of 8 m at the S end of Cohé du Lamentin or in a depth of about 6 m to the N of 7L Light–buoy (7 cables NE of Pointe de Sable) and W of Pointe du Lamentin (1¼ miles NE) on which stands Morne Cabrit.

2 **Caution** should be exercised in the vicinity of a submarine pipeline which crosses Cohé du Lamentin in a direction NNW from Pointe Desgras (8 cables ESE of Pointe de Sable).

7.90

1 **Alongside berth.** An oil berth in position 14°36′N 61°02′W can accommodate coasters.

7.91

1 **Marina Pointe du Bout** (14°33′N 61°03′W) is situated at the head of a small bay on the E side of Pointe du Bout and can be identified by the conspicuous hotel nearby (7.65).

Approach. From close E of B1 Light–buoy (E cardinal) (½ cable ENE of Pointe du Bout (7.79) the track leads S towards the marina entrance.

2 The marina is reported to have a depth of 3 m alongside the berths and to provide good refuge in a hurricane. The marina has repair facilities, water and electricity.

7.92

1 **Repairs.** Quai Ouest, on the E side of Baie du Carénage (7.61) is a repair centre for yachts. It has a maximum depth of 7·5 m alongside. Extending from the head of the bay is a jetty for small craft.

MARTINIQUE — SOUTH–WEST PART

General information

Charts 494, 596

Route

7.93

1 From a position WSW of Pointe Des Negres 14°36′N 61°05′W the route leads SSE for about 9 miles to a position WSW of Pointe du Diamant (14°27′N 61°05′W) from whence the route leads ESE for about 16 miles, to a position S of Îlet Cabrits (14°23′N 60°52′W).

Topography

7.94

1 General topography (7.8).

From Îlet à Ramiers to Cap Salomon (2½ miles SSW) the coastline is high and rugged.

2 From Pointe du Diamant (14°27′N 61°05′W) to Îlet Cabrits (11½ miles ESE) the S coast is irregular and indented by numerous bays from which valleys lead inland. The aspect is dominated by a continuous, irregular mountain chain, the principal summits of which are Morne Larcher (close N of Pointe du Diamant) (7.102), and Piton Crève Cur (200 m high) (11½ miles E).

Depths

7.95

1 From Îlet à Ramiers to Pointe du Diamant (5½ miles S), the SW coast is steep–to and clear of dangers.

From Pointe du Diamant to Pointe Borgnesse (14°27′N 60°54′W) the S coast is bordered by a shallow bank on which lie reefs, with depths of less than 5·5 m over them, which extends up to 1 mile offshore.

2 Depths in the approach to Cul–de–Sac du Marin (14°27′N 60°54′W) are described at 7.104.

From Pointe Dunkerque (14°25′N 60°54′W) to Pointe des Salines (1¾ miles SSE) the coastal bank is reported to be dangerous, with depths of 2·7 and 3·0 m along its outer edge, about 6 cables offshore.

3 Off Îlet Cabrits (14°23′N 60°52′W) the coastal bank is steep–to and its edge is indicated by a change in the colour of the water.

Natural conditions

7.96

1 **Local magnetic anomaly**. Local deflection of the compass is reported to occur in the waters around Îlet Cabrits, near the S extremity of Martinique as shown on the chart.

7.97

1 **Flow.** General information (7.10).

Information regarding the flow in Martinique–Saint Lucia Channel (7.156).

Principal marks

7.98

1 **Landmarks:**

Television mast (elevation 460 m) (14°31′N 61°04′W), standing about 2 miles ENE of Cap Salomon.

2 A white church with a tower, positioned E of Pointe Burgos (14°30′N 61°06′W), standing in a settlement on the shores of Petite Anse d'Arlets.

3 Rocher du Diamant (14°26′N 61°02′W), a square rock, the sides of which are almost vertical.

Television mast (14°27′N 60°54′W) standing on Morne Aca.

7.99

1 **Major light:**

Îlet Cabrits Light (Red metal framework tower, 27 m in height) (14°23′N 60°52′W).

Seaplanes

7.100

1 Various locations along the W and S coasts of Martinique have been designated for the operation of seaplanes, as shown on the charts. Care should be taken in the vicinity of such areas. Anchoring and surface fishing is prohibited.

Restricted area

7.101

1 Fishing is prohibited and anchoring is restricted, in the area inshore of a line joining Pointe Philippeaux (14°28′N 60°56′W), GC Light–buoy (7.110), MA2 Light–buoy and Pointe Borgnesse (7.105).

Directions

(continued from 7.21)

7.102

1 From a position WSW of Pointe Des Negres 14°36′N 61°05′W the track leads SSE passing (with positions from Rocher du Diamant (14°26′N 61°02′W)):

WSW of Cap Salomon (5¼ miles NW), the extremity of a rugged promontory, thence:

2 WSW of Pointe du Diamant (1¼ miles NW), the steep–to S extremity of a rounded peninsula which is dominated by Morne Larcher, which rises steeply to a peak and is not usually obscured by cloud.

3 From this position the track leads ESE passing (with positions from Rocher du Diamant):

4 SSW of Rocher du Diamant (7.98), which is 176 m in height and steep–to on its W and S sides but

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from its N side a bank, with depths of 6·7 to 20 m, extends about 2 cables N, thence:

SSW of Banc du Diamant (8 cables ESE), a coral patch, thence:

5 SSW of Pointe Dunkerque (8½ miles ESE), thence:

SSW of Pointe des Salines (9¾ miles ESE) at the S end of Martinique, which is low and bordered by a bank on which lie a number of detached rocky heads, extending about 6 cables offshore, thence:

6 SSW of the stranded wreck lying on the S edge of the foul ground extending about 3 cables WSW from Îlet Cabrits (10½ miles ESE).

7 From this position the track continues ESE for about 2 miles to a position S of Îlet Cabrits (14°23′N 60°52′W) which is a low island 17 m in height, on the N end of which stands Îlet Cabrits Light (7.99).

(Directions for Martinique — Saint Lucia Channel are given at 7.164, and for coastal passage NW of Saint Lucia at 7.165)

Cul–de–Sac du Marin

Chart 494 with plan of Cul–de–Sac du Marin

General information

7.103

1 **Description.** Cul–de–Sac du Marin (14°27′N 60°54′W) is a small, well sheltered bay, with a very irregular shoreline. The harbour is restricted by reefs, especially near the centre, but the water is so clear that dangers are usually visible.

The village of Le Marin, at the head of the harbour, is a port of entry and has a large factory on its W side.

2 **Pilotage** is compulsory for vessels over 100 m in length and is only available by day; vessels awaiting a pilot must not proceed N or E of the pilot boarding position (14°26′·5N 60°55′·0W). Pilots come from Fort–de–France (7.58), and at least 2 hours notice is required.

Principal mark:

Television mast (14°27′N 60°54′W) (7.98).

Seaplanes operate in the area indicated on the chart. See 7.100.

Directions for entering harbour

Approach from south

7.104

1 From the vicinity of 14°23′N 60°56′W, the line of bearing, 015°, of Montagne du Vauclin (14°33′N 60°54′W) (7.8) leads towards the entrance channel keeping well clear to the W of the coastal bank which extends about 1½ miles from the coast between Pointe Marin (14°27′N 60°53′W) and Pointe Dunkerque (2 miles SSW). Isolated patches with depths of 4·5 m over them lie near the W edge of this bank.

Entrance channel

7.105

1 **Description.** Passe du Marin (14°26′·8N 60°54′·0W), with a least depth of 25 m in the fairway, leads into the entrance. Various channels then lead either side of Banc du Singe, situated at the inner end of Passe du Marin; of these, the channel passing S then E of the bank is recommended and is described in these Directions.

2 **Initial position**: 14°26′N 60°56′W (or 14°26′N 60°55′W on the 015° alignment in 7.104).

3 **Pointe Marin Direction Light** (white structure, red top, 7 m in height) (14°27′·0N 60°53′·2W), situated ½ cable S of Pointe Marin. The white sector of this light, bearing between 071° and 075°, leads through Passe du Marin, passing (with positions from the light):

NNW of the coastal bank (7.104), with a depth of 7·5 m, (1¼ miles WSW), thence:

4 SSE of MA2 Buoy (port hand) (1 mile WSW) marking the S edge of the coastal bank which extends up to 3½ cables WSW from Pointe Borgnesse. Patches with depths of less than 1 m over them lie on the bank which extends NW to Pointe Figuiers. Thence:

5 NNW of MA1 Light–buoy (starboard hand) (9 cables WSW), situated close N of a patch with 4·7 m over it, and:

SSE of Pointe Borgnesse, 21 m in height, with the 20 m depth contour within ¼ cable of the shore, thence:

NNW of Banc de la Crique, (8 cables WSW) with a depth of 1·6 m over it, thence:

6 NNW of MA3 Light–buoy (starboard–hand) (6 cables WSW), moored on the NW edge of the bank extending 1 cable NW from Caye Beau (5 cables WSW). Caye Beau, which dries, is situated 2 cables NW of Banc des Trois Cayes which also dries and is connected to Pointe Marin by a chain of drying cays. Thence:

7 SSE of MA4 Light–buoy (port hand) (2¾ cables WSW) marking the SE of Banc du Singe, a coral bank which dries near its S end. The 20 m depth contour extends about ¼ cable SE of the buoy.

7.106

1 After passing Banc du Singe the track alters NE into Cul–de–Sac du Marin, passing (with positions from Pointe Marin (14°27′N 60°53′W)):

NW of Pointe Marin, on which stands a light–beacon (starboard hand, 6 m in height), situated ½ cable N of Pointe Marin Direction Light (7.105), thence:

2 SE of the bank, with a depth of 2·5 m over it (3 cables N), which extends SE from Îlet Duquesnay. Caye Duprey, which dries, extends SW over the centre of the bank. Thence:

3 NW of the coastal bank extending NE from Pointe Marin, which dries in many places and is marked on the 5 m depth contour by a beacon (starboard hand) (5½ cables NE), thence:

4 SE of MA6 Light–beacon (port hand, 6 m in height) (7 cables NE) marking the SE extremity of Banc Major, which dries in places.

7.107

1 From a position 7 cables NE of Pointe Marin, a narrow channel, with a depth of less than 12 m, leads generally N between Banc Major and Banc du Milieu, 1 cable E, which dries and is marked close E of the 5 m depth contour around its SW extremity by MA5 light–beacon (starboard hand, 6 m in height).

2 The track continues generally NNE, in depths decreasing to less than 5 m, towards the inner anchorage and a dock at Le Marin, passing (with positions from Pointe Cailloux (14°27′N 60°53′W)):

WNW of MA7 buoy (starboard hand) (3½ cables N) marking the N side of Banc du Milieu, thence:

3 WNW of MA8 light–beacon (port hand) (5¼ cables N) marking the S extremity of Banc de la Douane, which dries in places, thence:

ESE of a buoy (W cardinal) (6¼ cables NNW).

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Alongside berths

7.108

1 The fishing and commercial dock, at the W end of Le Marin, is enclosed by two piers, each with a length of 30 m and marked by a light at its outer end. There are depths of 2·5 to 3·0 m within the dock.

Other facilities

7.109

1 Hospital in Le Marin.
Fresh water is available.

Anchorage

Mouillage de la Rivière Pilote

7.110

1 **Temporary anchorage** is available for coasters in Mouillage de la Rivière Pilote (14°28′N 60°55′W), in a depth of 35 m, mud, about 4 cables SE of the village of Sainte Luce, and clear of the sewer outfall, as shown on the chart. A detached patch, with a depth of 14·5 m over it, lies ½ cable NE of the anchorage.

Mariners should note that anchoring is restricted in this area; see 7.101.

2 Sainte Luce may be identified by a distinctive white church with a red roof and a grey tower standing in the village.

Directions. From the vicinity of 14°26′N 60°55′W, the track into Mouillage de la Rivière Pilote leads generally N, passing (with positions from Pointe Figuiers (14°27′N 60°55′W)):

3 W of the NW extremity of the coastal bank (4 cables S) extending 1 mile WNW from Pointe Borgnesse (7.105), and:
E of Grande Caye (awash and surrounded by reefs) (5 cables WSW) which lies near the SE end of the coastal bank extending about 6 cables offshore. GC Light–buoy (special) marks the SW end of Grande Caye. Thence:

4 W of Pointe Figuiers (7.105).

Landing. A small pier extends from the coast at the E end of Sainte Luce with depths of 3·7 to 5 m alongside its S end.

Seaplanes

7.111

1 See 7.100 and note on the chart regarding seaplane operations.

MARTINIQUE — EAST SIDE

General information

Chart 371, 494, 594, 596, 956 (see 1.24)

Route

7.112

1 From a position ENE of Basse–Pointe (14°52′N 61°07′W), the route leads SE, for about 15 miles to a position NE of Pointe Caracoli (14°46′N 60°52′W from whence the route leads SSE for about 20 miles to a position ENE of Cap Ferrè (14°28′N 60°49′W). From this position the route leads SW for about 15 miles to a position S of Îlet Cabrits (14°23′N 60°52′W).

Topography

7.113

1 General topography for Martinique (7.8).

The E coast of Martinique is generally irregular and is deeply indented in parts.

2 Presqu'île de la Caravelle (14°45′N 60°55′W) extends 5 miles ENE from the general line of the coast. This peninsula, along which runs an elevated ridge, near the centre of which rises Morne de la Tartane surmounted by a TV mast with an elevation of 226 m, is particularly conspicuous. The N side of the peninsula is composed of low, reddish cliffs, separating sandy coves; reefs, on which the sea breaks, fringe the coast, extending as much as 5 cables offshore. The S side of the peninsula is deeply indented by bays, the outer three of which are encumbered by reefs.

Offshore features

7.114

1 The NE coast, between Basse–Pointe and Rocher Pain de Sucre (Sugarloaf Rock) (7.123) (7½ miles SE), is steep–to and clear of offshore dangers. There is neither bay nor cove along this part of the coast which affords shelter from the heavy swell which usually prevails.

2 Between Rocher Pain de Sucre (14°48′N 61°01′W) and Pointe du Diable (7¼ miles ESE) the coast is fronted by a chain of coral patches, with depths of less than 11 m over them, the shallower of which, in fine weather, are indicated by the colour of the water. The depths over these patches are very irregular and the sea breaks on some of them during fresh winds.

3 Between Presqu'île de la Caravelle (14°45′N 60°55′W) and Pointe Macré (17 miles SSE) the E coast is fringed with low islets and a chain of coral cays and reefs which form a barrier reef about 2½ miles offshore. This reef, with many of the coral heads upon it being awash and only visible when the light conditions are good, is very dangerous; though it breaks the sea and affords shelter to the harbours within.

4 **Caution**. That part of the E coast described above is particularly dangerous and should be approached with the utmost caution.

From Pointe Macré (14°29′N 60°49′W) to Îlet Cabrits (6½ miles SSW) (7.102), lying close off the S extremity of Martinique, the reefs fringing the coast do not extend more than 5 cables offshore.

Natural conditions

7.115

1 **Local magnetic anomalies.** Local deflections of the compass have been observed in the waters off Îlet Chevalièr (14°26′N 60°50′W).

Currents. General information (7.10).

Along the E coast of Martinique the current flows S or SW during NW winds and N during SE winds. At times the rate is as high as 3 kn.

2 **Flow.** Information on the flow in Martinique–Saint Lucia Channel (7.157).

Caution. The stranding of several large and fast vessels, in recent years, has been attributed to an under estimation of the current in the locality.

Principal marks

7.116

1 **Landmarks:**
Rocher de la Caravelle (14°48′N 60°53′W), a rugged, barren, steep–to rock, with its pointed summit, 28 m in height, covered in guano giving it the

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appearance of a vessel under sail, is an excellent mark for making this part of the coast by day.

2 La Caravelle Lighthouse (yellow tower, white lantern, 22 m in height) (14°46′N 60°53′W) standing on a hill about 6 cables SE of Pointe du Diable.

Television mast (elevation 226 m) (14°45′N 60°55′W).

3 Îlet Thiéry (30 m high) (14°37′N 60°51′W) is the E of a group of islands. It can be identified from the N by a conspicuous building, standing on its NE end.

Morne Gamelle (14°36′N 60°56′W) which, with its dark green summit, 167 m high, is conspicuous.

4 **Major light:**

Îlet Cabrits Light (14°23′N 60°52′W) (7.99).

Directions

7.117

1 From a position ENE of Basse–Pointe (14°52′N 61°07′W), the track leads SE passing (with positions from Pointe Caracoli (14°45′N 60°53′W)):

2 NE of Pointe de Marigot (10 miles WNW), which is rather pointed and edged, standing 3 cables E of a rocky platform, thence:

NE of Rocher de la Caravelle (3 miles N) (7.116), thence:

3 NE of Pointe du Diable (1¾ miles NNW), the NE extremity of Presqu'île de la Caravelle (7.113).

4 From this position the track leads SSE passing:

ENE of the banks, with depths between 12·2 and 20 m over them, lying about 1½ miles E of Pointe Caracoli, a prominent rocky bluff (30 m high) surmounted by barren, jagged rocks, which forms the SE extension of Presqu'île de la Caravelle, thence:

5 Clear of a bank with a depth of 25·5 m over it (6 miles E), lying 7 cables W of 200 m depth contour, thence:

ENE of Loup Bordelais (3 miles SSE), a drying reef in the offshore barrier reef (7.114), thence:

6 Clear of an experimental raft for the study of fish (6¾ miles ESE). Caution is necessary as this raft is unlit. Thence:

ENE of the shoal, with a least depth of 17·5 m over it, which lies about 1½ miles E of Loup Garou (4¾ miles SSE) a drying coral bank, covered with white sand, on which the sea breaks, thence:

7 ENE of CM Light–buoy (S Cardinal) (6½ miles SSE) (7.143) moored 2 cables S of Cayes Mitan (7.134), thence:

ENE of a shoal, with a least depth of 17 m (8¾ miles SSE), which lies 2 miles NE of Cayes Pinsonnelle, a reef of flat rocks which dry, on the S end of which lies a stranded wreck, thence:

8 ENE of a shoal, with a least depth of 15 m over it, which lies about 2½ miles ENE of Cayes du Vauclin (12¼ miles SSE) which are marked at their N end by V2 Light–buoy (port hand). Cayes du Vauclin are situated about 9 cables E of Pointe du Vauclin, comprising one of the spurs of Montagne du Vauclin, which slopes evenly and steeply towards the sea, terminating in a rugged hillock (69 m high). Thence:

9 ENE of a bank with a least depth of 18·8 m (16 miles SSE), and 2 miles ESE of Passe du Vauclin, thence:

ENE of Cap Ferré (14°27′N 60°49′W) a small, rounded hill, joined to the coast by a low, narrow tongue.

10 From this position the track leads SW passing:

SE of Ilet Chevalier (20 miles S) (7.152), thence:

SE of Îlet á Toisroux (22 miles NE), 8 m in height and the S of a group of islets.

11 From this position the track continues SW for about 5 miles to a position S of Îlet Cabrits (14°23′N 60°52′W)

(Directions continue for passage E of Saint Lucia at 7.236)

Useful marks

7.118

1 Rocher Burgaux (14°50′N 61°04′W) (7.20).

Church with a red roof (14°50′N 61°04′W) (7.20).

(Directions for Martinique–Saint Lucia Channel are given at 7.164)

Side channels

Charts 371, 494

Principal channels

7.119

1 The principal channels through the barrier reef (7.114) are presented in association with the harbour or anchorage to which they most directly lead. These are given as follows:

Passe de Caracoli (14°45′N 60°52′W) at 7.132.

Unnamed pass (14°39′·5N 60°50′·5W) at 7.143.

Passe de Caye Mitan (14°38′·5N 60°50′·5W) at 7.141.

Havre de la Trinité

Chart 371 with plan of Havre de la Trinité

General information

7.120

1 **Description.** Havre de la Trinité (14°45′N 60°58′W) is fringed by coral reefs, which dry in places, along both sides and for 2½ cables from its head.

La Trinité, situated on the W shore at the head of the bay, is the second most important commercial centre in Martinique, with a population of 10 330 (1990).

2 The port is the only one on the E coast to provide protection from the prevailing winds and is frequented by coasters which generally load sugar.

Access to the port is prohibited to vessels over 1600 grt carrying hydrocarbons or dangerous cargoes (1.49).

3 **Pilotage** is compulsory for vessels over 50 m in length. Pilots may be available by day only.

At least 2 hours notice of arrival is required by the pilot station at Fort–de–France (7.58).

The Pilot boards about 7 cables NE of Îlet Saint–Aubin (14°46′N 60°58′W)

4 See *Admiralty List of Radio Signals Volume 6(5).*

Directions for entering harbour

Approach channels

7.121

1 The approach to Havre de la Trinité is encumbered by a chain of coral patches (7.114), through which access is available for vessels of moderate draught, as follows:

2 From the NW, passing either side of Loup de Sainte–Marie (14°48′N 60°59′W).

From the E, passing N of Loup Ministre (14°47′N 60°56′W) (7.122).

3 The passage between Loup Ministre and Presqu'île de la Caravelle (1 mile SE) is dangerous, there is always a heavy sea in the vicinity and the currents are strong.

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The recommended approach is from NW passing E of Loup de Sainte–Marie, which is the principal route described in this volume.

Approach from north

7.122

1 From the vicinity of 14°51′N 61°00′W, the line of bearing, 159° of Îlet Saint–Aubin, a rugged islet with a rounded summit, 51 m in height, covered with bushes; leads through the outer coral patches, passing (with positions from Îlet Saint–Aubin (14°46′N 60°58′W)):

2¼ miles ENE of Pointe de Marigot (5 miles NW) (7.117), thence:

2 2 cables ENE of Loup de Sainte–Marie (2 miles NW) with a depth of 9·6 m, over which there is always a heavy sea and on which the sea sometimes breaks, especially during NE or ENE winds. TR1 Buoy (starboard hand) marks the E edge of this shoal. Thence:

3 Close WSW of a depth of 10·8 m (1¾ miles NNW) near the NW extremity of the bank extending 5 miles WNW from Pointe du Diable (7.117), thence:

4 WSW of TR2 Buoy (port hand) (1¼ miles N) marking a bank with least charted depth of 6·2 m, situated near the SW edge of the bank (above). A depth of 9·4 m lies about 1 cable S of the buoy.

5 When Îlet Sainte–Marie (1¾ miles NW) (7.148) bears 265° the track alters SE to 137° for a position 4½ cables E of Îlet Saint–Aubin, passing:

SW of the pilot boarding position (7 cables NE) (7.120), and:

6 NE of Îlet Saint–Aubin, thence:

NE of a patch with a depth of 4·9 m, 2½ cables E of the S end of Îlet Saint–Aubin, which is marked by TR3 Buoy (starboard hand) thence:

7 SW of shoal patches, with a least depth of 4·3 m (1¼ miles ENE) which lie about 3 cables SW of Loup Ministre (1½ miles ENE), a coral patch with a least depth of 2·5 m over it, on which the sea breaks heavily. The current is strong in this vicinity.

7.123

1 **Clearing lines.** When approaching the outer coral patches from the N, the line of bearing, more than 091°, of Rocher de la Caravelle (14°48′N 60°53′W) (7.116) and the line of bearing, less than 271°, of Rocher Pain de Sucre (Sugarloaf Rock) (14°48′·4N 61°00′·7W), clears to the N of the patches.

Approach from east

7.124

1 Having passed between Rocher de la Caravelle (14°48′N 60°53′W) (7.116) and Pointe du Diable (1¾ miles SSW), the line of bearing, 285°, of Pointe du Marigot (14°50′N 61°02′W) (7.117) leads WNW for about 1½ miles.

2 From the vicinity of 14°48′N 60°55′W, the line of bearing (247°) of Morne Moco (14°46′N 61°00′W), 211 m in height, open just clear of the N side of Îlet Saint–Aubin (1½ miles ENE) leads over the outer coral patches, passing (with positions from Îlet Saint–Aubin):

3 SSE of a charted depth of 8·8 m (3¼ miles ENE), being the least charted depth over a shoal, with depths of less than 18 m, over which the track passes, thence:

4 Over the deepest parts of two banks in depths of 8·4 to 9·0 m (2 miles ENE) thence:

NNW of Loup Ministre (1½ miles ENE) (7.122), passing 2 cables from a depth of 3·3 m, thence:

5 SSE of shoal patches, with a least depth of 5·7 m over them (1¼ miles NE), lying on the shoal extending 2 miles WNW from Loup Ministre, and:

NNW of 2 shoal patches with a least depths of 5·5 and 4·3 m over them (1 to 1¼ miles ENE).

Entering harbour

7.125

1 From the vicinity of 14°46′N 60°57′W, 4½ cables E of Îlet Saint–Aubin (7.122), the line of bearing, 195°, of the steep E side of Pointe Sainte Catherine (du Fort) (14°45′N 60°58′W) leads into the harbour, passing (with positions from Pointe Sainte Catherine):

2 ESE of TR3 Light–buoy (starboard hand) (1½ miles NNE), thence:

WNW of Banc Mitan (1¼ miles NE), marked on its W side by TR4 Buoy (port hand), thence:

ESE of Le Banc de Sable (1 mile N) which dries in places and extends to a position 4 cables SSE from Îlet Saint–Aubin, thence:

3 To a position 7 cables NNE of Pointe Sainte Catherine.

A track of approximately 175° then leads to the head of the harbour, passing (with positions from Pointe Sainte Catherine (above)):

W of the coral reef (9 cables NE) which extends over 3 cables W from Pointe de la Batterie, thence:

4 E of TR5 Light–buoy (starboard hand) (5½ cables N) which marks the coral bank extending from Anse à Dieques, thence:

E of PF Light–buoy (north–cardinal) (2 cables NE) which marks a shoal patch close outside the NE extremity of the reef extending NE from Pointe Sainte Catherine, thence:

5 W of Loup Lacroix (4 cables ENE) situated close to the fringing reef on the E side of the harbour, thence:

E of Loup Fort (1¾ cables ENE) a detached shoal marked off its E side by TR7 Buoy (starboard hand), thence:

6 W of TR6 Buoy (port hand) (3½ cables ESE) which marks Caye Canon, the SW extremity of the coral bank on the E side of the harbour, thence:

E of Loup Marguerite (3 cables SSE) a detached coral patch with a depth of 1·1 m over it, marked off its E side by TR9 Buoy (starboard hand), thence:

7 W of a dangerous wreck, which has a mast showing (4½ cables SE) marked off its NW side by TR8 Buoy (port hand).

It is reported (2004) that Buoys TR6, TR7, TR8 and TR9 are light–buoys.

7.126

1 **Useful mark:**

A statue (14°44′N 60°57′W), standing on the E shore of the bay, which is conspicuous from the approach.

Anchorages

7.127

1 Anchorage off the port exists, in depths of about 16 m, in position 14°45′N 60°58′W, as shown on the plan, with Pointe Sainte Catherine (7.125) bearing 210° and Pointe de la Battterie (7.125) bearing 076°. It is recommended that both anchors should be used if the wind is well established.

2 Anchorage inside the port is available, as shown on the plan, with the E side of Îlet Saint–Aubin (7.122) bearing

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349° and Pointe Sainte Catherine bearing 310°, clear of the submarine outfall extending 4 cables NNE from the S end of the bay to between TR8 and TR9 buoys (7.125).

Berth

7.128

1 The main berth, situated in Port du Cosmy (14°45′N 60°58′W), consists of a pier extending about 100 m from the coast with a depth of 4 m alongside its head and a wharf, 90 m in length with 2 m of water, for fishing vessels, which is reportedly difficult to approach.

2 **Port du Cosmy Leading Lights:**

Two lights (white posts) at the root of the pier. From a position 1 cable NNE of PF Buoy (7.125) the alignment (284¼°) leads through the reef to the pier.

Port services

7.129

1 **Facilities:** hospital.

Supplies: fresh water; provisions.

Havre du Robert

Charts 371, 494 with plan of Havre du Robert and approaches

General information

7.130

1 **Description.** Havre du Robert (14°40′N 60°55′W) is mainly used for loading refined sugar from lighters. There is a town pier, with submerged dangers extending from it, making landing by boat difficult.

2 **Pilotage** is compulsory for vessels over 50 m in length proceeding to the port or other anchorages, using pilots from Fort de France (7.58) who are only available by day. At least 2 hours advance notice is required. Pilots board as follows:

From N in Passe de Caracoli (7.132) at 14°45′N 60°52′W,

From S off Passe de Caye Mitan (7.141) at 14°39′N 60°50′W.

3 See *Admiralty List of Radio Signals Volume 6(5).*

Access to the port is prohibited to vessels over 1600 gt carrying hydrocarbons or dangerous cargoes (1.49).

Directions for entering harbour

7.131

1 **Approach channels.** Havre du Robert can be approached using any of several passes through the barrier reef (7.114), however the recommended approach channel is from the N, using Passe de Caracoli (14°45′N 60°52′W) (7.132), which is the principal channel through the barrier reef and the only channel recommended for use in bad weather.

2 The most direct approach from seaward is through Passe de Loup–Garou (14°40′N 60°51′W) (7.134), but local knowledge is essential. See caution at 7.134.

7.132

1 **Passe de Caracoli** (14°45′N 60°52′W), in which there is a pilot boarding position, see 7.130, has a least depth of 12·2 m and a width of 3 cables between 10 m depth contours.

From the vicinity of 14°48′N 60°51′W, the line of bearing, 207°, of the W extremity of Îlet Ramville, also called Îlet Chancel, (14°42′N 60°54′W) leads through the middle of Passe de Caracoli, passing (with positions from Pointe Caracoli (14°46′N 60°53′W)):

2 2 miles ESE of Rocher de la Caravelle (3 miles N) (7.116), thence:

Over the offshore bank, with a least depth of 12·2 m (1½ miles NE), (7.117), thence:

ESE of Pointe Caracoli (7.117), with a drying reef which extends about 1½ cables offshore and the 10 m depth contour 3 cables E, thence:

3 WNW of a detached coral patch with a least depth of 9 m over it (9 cables SSE) marked by a light–buoy (N Cardinal), upon which the sea breaks heavily. In calm weather the position of this patch is indicated by the whitish colour of the sea, thence:

About 6 cables ESE of Pointe de la Batterie (1¾ miles SSW).

4 **Useful marks:**

A white house; a house with a red roof; and an indentation in the crest of a hill; all situated close to Pointe l'Ecurie (4 miles SSW) which lies close W of Îlet Ramville.

7.133

1 **Approach to Havre du Robert from north.** From a position 2 miles SSW of Pointe Caracoli, the alignment (161°) of the NE extremity of Îlet Thiéry (14°37′6N 60°51′0W) (7.116) with the E extremity of Pointe du Vauclin (3½ miles SSE) leads towards the entrance to Havre du Robert, passing:

2 WSW of shoal patches 5 cables NW and SSW of Loup Bordelais (14°43′N 60°52′W) (7.117), thence:

ENE of Îlet Ramville (14°42′N 60°54′W) (7.132), thence:

WSW of Loup Marseillais (14°41′N 60°52′W) (7.135) with a least depth of 3·2 m.

(Directions continue for entering Havre du Robert at 7.136)

Chart 494 with plan of Havre du Robert and approaches

7.134

1 **Passe de Loup–Garou** (14°40′N 60°51′W) has a width of ½ cable and a least depth of 9·6 m in it.

Initial position 14°40′N 60°45′W.

2 Leading marks:

Front mark, N extremity of Îlet Boisseau, also called Îlet des Chardons (14°40′N 60°53′W), 15 m in height and standing on a coral reef which dries.

Rear mark, belfry of the church in Le Robert (3½ miles W of the front mark).

3 The alignment (272½°) of these marks leads through the middle of the channel, passing (with positions from the front mark):

Close N of Cayes Mitan (2¼ miles E), with a least depth of 1 m over them. There is less than 5 m depth ½ cable S of the leading line, thence:

4 S of the shoal water, with a least depth of 2·8 m over it (2 miles E), which extends 4 cables S from Loup Garou (7.117), and:

N of a wreck with a safe clearance of 15 m (2 miles ESE).

5 **Local knowledge** is essential for the navigation of this pass.

7.135

1 **Approach to Havre du Robert from east.** On the above alignment of 272½° and 1·6 miles from Îlet Boisseau (7.134), the line of bearing, 293°, of Îlet Petit Piton (14°41′N 60°53′W) leads towards the harbour, passing (with positions from Îlet Petit Piton):

2 SSW of Loup Marseillais (1½ miles E), with a least depth of 3·2 m, which lies off the inner side of the barrier reef, about 3 cables W of Loup Garou.

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When the SW extremity of Îlet Boisseau is in line with the NW extremity of Îlet Madame (3 cables SSW), 24 m in height, the track alters to 267° to enter harbour, as given below.

7.136

1 **Entering harbour.** (*continued from 7.133*) The entrance channel, marked by R1 and R2 light–buoys (starboard hand and port hand respectively), is limited to a width of about 5 cables between the dangers on either side, with a least charted depth of 12·5 m in the entrance.

2 From the vicinity of 14°40′·7N 60°52′·4W, the line of bearing, 267°, of the belfry of the church in Le Robert (14°41′N 60°57′W), leads through the middle of the entrance, passing (with positions from Îlet aux Rats (14°41′N 60°54′W)):

3 About 2½ cables S of Îlet Petit Piton (1 mile E) which is 25 m in height and steep–to on its S side and connected by a reef of coral and gravel to Îlet Ragot, also called Îlet de la Grotte, and:

4 N of the drying reef extending 1 cable N from Îlet Boisseau (1¼ miles SE) (7.134), thence:

Over a depth of 12·5 m (9 cables ESE), thence:

N of the coral reef extending 3¼ cables NNW from Îlet Madame (1¼ miles SE) (7.135), thence:

5 N of Banc de la Rose (8 cables SSE) which dries 0·8 m, situated near the N edge of a bank extending N from the coast, thence:

S of the drying reef extending about 1 cable S from Îlet aux Rats (11 m high), thence:

6 N of Banc Guillotine (8 cables S) which lies on the N extremity of a bank which extends 4 cables NNW from Pointe du Sable Blanc, thence:

S of Îlet Petit Martinique (7 cables WNW) 34 m in height.

Restricted Area

7.137

1 **Fishing** is prohibited W of a line joining Îlet Petit Martinique (7.136) and Pointe Royale, 1 mile S, (7.138) as shown on the chart.

Anchorages

7.138

1 Anchorage is available in any of the numerous small coves around Havre du Robert, in depths of 13 to 16 m, with good holding in sand and mud.

Local knowledge is required.

2 The best anchorage, in depths of 10 to 11 m, lies SW of Îlet Petit Martinique (14°41′N 60°55′W) (7.136), keeping clear of the following dangers (with positions from Îlet Petit Martinique):

3 A shallow tongue and a reef, which dries in places, which extend a total of 7 cables E from Pointe Fort (8½ cables WSW).

An isolated patch with a depth of 7·7 m over it (4 cables W).

4 The commercial anchorage, where vessels load sugar, lies in the SW part of the bay (W of Pointe Royale) (14°40′N 60°55′W), in depths of about 10 m as shown on the chart, keeping clear of the following dangers (with positions from Pointe Royale):

5 A bank, with a depths of less than 2 m over it, extending 2 cables N from Pointe Royale, and marked on its N edge by R4 Light–buoy (port hand).

The drying reefs and shoal extending E and SE from Pointe Fort (1¼ miles NW) (above).

6 Gros Loup (1 mile WNW), an isolated bank with 1 m of water, and marked by GL Light–buoy (E cardinal).

The drying reefs and shoals in the W of the bay to S and W of PL Light–buoy (E cardinal) (1¼ miles WNW).

Port Services

7.139

1 **Supplies:** provisions.

Baie du François

Chart 494 with plans of Havre du Robert and approaches and of Baie du François

General information

7.140

1 **Description.** Baie du François (14°37′N 60°54′W), consisting of a fishing port and a commercial facility for handling sugar, affords anchorage for vessels of medium draught.

The town of Le François, with a population of 15 000, stands at the head of the bay.

2 **Topography.** The bay is protected from the E by the barrier reef (7.114) and the banks and reefs which extend from the coast, on which there are numerous coral heads which dry and several islands, including Îlet Thiéry (14°37′N 60°51′W) (7.116). The following areas, as shown on the chart, had not been fully surveyed in 1987:

3 The outer limits of the bank extending E and N from Îlet Thiéry.

An area to the E of Petite Caye, situated 1½ miles NW of Îlet Thiéry.

Directions for entering harbour

7.141

1 **Outer approach** through the barrier reef (7.114) can be made through Passe de Caracoli (14°45′N 60°52′W) (7.132), thence continuing SSE along the 161° alignment for the N approach to Havre du Robert as given at 7.133, passing between:

2 Cayes Mitan (14°40′N 60°51′W) (7.134), and:

The drying reefs and shoals with depths of less than 3 m over them extending 9 cables E and 1¼ miles SE from Pointe de la Rose (2¼ miles W), 72 m in height.

3 An alternative pass, which leads direct from seaward, is described at 7.143. Passe de Loup–Garou, for which local knowledge is essential, is described at 7.134.

Passe de Caye Mitan (14°38′N 60°50′W), in the approaches to which there is a pilot boarding position (7.130), with a depth of 6·3 m in the fairway, is recommended for vessels from the S.

Local knowledge is required.

Incompletely surveyed areas see 7.140.

7.142

1 **Inner approach from north.** From the vicinity of 14°39′N 60°52′W, the alignment (227°) of Îlet Lapins (14°38′N 60°53′W), 2 m in height and situated close off the E end of Gros Îlet (which can be identified by 2 rounded hills), with the church at Le François (1½ miles SW) leads towards Passe du François (14°38′N 60°52′W) (7.144), passing (with positions from Îlet Lapins):

2 SE of the foul ground extending 1¼ miles E from Pointe Roseau, (1¼ miles N) the N entrance point to Cul–de–Sac des Roseaux, thence:

NW of partly surveyed reefs (1½ miles ENE) (7.140).

(Directions continue for entering harbour at 7.144)

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7.143

1 **Approach from seaward.** An unnamed pass through the barrier reef in position 14°39′N 60°50′W), with a charted depth of 9·5 m, affords direct access to Baie du François.

Local knowledge is required.

2 From the vicinity of 14°42′N 60°45′W, the white sector (245° to 248°) of Baie du François Direction Light (white tower, green top, 9 m in height) standing on Pointe Dégras (14°38′N 60°54′W), leads through the barrier reef, passing (with positions from the direction light):

NNW of a light–buoy (special) (4¾ miles ENE), thence:

3 Over or SSE of a depth of 7·7 m (3½ miles ENE), lying only in the NW half of the sector, at the S end of Cayes Mitan (7.134), thence:

SSE of CM Light–buoy (S cardinal) (3¼ miles ENE), thence:

4 NNW of a shoal patch, with a depth of 7·3 m over it, (3 miles ENE), thence:

NNW of the partly surveyed reefs (2 miles ENE) (7.140), and:

SSE of foul ground (2 miles NE) (7.142).

7.144

1 **Entering harbour through Passe du François.** (*continued from 7.142*)

From the vicinity of 14°39′N 60°52′W, the line of bearing, 181°, of Pointe Duplessis (14°37′N 60°52′W), leads through the channel, passing (with positions from Baie du François Direction Light (7.143)):

2 W of Petite Caye (1½ miles ENE) a reef which dries and is marked off its NW side by F2 Light–buoy (port hand), thence:

Over or W of a shoal patch with a depth of 9·6 m over it (1·4 miles E), thence:

3 E of Caye Brigantine (1¼ miles E) a reef nearly awash that is marked off its SE side by F3 Light–buoy (starboard hand).

7.145

1 **Inner channel.** From the vicinity of 14°38′N 60°52′W, the line of bearing, 250°, of Pointe Fort (14°37′N 60°54′W) seen as a dark, low, tapering line to the N of the town, with a group of shrubs near its root (not easily identified), leads into the bay, passing (with positions from Pointe Fort):

2 NNW of Caye Ronde (1¾ miles ENE), marked off its NW side by F4 Light–buoy (port hand), and:

SSE of Caye Brigantine (7.144), thence:

Close NNW of an isolated patch, with a depth of 6·7 m over it (1 mile ENE), thence:

NNW of Banc Gamelle (9 cables ENE), marked off its N side by F6 Light–buoy (port hand).

Anchorages

7.146

1 The best anchorage, in a depth of about 13 m, with good holding, is situated off Gros Îlet (14°38′N 60°53′W) (7.142).

Local knowledge is required.

Anchorage is available for small craft about 3½ cables ENE of Pointe Fort (7.145), as shown on the plan clear of the submarine outfall extending about 4½ cables NE from the SW head of the bay.

Berths

7.147

1 The main berth consists of a fishing quay 40 m in length with depths of 2 m alongside and a jetty with a length of 50 m and depths of 2·6 to 3·9 m alongside, situated 4½ cables ESE of Pointe Fort.

Anchorages

Chart 371

Rade Sainte–Marie

7.148

1 **Description.** Rade Sainte–Marie (14°47′N 61°00′W) affords anchorage, in depths of 11 to 15 m, about 5 cables offshore and 2 cables NW of Îlet Sainte–Marie. It is protected to the S by Îlet Sainte–Marie, 39 m in height, which is connected to the shore by a low tongue of sand.

2 **Local knowledge** is required.

Anchorage W of this position is prohibited owing to a submarine cable in the W part of the bay.

The town of Sainte–Marie, standing at the head of the bay, can be identified by a large yellow church with two steeples.

Chart 494

Baie du Galion

7.149

1 **Description.** Baie du Galion (14°44′N 60°55′W) affords sheltered anchorage for small vessels within the barrier reef (7.114).

2 **Approach.** Baie du Galion is approached from the N through Passe de Caracoli (14°45′N 60°52′W) (7.132) or from the S, through Passe de Caye Mitan 14°38′N 60°50′W (7.141) or one of the passes described for Baie du François (7.141), thence transiting NNW along the leading line (161° astern) given at 7.133.

7.150

1 **Directions for entering the bay.** From the vicinity of 14°43′N 60°53′W, the line of bearing, 276°, of Îlet du Galion (14°44′N 60°56′W), a prominent rock with a rounded, wooded summit 50 m in height, lying close SE of a salient point, leads through the entrance, passing (with positions from Îlet du Galion):

2 S of reefs extending S and W from Pointe Brunel (2¼ miles E), thence:

N of Loup Charpentier (2 miles ESE), thence:

N of Loup Banane (1½ miles ESE), lying 4 cables NNE of Pointe Banane, the SW entrance point of the bay.

3 From this position the track leads WNW into the bay, passing:

SSW of Point à Chaux (1½ miles ENE) the SW extremity of a SE extension of Presqu'île de la Caravelle, thence:

Clear of shoal with a depth of 4·8 m over it (4½ cables E), thence:

4 Clear of two coral reefs, the E of which dries, in the middle of the bay (6 cables NE and 6 cables NNE).

7.151

1 **Anchorages.** The best anchorage in Baie du Galion, in a depth of 8 to 9 m, is to the W of Point à Chaux, as shown on the chart. This anchorage is sheltered from the wind and swell. Anchor bearings are as follows:

Point à Chaux bearing 111°;

Television tower on Morne de la Tartane (14°45′N 60°55′W) (7.113), bearing 013°.

2 Anchorage is also available in the SW part of the bay.

Baie du Cap Chevalier

7.152

1 **Description.** Baie du Cap Chevalier (14°26′N 60°50′W) affords shelter for small vessels behind Îlet Chevalier, 24 m

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in height. The anchorage is approached in the white sector (304°–306°) of Baie du Cap Chevalier Directional Light (white pole) (14°26′N 60°50′W).

2 **Local knowledge** is recommended.

There is a landing stage, the approach to which is marked by buoys.

SAINT LUCIA

GENERAL INFORMATION

Chart 1273

Position

7.153

1 Saint Lucia (13°55′N 61°00′W) lies in the middle of the Windward Island Group, about 18 miles S of Martinique and 23 miles N of Saint Vincent.

Topography

7.154

1 It is the third largest island in the Windward Islands, with an area of 619 square km. It is one of the most strikingly beautiful islands in the West Indies, with many beaches and, inland, a rugged mountainous terrain densely covered in vegetation.

2 The mountainous interior consists of a N/S spiny ridge of mountains, broken by gorges and ravines, culminating in Mount Gimie (13°52′N 61°01′W), the highest peak in the island. From this peak rivers radiate through the mountains and broad fertile valleys.

Local weather

7.155

1 Saint Lucia has a tropical climate (1.227), moderated by the North–east Trade Winds to achieve a mean temperature of 21°C to 27°C.

Annual rainfall varies from about 140 mm along the coast to 356 mm in the interior.

Dry season is from January to April.

Rainy season is from May to August.

Currents

7.156

1 The direction of the predominant current in the vicinity of Saint Lucia varies from between W and WNW, from November to March, and NNW in June. Its constancy is mostly moderate from October to February but is often high at other times of the year. The average rate is between 1 and 1¼ kn but achieves 1½ kn from February to May.

2 It is reported that the current divides off Moule à Chique (13°43′N 60°57′W), one branch setting N along the E coast and the other setting NW along the SW coast, as shown on the chart, to re–unite somewhere off the N extremity of the island. Between the rejoining point and the N extremity of the island there is said to be slack water; while the meeting point (which is thought to vary according to the strength of the currents) is sometimes marked by tide rips.

3 HMS *Sparrowhawk*, whilst surveying towards the end of the nineteenth century, found that these currents could attain a rate of 2½ kn, especially within about 5 miles of the coast.

In September 1998 a deep draught vessel S of Saint Lucia observed overfalls and a significant SSW set in the vicinity of the W side of the bank in position 13°33′N 60°56′W.

Flow

7.157

1 When the current is weak, it is probable that the influence of the S–going tidal stream may be felt; it is also possible that, close inshore, this stream is stronger than the current; which may account for the eddies reported by local fishermen. However HMS *Sparrowhawk* experienced little difference between the rate of the flow close inshore to that farther out.

2 On one occasion, in December, the flow off the S coast was E–going at a considerable rate for the whole of the day. However, local fishermen say that periodical and regular changes occur in the flow, of which they avail themselves, always putting to sea when the flow sets to windward.

SAINT LUCIA — NORTH AND NORTH–WEST SIDES

General information

Charts 1273, 596

Route

7.158

1 From a position NE of Pointe Hardy (14°06′N 60°55′W) the route leads WSW for about 15 miles through Martinique–Saint Lucia Channel to a position N of Pointe du Cap (14°07′N 60°57′W) from whence the route leads SSW, off the coast, for about 12 miles, to a position WNW of Vigie Point, the N entrance point into Port Castries (14°01′N 61°00′W).

Topography

7.159

1 General topography for Saint Lucia (7.154) and for Martinique (7.8).

The Martinique–Saint Lucia Channel is about 17½ miles wide and deep but depths of less than 200 m are found within 5 miles of the N coast of Saint Lucia and some isolated patches have been reported.

Caution

7.160

1 Many of the inshore areas are incompletely surveyed; see Note on Chart 1273.

Rescue

7.161

1 For rescue facilities see 7.210.

Natural conditions

7.162

1 **Current.** The prevailing current through the Martinique–Saint Lucia Channel is W–going, tending to NW–going, with a rate that is variable. Near the islands it may attain a rate of about 3 knots at times, though often it is imperceptible.

Flow. General information (7.157).

2 In the Martinique–Saint Lucia Channel, 1 mile S of Îlet Cabrits (off the S extremity of Martinique), when the North–west Trade Wind is blowing at 10 to 15 kn and the tide is at Springs, this combination is likely to produce a periodic flow of 1½ kn W–going and 1 kn E–going.

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3 In February 1980 MV *Yorkshire* reported an onshore set of 2¼ kn in the vicinity of 14°12′N 60°35′W; and a W set of 2 kn through the Martinique–Saint Lucia Channel at latitude 14°20′N.

Overfalls are shown on Chart 1273 extending W and N from Pigeon Island (14°06′N 60°59′W) and E from Pointe Hardy (14°07′N 60°56′W).

Principal mark

7.163

1 **Major light:**

Vigie Light (14°01′N 61°00′W) (7.190).

Directions

Charts 197, 1273, 596

Martinique — Saint Lucia Channel

7.164

1 From a position NE of Pointe Hardy (14°06′N 60°55′W) the route leads WSW passing (with positions from Pointe du Cap (14°07′N 60°57′W)):

SSE of Îlet Cabrits (17½ miles NNE) (7.102), thence:

2 NNW of Pointe Hardy (1½ miles ESE) the NE extremity of Saint Lucia, which is sloping but well defined.

3 From this position the track continues WSW to a position N of Pointe du Cap, the N extremity of Saint Lucia, which is steep–to but comparatively low, consisting of several small, partially wooded hills.

Saint Lucia — north–west part

7.165

1 From a position N of Pointe du Cap (14°07′N 60°57′W) the track leads SSW passing (with positions from Barrel O' Beef (Fourreur Islet) (14°04′N 60°59′W)):

2 WNW of Pointe du Cap (3 miles NE) (7.164), thence:

WNW of rocks extending 1 cable NW from Saline Point (2¾ miles NNE), thence:

WNW of Burgot Rocks (2 miles NNE), thence:

3 WNW of Pigeon Island, (1½ miles NNE) which is 109 m high and steep–to on its W side and connected to the coast by reclaimed land on its E side. Fort Rodney stands on a hill at the S end of the island and some buildings stand on the E end. Thence:

4 WNW of Barrel O' Beef (Fourreur Islet) a rock lying within a shoal bank, about 3 cables offshore. A light–beacon stands on the islet, thence:

Barrel O'Beef (7.165)

(Original dated 2002)

(Photograph – Paul Duffy)

WNW of a detached 11 m patch (6 cables SSW) lying about 3 cables W of Labrellotte Point.

5 From this position the track continues SSW for about 5 miles to a position WNW of Vigie Point, the NW extremity of Vigie Promontory (3¼ miles SSW) (7.190).

(Directions continue for Port Castries at 7.191 and for coastal passage W of Saint Lucia at 7.213. Directions for Cul de Sac Bay are given at 7.203)

Anchorages

Chart 197 with plan of Rodney Bay Lagoon

Rodney Bay

7.166

1 **Description.** The best anchorage in Rodney Bay (14°05′N 60°58′W) is in Saint Croix Roadstead, at the N end of the bay. A good berth, in a depth of 16·5 m is positioned as follows:

The alignment (101°) of Gros Islet Church (14°05′N 60°57′W) with a conical hill (91 m high) (7 cables E).

The line of bearing, 355°, of the W extremity of Pigeon Island (7.165).

2 **Caution.** In 1981 it was reported that shoaling had taken place in the NE part of Rodney Bay which may have resulted in depths being less than charted. This shoaling may have been caused by the reclamation between Pigeon Island and the mainland.

Choc Bay

7.167

1 **Description.** Choc Bay is encumbered with many shoals and the shores of the bay are bordered by a bank which, with depths and rocks of less than 5 m over it, extends up to 6 cables offshore. From the N end of the bay a sunken reef, on which the sea usually breaks, extends 7 cables SSW. Near the centre of the S part of the bay lie a number of patches, with depths of less than 5·5 m over them, the position of which can best be seen on the chart.

2 **Anchorage** is available in Choc Bay, in depths of 11 to 15 m, W of Rat Island (Choc Islet) (14°02′N 60°59′W), 12 m in height, on which stands a hospital.

3 **Prohibited anchorage** lies within 500 m of submarine cables laid from the shore on the S side of Choc Bay, NNW towards deep water and passing 3 cables W of Rat Island.

PORT CASTRIES

General information

Charts 197, 499 with plan of Port Castries (See 1.24)

Position

7.168

1 Port Castries (14°01′N 61°00′W) is situated on the W coast, at the NW end of Saint Lucia.

Function

7.169

1 One of the finest and most secure harbours in the West Indies, it is the major commercial port in Saint Lucia serving Castries, the capital and largest town on the island with an estimated population of 64 344 in 2001

Port Castries also serves as a transhipment centre for the Windward Islands.

Topography

7.170

1 The town is surrounded by high hills and is believed to be the site of an extinct volcano crater.

Morne Doudon rises about 1 mile E of the town.

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Port limits
7.171

1 The seaward limit of the port is marked by a line drawn as follows:

From the N extremity of Vigie Promontory (14°01′N 61°00′W), thence:
301°, 1 mile, thence:
211°, 1¼ miles, thence:
121°, 8¾ cables to La Toc Point (14°01′N 61°01′W).

Approach and entry
7.172

1 Port Castries is approached direct from seaward and entered through a narrow channel.

Traffic
7.173

1 In 2004, 761 vessels, with a total dwt of 2 953 641 tonnes, used the port.

Port Authority
7.174

1 Saint Lucia Air and Sea Ports Authority (SLASPA), PO Box 651, Castries, Saint Lucia.

Limiting conditions

Controlling depth
7.175

1 The controlling depth in the harbour channel and turning basin (7.192) is 12·0 m with less water off the berths and approaches.

Deepest and longest berths
7.176

1 Deepest berth is Pointe Seraphine Pier No 1 (7.195).
Longest berth is Elizabeth II Dock (7.195).

Mean tidal levels
7.177

1 MHHW 0·6 m.
MLLW 0·3 m.

Density of water
7.178

1 1·025 g/cm^3.

Maximum size of vessel handled
7.179

1 17 270 dwt, with a length of 198 m and a draught of 9 m.

Arrival information

Port operations and information service
7.180

1 Vessels should not be brought within 3½ miles of the port without first establishing radio contact with Port Control, who will provide entry and berthing instructions. See *Admiralty List of Radio Signals Volume 6(5).*

Port radio
7.181

1 The port radio station at Port Castries is situated close to Vigie Light, (on the N side of the harbour entrance) (7.190).

VHF radio with continuous listening watch. ETA can be confirmed or adjusted. See *Admiralty List of Radio Signals Volume 6(5).*

Notice of ETA
7.182

1 Notice of ETA should be given 48 hours before arrival and confirmed 2 hours before arrival.

Outer anchorages
7.183

1 Anchorage is available off the harbour entrance (14°01′N 61°00′W), as convenient, keeping clear of the 121° alignment of leading lights (7.193) and the disused cables in La Toc Bay, as shown on the chart. Recommended anchorages are:

2 To the SW of Vigie Point (4 cables N of the entrance) where the holding ground is reported to be good.
2½ cables NW of Vigie Point in depths of less than 20 m, with good holding in coral sand, sheltered from the E but with little swinging room.

3 Whilst awaiting a pilot, vessels may be anchored in a depth of 22 m, rock and sand, about 1 mile N of Vigie Point. The holding is good but there is no shelter.

Pilotage
7.184

1 Available 24 hours a day, is compulsory for merchant vessels over 100 grt.

Local knowledge is necessary.

The Pilot boards along the harbour entrance leading line (7.191) about 5 cables from the entrance, as shown on the chart. See *Admiralty List of Radio Signals Volume 6(5).*

2 Pilot boats are painted black all round with a white letter "P" on both bows or on both sides of the wheelhouse.

Tugs
7.185

1 Available.

Quarantine
7.186

1 Vessels should not be brought within 100 m of any of the wharves until pratique has been granted by the Pilot. Other port officials board after berthing. The quarantine anchorage is situated off the SW side of Vigie Promontory.

Harbour

General layout
7.187

1 Port Castries is a natural harbour, almost landlocked, with a length of about 1 mile (E/W) and a width of about 3 cables. The port area is in 3 main parts, as follows (with positions from Vigie Light (14°01′N 61°00′W)):

2 A reception centre for cruise liners at Pointe Seraphine (6 cables SE) (7.195), which also includes a base for the Coast Guard.
Town wharves (8 cables SE), situated on the S side of the harbour near its head (7.195).
A fisheries complex (9 cables ESE), situated on the N side of the harbour near its head.

3 **Caution.** Shallow rocky flats and shallow ground extend a short distance from most of the points in the harbour, the water is usually muddy and the shallows are not easily distinguished.

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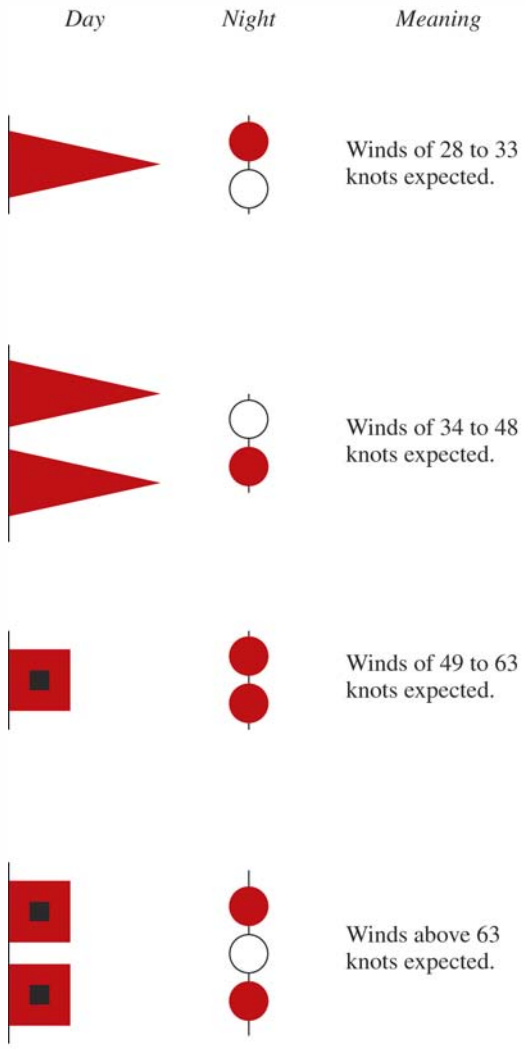
Storm signals

7.188

1 The following visual storm warning signals are shown from the signal station standing close to Vigie Light (7.190).



Saint Lucia storm warning signals (7.188)

Natural conditions

7.189

1 **Tidal streams** off Vigie Point do not exceed 1 kn and are variable in direction.

Local weather. Port Castries is well protected from the prevailing North–east Trade Wind and South–east Trade Wind but the harbour is a rain–trap, catching showers when the hinterland is in sunshine

Principal marks

7.190

1 **Landmarks:**

Vigie Lighthouse (white round masonry tower, red roof, 11 m in height) (14°01′N 61°00′W), standing on the summit of Vigie Promontory which is a wedge–like ridge.

2 Radio mast (red and white bands) (¾ cable NE of Vigie Light).

La Toc Hotel (14°00′N 61°01′W), standing on the S shore of La Toc Bay, is prominent.

Red roof of Tourist Centre on Pointe Seraphine (14°01′N 61°00′W).

Vigie Lighthouse from SW (7.190)

(Original dated 2001)

(Photograph – HMS Sheffield)

3 **Major light:**

Vigie Light—as above.

Directions for entering harbour

(continued from 7.165)

Approaches

7.191

1 **From north–west**. From the vicinity of 14°04′N 61°06′W the alignment (121°) of the leading lights (7.193) leads through the pilot boarding position towards the harbour entrance.

2 **From north.** From the vicinity of 14°04′N 61°02′W, the line of bearing, 153°, of Tapion Rock (14°01′N 61°00′W) (7.193), leads towards the entrance, passing about 2 cables ENE of the pilot boarding position (7.184), and passing (with positions from Tapion Rock):

WSW of a wreck, with a least charted depth of 2 m (5 cables N), lying on a bank extending ½ cable W from Vigie Point.

3 **From south.** From the vicinity of 14°01′N 61°03′W, the line of bearing, greater than 070°, of Vigie Point (14°01′N 61°00′W), leads towards the entrance, close to the pilot boarding position (7.184), passing (with positions from Vigie Point):

4 NNW of La Toc Point (1 miles SSW) (7.171), thence:

NNW of Tapion Shoal (5 cables SSW) and the coastal bank, with depths of less than 10 m, extending 3 cables W then SW from the S entrance point.

Chart 499 plan of Port Castries (See 1.24)

Entrance channel

7.192

1 The entrance channel (14°01′N 61°00′W) between Vigie Promontory (to the N) and Fort Charlotte Promontory (to the S), has a navigable width of nearly a cable between the 10 m depth contours on each side. This channel continues through the harbour, with a depth as given at 7.175, for about 1 mile to the wharves at Castries. The turning basin,

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St. Lucia – Port Castries Leading Light (7.193)

(Original dated 2002)

(Photograph – Gareth Kirk, mv Logos II)

about 300 m in diameter, is between Cocoa Nut Point (7.193) and Pointe Seraphine (3 cables ENE).

Directions

7.193

1 **Initial position:** 7 cables W of Vigie Light (7.190).

Leading lights:

Front light (white triangle, point up, with an orange stripe down the centre, on a red pole at the NE corner of a warehouse, elevation 17 m) (14°01′N 61°00′W).

2 Rear light (white triangle, point down, with an orange stripe down the centre, on white mast, 22 m in height) (4 cables ESE of the front light), situated part way up a hill, which should not be confused with a white mark near the summit.

3 The front light can be seen clearly but the rear light is visible only from within the channel.

The alignment (121°) of these lights leads through the entrance and along the centre of the channel through the harbour, passing (with positions from Vigie Light (14°01′N 61°00′W)):

4 SSW of an 8·8 m patch (3¾ cables WSW), marked on its SW side by a light–buoy (port hand), the position of which is approximate, thence:

SSW of the bank, with depths of less than 10 m (3¼ cables SW), extending 2 cables S from D'Estrées Point, marked on its SW side by a light–buoy (port hand), position approximate, thence:

5 NNE of foul ground and rocks extending ½ cable NE from Tapion Rock (14 m high) (5 cables SW) which is reddish in colour and is reported to be difficult to distinguish from seaward. Tapion Rock Light (red column, black top, above an old battery 2 m in height) stands on the summit of Tapion Rock which is separated from the main island by a drying reef over which there is footbridge. It was reported (1996) that the black and white check marking on the old battery is not visible from seaward, thence:

Tapion Rock and Light from NE (7.193)

(Original dated 2002)

(Photograph – Gareth Kirk, mv Logos II)

6 NNE of a light–buoy (starboard hand) (4 cables SSW), the position of which is approximate, which marks the SW side of the channel, 1¼ cables E of Tapion Rock, thence:

SSW of a light–beacon (3¼ cables SSW), moored close off the end of reclaimed land, which incorporates the remains of a wreck, at the end of the airport runway, thence:

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7 NNE of Cocoa Nut Shoal (5 cables S), which extends 1 cable ENE of Cocoa Nut Point with depths of less than 10 m. A small jetty with two dolphins extends 20 m S from the point. Thence:
SSW of Pointe Seraphine (5¾ cables SE) (7.195).

Port Castries entrance – wreck from SW (7.193)
(Original dated 2002)
(Photograph – Gareth Kirk, mv Logos II)

Basins and berths

Anchorages
7.194

1 Anchorage, with good holding but little swinging room, is available inside the harbour, as convenient, clear of the fairway and submarine cables close within the harbour entrance.

Anchorage is charted at the head of the harbour ½ cable from the shore, in a depth of 6·7 m.

Alongside berths
7.195

1 **Pointe Seraphine Passenger Terminal.** There are two berths on the S side of Pointe Seraphine (6¼ cables SE of Vigie Light). No 1 berth, to the W, is 122 m in length with a mooring dolphin (lighted), the position of which is approximate, close W, and a mooring buoy 150 m WNW, and can handle vessels of up to 260 m LOA. The minimum depth is 10·7 m. No 2 berth (130 m E) is 92 m long with two mooring buoys about 80 m NNE, and is designed for vessels of up to 230 m LOA. Depth alongside is 9·5 m. Both berths are 2·1 m above mean sea level.

2 **Town wharves.** There are 6 wharves fronting the N and W sides of the town. Of these berths the largest are as follows:

Longest: Elizabeth II Dock (berths 2 and 3), which is used by cruise ships, with a length of 219 m and a controlling depth of 8·2 m alongside. With the adjoining berth 4 there is total length of 371 m.

3 Deepest: Container berth (berth 4) with a length of 152 m and berth 5, which is 158 m in length and has a Ro–Ro ramp, 14·6 m wide, at its S end; both have controlling depths of 10·7 m alongside.

Port services

Repairs
7.196

1 Minor repairs only can be undertaken.

Other facilities
7.197

1 There is a hospital in the town, 1 mile from the harbour.

Supplies
7.198

Fresh water is obtainable at the berths but it is reported that Saint Lucia is often short of water.

Provisions are available.

Grand Cul de Sac Bay

Chart 499 plan of Grand Cul de Sac Bay (see 1.24)

General information
7.199

1 **Position.** Grand Cul de Sac Bay (13°59′N 61°01′W), is situated on the W side of Saint Lucia, about 2 miles S of Port Castries.

Function. It is the base of the Hess Oil Saint Lucia Limited (HOSLL) Oil Terminal, owned and run by the company.

2 **Traffic.** In 2001, 109 vessels, with a total dwt of 3 734 463 tonnes, used the port.

Ciceron Leading Marks *Bananes Point No 2 Light*

Grand Cul de Sac Bay Approaches alignment 105°, 2½ miles (7.199)
(Original dated 1997)
(Photograph – Crown Copyright)

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Port Authority. HOSLL Marine Manager, Hess Oil Saint Lucia Limited, Grand Cul de Sac Bay, Saint Lucia, Windward Islands, West Indies.

Limiting conditions

7.200

1 **Depth**. Some siltation has been observed along the N shore–line of the bay but it is reported that this has not affected the berthing area (to the S and E). The least charted depth in the approach to the main berth is 27·5 m.

Deepest and longest berth is No 2 Berth (7.206).

Density: 1·025 g/cm^3.

Arrival information

7.201

1 **Port radio,** situated in the HOSLL Marine Office, should be contacted on VHF at least 3 hours before arrival at the pilot boarding area. See *Admiralty List of Radio Signals Volume 6(5).*

Notice of ETA is required 72, 48 and 24 hours in advance; also notification of any change in the time.

2 **Pilotage** is compulsory and available day and night, but it is reported that vessels over 300 000 tonnes are berthed in daylight only. See *Admiralty List of Radio Signals Volume 6(5).*

Pilots board 2½ miles W of Bananes Point (the S entrance point), as shown on Chart 1273.

3 **Tugs** are available and use is mandatory.

Regulations concerning entry. Navigation in the bay and in the approaches is prohibited except to vessels using the terminal.

4 **Anchorage** in the bay is prohibited except with the permission of the Port Authority, who also do not recommend anchoring off Saint Lucia.

Quarantine. Pratique is required and will be granted by the Customs/Immigration or Health Official boarding the vessel.

Harbour

7.202

1 **Natural conditions:**

Diurnal tides with a range of about 0·3 m.

Details of the flow (7.157).

2 **Local weather:**

The prevailing wind, which blows from between NNE and SSE, is generally lighter at night than by day, increasing in speed at about daybreak to a maximum in the late morning or early afternoon, returning to a lighter wind after 1600.

Charts 499 plan of Grand Cul de Sac Bay, 197, 1273 (see 1.24)

Directions for entering harbour

7.203

1 **Approach from west.**

Initial position: 6 miles WNW of Ciceron Point (13°59′N 61°01′W).

Leading lights:

Ciceron Light (front light, green square topmark on a white tower, 8 m in height) (2 cables SSE of Ciceron Point).

2 Rear light (green square topmark on a black round tower with yellow bands, 14 m in height) (345 m from the front light).

The alignment (105¼°) of these lights leads towards the harbour, passing (with positions from Ciceron Point):

NNE of Bananes Point (7 cables WSW) (7.213), thence:

3 SSW of a light–buoy (safe water) (4 cables WNW) moored off the SW extremity of the coastal bank which, with depths of less than 20 m over it, extends up to 4 cables offshore.

Grand Cul de Sac Leading Lights (Ciceron) on alignment 105° (7.203)

(Original dated 2002)

(Photograph – Gareth Kirk, mv Logos II)

7.204

1 **Approach from north–west and entry.**

Initial position: 6 miles NW of Ciceron Point.

Leading lights:

Cul de Sac Front Leading light (black round tower with yellow bands, 27 m in height) (8½ cables SSE).

2 Rear light (red rectangular daymark with white stripes on a black round tower with yellow bands, 8 m in height) (582 m from the front light).

The alignment (131°) of these lights leads towards and into the bay, passing (with positions from Ciceron Point):

SW of a light–buoy (safe water) (4 cables WNW) (7.203), thence:

SW of Ciceron Point, a cliff that is steep–to.

7.205

1 **Approach to Dry Cargo Dock.** Dry Cargo Dock, situated in the SE corner of the bay, is approached from the NE corner of the bay by a narrow channel, marked on both sides by light–buoys and buoys (port–hand and starboard–hand), that passes inside a wreck lying 1¼ cables N of Dry Cargo Dock.

Alongside berths

7.206

1 No 2 Berth (on the S side of the bay) which can accommodate a tanker with a dwt of

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400 000 tonnes, a length of 396 m and a draught of 24·9 m.

2 Dry Cargo Dock (in the SE corner of the bay) can accommodate a vessel with a dwt of 50 000 tonnes, a length of 228 m and a draught of 12·2 m, and handles petroleum products.

Port services

7.207

1 **Facilities:** Oily waste, slops and dirty ballast reception facilities are not available.

Supplies: provisions.

SAINT LUCIA — WEST SIDE

General information

Chart 1273

Route

7.208

1 From a position WNW of Vigie Point (14°01′N 61′00′W) the route leads SSW for about 20 miles, to a position WNW of Moule à Chique Promontory (13°43′N 60°57′W).

Topography

7.209

1 The most striking and prominent natural features along the W coast of Saint Lucia are the huge, ancient volcanic cones of Gros Piton (13°49′N 61°04′W), 777 m in height, and Petit Piton (1½ miles N), 743 m in height, which rise abruptly from the sea to the S of Soufrière.

Rescue

7.210

1 A 20 m coastguard cutter is stationed in Port Castries.

Natural conditions

7.211

1 **Flow.** General information (7.157).

Overfalls are shown on the chart extending 1 mile W from Gros Piton (Beaumont) Point (13°49′N 61°05′W).

Local weather. Occasionally violent squalls descend from Gros Piton and Petit Piton (7.209).

Principal marks

7.212

1 **Major lights:**

Cape Moule à Chique Light (13°43′N 60°57′W) (7.235).

Vigie Light (14°01′N 61°00′W) (7.190).

Directions

(continued from 7.165)

Charts 197, 1273

7.213

1 From a position WNW of Vigie Point (14°01′N 61′00′W) the track leads SSW, passing (with positions from Grande Caille Point (13°52′N 61°05′W)):

St. Lucia – Gros Piton viewed from N (7.209)

(Original dated 2004)

(Photograph – Susan Harland)

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Vieux Fort Bay from SE (7.215)

(Original dated 2000)

(Photograph – Kevin Phillips)

2 WNW of Bananes Point (8 miles NNE) on which stands Bananes Point Light (white triangular daymark on a tower, 8 m in height) and a number of large green oil tanks, thence:

WNW of Pointe La Ville (4½ miles NNE) on which stands a wooden cross, 4·6 m in height, thence:

3 WNW of Grande Caille Point from which the coast extends N for about 3 miles as a bold cliff, thence:

WNW of Gros Piton (Beaumont) Point (3½ miles S), the SW extremity of Saint Lucia, often marked by overfalls. Gros Piton (7.209) rises close within the point, which is steep–to. Thence:

4 WNW of Mathurin Point (11½ miles SE), the W extremity of Moule à Chique Promontory (7.236). Cliffs extend either side of the point. Mathurin Point Light (red metal framework tower, concrete base, 3 m in height) (Chart 499 plan of Vieux Fort) stands on the point.

Useful marks

7.214

1 Mount Tourney Aero Light (red metal framework tower, white bands, 10 m in height) (13°44′N 60°58′W) (Chart 499 plan of Vieux Fort Bay).

Mount Bellevue Aero Light (13°44′N 60°57′W) (7.237).

(Directions continue for entering Vieux Port at 7.219. Directions for passage W of Saint Vincent are given at 8.36, and for Saint Lucia–Saint Vincent Channel at 2.83)

Vieux Fort Bay

Chart 499 plan of Vieux Fort, 1273 (see 1.24)

General information

7.215

1 **Description.** Vieux Fort Bay (13°43′N 60°58′W), situated at the S end of Saint Lucia to the W of Moule à Chique Promontory (7.236), is a well sheltered anchorage and port which serves the town of Vieux Fort, standing at the head of the bay.

2 **Traffic.** In 2004 217 vessels, with a total dwt of 844 950 tonnes, used the port.

Port Authority is as for Port Castries (7.174) but the port is managed by Saint Lucia Marine Terminals Ltd (SLMTL).

Limiting conditions

7.216

1 **Least depth** in the approach to the main berths is 12·0 m, although all the berths are within the 10 m depth contour.

Deepest and longest berth is the Container Terminal (7.222), 182 m in length with depth of 10 m.

Mean tidal levels:

MHHW 0·7 m.

MLLW 0·4 m.

2 **Density:** 1·025 g/cm^3.

Maximum size of vessel handled.

Length 180 m.

Draught 8·0 m.

Local sea state. A scend may occur along the main jetty (7.222).

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Arrival information

7.217

1 Port radio, established in Cape Moule à Chique Lighthouse, is manned day and night.

Vessels are not to be brought within 3½ miles of the port before radio contact has been established. See *Admiralty List of Radio Signals Volume 6(5).*

Notice of ETA should be given 48 hours in advance.

2 **Pilotage** compulsory for vessels over 100 gt, is available only in daylight. See *Admiralty List of Radio Signals Volume 6(5).*

Pilot boards about 1½ miles off Mathurin Point (13°42′N 60°58′W), as shown on the chart.

Tugs: none**;** pilot boat assists with line handling.

Harbour

7.218

1 **Depths.** The N part of the bay is shoal, with depths of less than 10 m extending 8 cables from the shore, within which lie several detached shallow patches, as shown on the plan.

Current. General information on current is given at 7.156. A strong current has been reported off Mathurin Point.

Directions for entering harbour

(Continued from 7.214)

7.219

1 **Approach from west.** From the vicinity of 13°45′N 61°10′W, the approach to Vieux Fort Bay leads ESE, passing (with positions from Mathurin Point):

SSW of Gros Piton Point (9 miles NW) (7.213), thence:

2 SSW of a spit, with a least depth of 5·5 m over it, which extends about 5 cables S from the E end of Balembouche Rocks (4½ miles WNW). When there is any swell the sea usually breaks on these rocks, which extend about 3 cables offshore. Maintaining a minimum distance of 1 mile off the coast keeps outside the 20 m depth contour. Thence:

3 SSW of Laborie Reefs (3½ miles NW) which extend about 4 cables offshore to the W of Laborie Bay. The sea breaks heavily on these reefs except in calm weather.

Chart 499 plan of Vieux Fort

7.220

1 **Entering harbour from south–west.**

Initial position: 1½ miles WSW of Mathurin Point.

Leading lights:

Front light (mast, elevation 8 m) (5 cables NE of Mathurin Point) situated near the head of the jetty.

Rear light (red diamond on metal column, elevation 20 m) (2½ cables from the front light).

2 The alignment (060°) of these lights leads towards the jetty in a least depth as given at 7.216, passing (with positions from the front light):

SSE of an obstruction (the existence of which is doubtful) (5½ cables WSW), thence:

3 Close SSE of a depth of 7·5 m (4½ cables WSW) situated near the SE extremity of the shore bank, and:

NNW of Mathurin Point on which stands Mathurin Point Light (7.213).

Anchorages and moorings

7.221

1 **Anchorage** may be obtained to the NW of the prohibited anchorage area as indicated on the chart.

Prohibited anchorage area extends 7 cables WNW of Mathurin Point and 1 mile SW of the town.

Alongside berths

7.222

1 The Container Terminal has a length of 182 m, the least charted depth alongside is 8·6 m.

A single jetty, at the S end of the Container Terminal, has berths of 152 m on each side. The least charted depths alongside are 8·4 m and 8·8 m on the N and S sides respectively.

2 A Ro–Ro facility lies adjacent to the S end of the Container Terminal. Vessels use the facility berth at the shore end of the jetty on its N side and it is reported that tankers berth at the N end of the Container Terminal.

It is reported that the Ro–Ro berth is recommended in preference to the Container Terminal berth when there is a NE swell.

3 A fishing complex has been constructed in the N of the harbour, with the outer breakwater extending 125 m SSW thence 160 m SE from a position 2 cables NW of Battery Point (13°43′·4N 60°57′·2W), and an inner breakwater extending 90 m generally WSW from a position close N of the harbour. The breakwater heads are marked by lights.

Port services

7.223

1 **Facilities:** hospital.

Supplies: marine diesel can be supplied by road tanker at 8 to 16 hours notice; fresh water; provisions in limited quantities.

Anchorages

Chart 197

Roseau Bay

7.224

1 **Anchorage** is available in Roseau Bay (13°57′N 61°02′W), in a depth of about 25 m, near the head of the bay, about 2 cables off the jetty, which has a depth of 3 m alongside.

Chart 1273

Choiseul Bay

7.225

1 **Anchorage** may be obtained in Choiseul Bay (13°46′N 61°03′W), in a depth of about 13 m, abreast the church in the village of Choiseul, as shown on the chart.

A small wooden pier at the head of the bay has depths of 4·9 m alongside.

Anse de Rivière Dorée

7.226

1 **Anchorage,** with good holding but exposed to the prevailing winds, is available in Anse de Rivière Dorée (13°45′N 61°03′W), about 5 cables W of the mouth of River Dorée, in depths of 9 to 11 m sand, as shown on the chart. This anchorage is positioned as follows:

Gros Piton (7.209) bearing 339°.

The church in the village of Dorée bearing 049°.

2 **Landing** is not easy in the vicinity of River Dorée which, during the dry season (7.155), contracts to a width of a few metres at its mouth.

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Soufrière Bay from W (7.227)

(Original dated 2002)

(Photograph – Paul Duffy)

Chart 1273

Soufrière Bay

7.227

1 **Description.** Soufrière Bay (13°51′N 61°04′W), situated near the S end of the W coast of Saint Lucia is very deep and affords anchorage for small craft only, in a depth of about 37 m, ¾ cable offshore.

2 Near the S end of the town of Soufrière, a concrete jetty extends 46 m from the coast, with a depth of about 5·5 m alongside. To the N of this jetty there is an L–shaped jetty with yacht moorings.

3 Soufrière Bay is reported to be an official port of entry but without Customs services.

Soufrière Marine Management Area

7.228

1 **Description.** The Soufrière Marine Management Area lies between Anse Jambon (13°52′N 61°05′W) and Anse L'Ivrogne (13°48′N 61°04′W) and includes both Soufrière Bay and Anse de Pitons. Anchoring is not permitted within the Management Area, except off Anse Chastenet (13°52′N 61°05′W). Separate areas are designated for yacht moorings, fishing, and general recreation.

Laborie Bay

7.229

1 **Description.** Laborie Bay (13°45′N 61°00′W) affords confined anchorage close to the coast however, the entrance is narrow and a swell often sets into the bay.

A small pier, with a depth of 2·7 m alongside its head, extends from the village at the head of the bay.

St. Lucia – Soufrière (7.227)

(Original dated 2004)

(Photograph – Susan Harland)

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SAINT LUCIA — EAST SIDE

General information

Charts 1273, 596

Route

7.230

1 From a position ENE of Pointe Hardy (14°06′N 60°55′W), the route leads SSW for about 47 miles to a position SE of Cape Moule à Chique (13°43′N 60°56′W).

Topography

7.231

1 General topography (7.154).

The highest peak on the E side of the island is La Sorcière (13°59′N 60°55′W) which appears as a cone from the NE and as a round–backed mountain from the SE.

2 A radio tower stands on Piton Flore (2 miles WSW of La Sorcière).

The E coast is generally rugged and inhospitable. From Marquis Bay (14°02′N 60°54′W) to Dennery Bay (7 miles S) the coast is, for the most part, bleak and cliffy.

Depths

7.232

1 The coastal bank, with depths of less than 200 m extends up to 4½ miles off the E coast, within which there are depths of less than 36 m extending up to 3½ miles E; with the greater widths at the S end of the island. Seven miles NE of Pointe Hardy (14°06′N 60°55′W) there is a 91 m shoal patch (reported 1977) lying 1 m E of the 200 m depth contour. To the S of Saint Lucia there are depths of 22 to 29 m 3½ miles from the S extremity.

Caution

7.233

1 Off the E coast of Saint Lucia many areas are incompletely surveyed, and the coast is dangerous to approach. See note on chart 1273.

Natural conditions

7.234

1 **Flow.** General information (7.157). Notes on flow in the Martinique–Saint Lucia Channel at 7.162.

Sea. The E coast of Saint Lucia is exposed to the full surge of the Atlantic.

2 **Overfalls** are charted in the following positions:

14°06′N 60°55′W, extending up to 1 mile E from Gros Loup.

13°47′N 60°52′W, a detached area.

13°43′N 60°56′W, extending up to 7 cables E from Cape Moule à Chique.

Principal mark

7.235

1 **Major light:**

Cape Moule à Chique Light (masonry tower, 9 m in height) (13°43′N 60°57′W).

Directions

(continued from 7.117)

Coastal passage east of Saint Lucia

7.236

1 From a position ENE of Pointe Hardy (14°06′N 60°55′W), the track leads SSW passing (with positions from La Croix Point (13°55′N 60°53′W)):

2 ESE of Gros Loup (11½ miles NNW), a group of rocks awash on which seas usually break, lying 3 cables ESE of Pointe Hardy (7.164), thence:

ESE of a patch (11 miles NNW) with a depth of 8·7 m over it, thence:

3 ESE of Roches aux Fous (9¾ miles NNW), several groups of rocks, some awash and numerous sunken dangers, over which seas break, extending 5 cables S to Fous Island. These dangers should be given a wide berth. Thence:

4 ESE of Cape Marquis (8 miles N), a steep–to rocky point situated at the SE extremity of a steep slope descending from Mount Gaïac, a prominent peak. Cape Marquis Light (white square support, 5 m in height) stands on the point. The coast extending 1½ miles NNW from Cape Marquis is rocky and steep–to, rising close within to hills of moderate elevation. Thence:

5 ESE of a rock awash lying close NE of Tanti Point (6 miles N) which rises to a prominent cone 129 m high, thence:

ESE of a rock awash lying 2 cables ENE of Tortue Point (4½ miles N), thence:

6 ESE of a reef extending 2 cables NE from Rouche (Bouche) Island (2¼ miles N). A prominent, mushroom–shaped rock lies close NE of the island. Thence:

ESE of Mamelles Point (1 mile NNE), a rock (30 m high) lying close NE of a sandstone cliff (174 m high) which is the termination of a ridge formed by a chain of high conical hills, thence:

7 ESE of Des Bateaux Island which lies at the NE extremity of a reef extending 3 cables NE from La Croix Point, thence:

ESE of Chapeau Point (4¼ miles S) which is a double point with a remarkable red patch, which shows up when the sun shines in the morning, thence:

8 ESE of Vierge Point (6 miles S), a salient point which is low and flat and projects about 5 cables from the line of the coast, thence:

ESE of Pointe Lamarre (Des Canelles Point) (8 miles S), thence:

ESE of Maria Islands (11¾ miles SSW) situated at the S end of a reef, thence:

9 ESE of Cape Moule à Chique (12¾ miles SSW) Chart 499 plan of Vieux Fort Bay (see 1.24), the E extremity of Moule à Chique Promontory which is a precipitous headland forming the S extremity of Saint Lucia. (7.235) rising close within Cape Moule à Chique. From Cape Moule à Chique, steep–to cliffs extend 5 cables WSW to Ministre Point (the S extremity of Moule à Chique Promontory) on which stands a prominent boulder. Thence:

10 Clear of Fond Blanc (13¼ miles SSW). It is possible that there may be less water than charted over this bank. Thence:

11 From this position the track continues SSW for about 4 miles to a position SE of Cape Moule à Chique (13°43′N 60°56′W).

Useful mark

7.237

1 Mounte Bellevue Aero Light (beacon, elevation 107 m) (13°44′N 60°57′W).

(Directions continue for passage E of Saint Vincent at 8.19 and for Saint Lucia–Saint Vincent Channel at 2.83)

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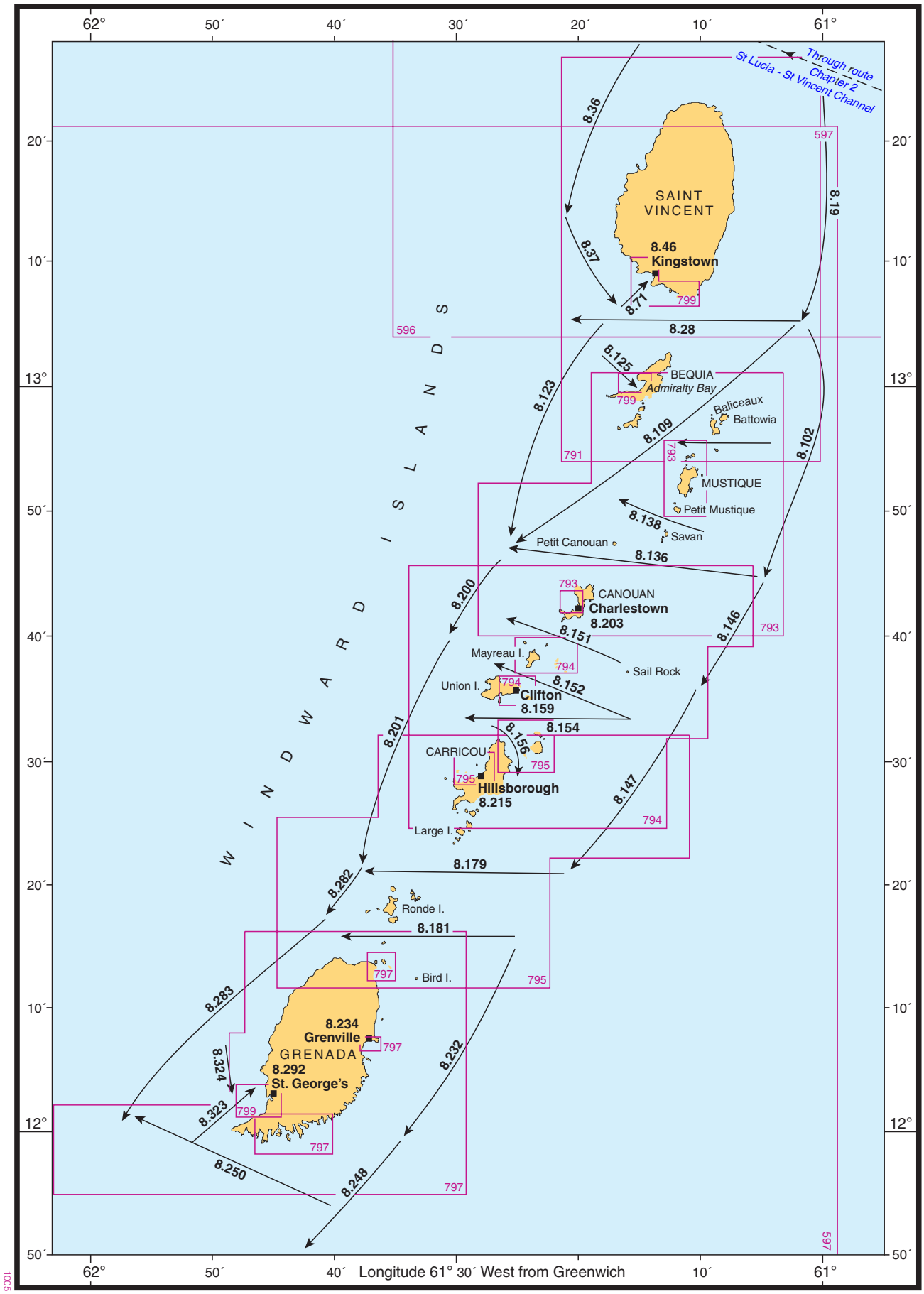
Chapter 8 - Windward Islands - Saint Vincent to Grenada



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CHAPTER 8

WINDWARD ISLANDS—SAINT VINCENT TO GRENADA

GENERAL INFORMATION

Chart 596, 597, 956

Scope of the chapter

8.1

1 This chapter describes the S end of the Windward Islands, presenting the coastal and inter–island waters from 13°25′N 61°10′W, N of Saint Vincent, to a position S of Grenada (100 miles SSW), including The Grenadines.

2 **Directions** are given for coastal passage on both sides of the island chain; for all routes between the islands; and for entry into all harbours and significant bays; as shown on the index diagram.

International boundary

8.2

1 This chapter includes the territories of two independent national authorities, Saint Vincent to the N and Grenada, to the S, both of whom administer a part of The Grenadines.

Details of the territorial limits are given at 1.183 and 1.118.

Harbours and anchorages

8.3

Kingstown Bay (Saint Vincent) (13°09′N 61°14′W) (8.53), including Arnos Vale tanker berth.

Saint George's Harbour (Grenada) (12°03′N 61°45′W) (8.292) including Queen's Park and Grand Mal Tanker Terminals.

Admiralty Bay (Bequia) (13°00′N 61°16′W) (8.125).

Clifton (Union Island) (12°36′N 61°25′W) (8.159).

Charlestown Bay (Canouan) (12°43′N 61°21′W) (8.203).

Hillsborough (Carriacou) (12°29′N 61°28′W) (8.215).

Topography

8.4

1 Saint Vincent and Grenada are both dominated by volcanic mountains forming a spine through the length of each island, rising to 1178 m in Saint Vincent and 840 m in Grenada.

2 The Grenadines consist of a chain of about 100 islands extending from 13°03′N 61°13′W (S of Saint Vincent) for about 50 miles SSW to a position N of Grenada. The islands are of modest elevation, varying from low lying cays to islands 335 m high. A list and description of the principal islands is given at 8.89.

Depths

8.5

1 Saint Vincent stands on a bank which is steep–to on all but the SE side, where it extends up to 3 miles from the coast. It is separated by a deep channel (13°05′N 61°15′W) from the bank on which The Grenadines lie. This bank, which extends up to 5 miles W and 10 miles E of The Grenadines, includes Grenada to the S and the shallow patches up to 20 miles farther SW. Depths on the bank vary from 10 to 53 m, providing large stretches of shoal water and several navigable channels between the islands.

Weather

8.6

1 The weather is generally good throughout most of the year, except during the hurricane season (1.235). However, local depressions can produce vicious conditions. These will be announced as radio warnings. See *Admiralty List of Radio Signals 3(2)*.

2 The climate is reported to be the healthiest in the West Indies with an average temperature of 25·6°C (78°F), owing to the cooling effect of the North–east Trade Winds which blow all year round (1.227).

Sea state

8.7

1 Along the E coast of the island chain the sea generally breaks in depths of less than 9 m, owing to the prevailing wind. It is generally rough in the deep channel between Saint Vincent and The Grenadines particularly when the tidal stream sets against the wind.

2 This contrasts sharply with the sea state to the W of the chain, which is generally calm, in the lee of the islands and the bank on which they stand.

Flow

8.8

1 General remarks on currents (1.209) and on tidal streams (1.215).

A semi–diurnal tide prevails throughout The Grenadines but the tidal stream is much influenced by local currents and appears irregular; for details see 8.87.

2 In the deep channel between Saint Vincent and the Grenadines the flow is almost always W–going, as the strength of the current prevails over the E–going tidal stream.

SAINT VINCENT

GENERAL INFORMATION

Chart 791

Area covered

8.9

1 Saint Vincent (13°15′N 61°10′W) is situated 23 miles S of Saint Lucia and 87 miles W of Barbados, near the S end of the Caribbean Chain, in the Windward Islands.

Topography

8.10

1 The island, length of 15 miles and width of 9 miles, is steep and precipitous. The most prominent of the heights are the Soufrière Mountains, at the N end of the island, the numerous peaks of which form a crescent N of the craters of La Soufrière itself. The highest of these peaks rises to an elevation of 1234 m and is seldom clear of cloud. The volcano, La Soufrière, rises abruptly from the N end of the

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W coast of Saint Vincent but to the E the slope is more gradual. This volcano was active in 1971 and subsequently erupted in April 1979.

2 From the central mountain range several other ranges branch off on either side towards the coast, the valleys between being watered, during the rainy season, by a number of streams, many of which cease to flow in the dry season.

Anchorages

8.11

1 Kingstown Bay, at the SW end of the island, is the only anchorage of any importance. It is sheltered from prevailing wind and is available to all types of vessels.

Flow

8.12

1 The predominant current in the region of Saint Vincent is NW and is of moderate or high constancy. Mean rates normally range from about 1 kn during October to December, to about 1·5 kn during February to May.

2 Between 1 and 5 miles from shore the current is partly affected by tidal streams, while less than 1 mile offshore tidal streams predominate.

SAINT VINCENT — EAST SIDE

General information

Chart 791

Route

8.13

1 From a position NE of Porter Point (13°23′N 61°10′W) (8.18), the route leads S for about 22 miles to to a position E of Milligan Cay (8.19) (13°08′N 61°10′W).

Topography

8.14

1 General topography (8.10).

The E coast of Saint Vincent is bold and rocky with no dangers more than 5 cables offshore. Between Porter Point (8.18), at the N end of the island, and Tourama Point (4 miles SE) (8.19), the land rises from the coast in steep–sided spurs, separated by ravines. Between Tourama Point and Black Point (4 miles S) (8.19), the coast is fringed with boulders on which the sea breaks heavily. Within the coast the land rises gently in broad flat spurs towards Morne Garu Mountains (4 miles inland) and Soufrière Mountains (3 miles farther N) (8.10).

2 Georgetown, one of the five main population centres in Saint Vincent, is situated on the coast at 13°17′N 61°07′W.

Caution. The E coast of Saint Vincent presents a lee shore with no secure anchorages.

Inadequate surveys

8.15

1 Depths around the N part of Saint Vincent are from a lead–line survey of 1889, and the mariner should be guided accordingly. See note on chart.

Rescue

8.16

1 For details see 8.33.

Flow

8.17

1 General information (8.8 and 8.12).

Principal marks

8.18

1 **Landmarks**:

Porter Point (13°23′N 61°10′W), the N extremity of the island consists of prominent cliffs. This point has been reported to be a good radar target at distances up to 16 miles. Prominent buildings (8.35) stand 3 cables W of the point.

2 Colonarie Point (13°14′N 61°07′W) is a prominent point fringed with rocks. It is the second salient point S of Georgetown.

Directions

(Continued from 7.237)

8.19

1 From a position NE of Porter Point (13°23′N 61°10′W) (8.18), the track leads S passing (with positions from Colonarie Point (13°14′N 61°07′W)):

2 E of Cow and Calves (8¼ miles NNW) a chain of rocks situated close off the NE side of a rounded promontory 75 m high on which stands the village of Owia. Owia Light (white framework tower 6 m in height) stands in a clearing part way up the promontory. Thence:

3 E of Goat Point (7¾ miles NNW) the NE extremity of a promontory with a less well defined summit than that lying 5 cables NW, thence:

E of Tourama Point, (5½ miles N) thence:

4 E of Georgetown (2½ miles N), identified by its square church tower built of dark volcanic stone, thence:

E of Black Point (1½ miles N) dark and well defined. It is easily identified as the first salient point S of Georgetown. Thence:

E of Colonarie Point (8.18), thence:

5 E of Yambou Head (5 miles SSW) a prominent headland.

6 From this position the track continues S for about 2½ miles to a position E of a rock (7¼ miles SSW) lying close E of Milligan Cay, itself lying close offshore. Brighton Lighthouse (white framework tower, 6 m in height) stands on the headland close W.

Useful mark

8.20

1 Radio mast (13°10′N 61°10′W) standing at an elevation of 397 m near New Belmont.

(Directions continue for passage S of Saint Vincent at 8.28, E of Mustique at 8.102, and SE of Bequia at 8.109)

PASSAGE BETWEEN SAINT VINCENT AND BEQUIA

General information

Chart 791

Route

8.21

1 From a position E of Milligan Cay (13°08′N 61°10′W, the channel between Saint Vincent and Bequia (8.90), known locally as Bequia Channel, leads WSW for about 16 miles to a position NNW of West Cay (13°00′N 61°17′W).

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Topography

8.22

1 Saint Vincent 8.10. Bequia 8.90.

The S coast of Saint Vincent is steep–to with no dangers extending more than 5 cables offshore.

Depths

8.23

1 A deep channel, with depths greater than 200 m, and a least width of 1½ miles lies between the N end of the bank (8.85) surrounding The Grenadines and the S end of the bank extending S from Saint Vincent.

Rescue

8.24

1 See 8.33.

Natural conditions

8.25

1 **Flow.** General information (8.8 and 8.12).

In the deep channel (8.21) between Saint Vincent and The Grenadines a W to NW current of moderate or high constancy predominates, with an average rate of 1 to 1½ kn, the maximum rate usually occurring in late spring and summer. However, on the banks, in depths less than 130 m, the E–going tidal stream frequently prevails over the current.

2 **Tidal streams** around The Grenadines (8.89).

8.26

1 **Sea state.** Bequia Channel has a well deserved reputation for being very rough at times. The water is smoothest when the tidal stream sets to the W. When the E–going tidal stream off the NW coast of Bequia sets to windward against a strong E wind, a heavy confused sea is created in the channel.

Principal marks

8.27

1 **Landmarks:**

Yambou Head (13°09′N 61°09′W) (8.19).
Battowia (12°58′N 61°08′W) (8.91).
Bequia (13°00′N 61°15′W) (8.90) with a conspicuous radio mast (13°00′N 61°14′W) (8.108).
Duvernette Island (13°08′N 61°12′W) (8.52).
Fort Charlotte (13°09′N 61°14′W) (8.52).

2 **Major light:**

Fort Charlotte Light, as above. has been reported as being visible in Bequia Channel when it bears more than 297°.

Directions

(continued from 8.20)

8.28

1 From a position E of Milligan Cay (13°08′N 61°10′W, the track leads WSW for about 16 miles passing (with positions from (Man Point (13°03′N 61°12′W)):

SSE of Brighton Light (5 miles NNE) (8.19), thence:

2 SSE of Johnson Point, (4½ miles NNE) the W extremity of a promontory on which stands an old battery. A hotel with a pointed roof stands on the point. Thence:

NNW of Man Point, the N extremity of Bequia, which is steep–to, thence:

3 SSE of Duvernette Island (4¾ miles N), lying in a bay close W of Johnson Point. A light, Young Island Carenage, (green square on pillar (13°08′N 61°12′W) is exhibited from Duvernette Island. Thence:

4 SSE of Cane Garden Point (5½ miles NNW), the NW entrance point into Greathead Bay, thence:

SSE of Fort Charlotte Light (7 miles NNW) (8.27), thence:

NNW of Northwest Point (3 miles SW), the N entrance point into Admiralty Bay (Bequia Island).

5 From this position the track continues WSW for about 2½ miles to a position NNW of W cay (12°59′N 61°17′W) the W extremity of Bequia Island from which a light (white metal framework tower 6 m in height) is exhibited.

Useful mark

8.29

1 Radio mast (13°10′N 61°10′W) (8.20).

(Directions continue for Kingstown Bay at 8.71, and for passage NW of Bequia at 8.123)

SAINT VINCENT — WEST SIDE

General information

Chart 791

Route

8.30

1 From a position NW of Porter Point (13°23′N 61°10′W) (8.18) the route leads SSW for about 16 miles to a position WNW of Layou Bay (13°12′N 61°16′W) from whence it leads SE for about 6 miles to a position SW of Johnson Point (13°09′N 61°15′W), the N entrance point into Kingstown Bay (8.53).

Bullet (Battowia) *Baliceaux* *Bullet Cay (Bequia)*

Bequia and Bullet Cay from NNW (8.25)
(Original dated 2002)

(Photograph – Gareth Kirk, mv "Logos II")

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Topography

8.31

1 General topography (8.10).

The coast is generally steep–to with no dangers more than 5 cables offshore.

Between Baleine Point (13°22′N 61°12′W) (8.36) and the village of Wallibou (3½ miles SSW) the coast is remarkable for its numerous and varied sharp spurs.

2 Three of the 5 main population centres are situated along the W coast as follows (given from N to S):

Chateaubelair (13°17′N 61°14′W) (8.38).

Barrouallie (13°14′N 61°16′W) (8.44).

Layou (13°12′N 61°16′W) (8.45).

Inadequate surveys

8.32

1 Depths around the N part of Saint Vincent are from a lead–line survey of 1889, and the mariner should be guided accordingly. See note on chart.

Rescue

8.33

1 The coastguard at Kingstown provide a general lifeboat service, which can be contacted through Fort Charlotte (8.68).

Natural conditions

8.34

1 **Local magnetic anomaly**. Local deflection of the compass (between 16° and 25°) was reported in 1964 to occur in the vicinity of 13°17′N 61°18′W. However, in 1985, HM Surveying Ship *Fox* found no magnetic anomalies within this area.

2 **Flow.** General information (8.8 and 8.12).

Principal marks

8.35

1 **Landmarks**:

Porter Point (13°23′N 61°10′W) (8.18). The prominent buildings of Fancy Estate are situated about 3 cables W of the point.

2 Cape Roll (1¼ miles W of Porter Point) is bold and prominent.

Two radio masts (each 128 m in height) (13°19′N 61°14′W).

Directions

(continued from 2.83 and 7.214)

8.36

1 From a position NW of Porter Point (13°23′N 61°10′W) (8.18) the track leads SSW passing (with positions from Dark Head (13°17′N 61° 16′W)):

2 WNW of Cape Roll (7¼ miles NNE) (8.35), thence:

WNW of Baleine Point (6 miles NNE) a salient point with the settlement of Windsor Forest close SE, thence:

3 WNW of a chain of small rocks (4½ miles NNE) extending about ¾ cable offshore from Larikai Point, thence:

WNW of Morne Ronde Point (3¾ miles NNE) which appears as a hummock from the S, thence:

4 WNW of Dark Head. from which a light (framework tower, 3 m in height) stands 2 cables S of the headland. Thence:

WNW of Bottle and Glass (3 miles SSW) a group of prominent rocks extending 2 cables offshore.

5 From this position the track continues SSW for about 2½ miles to a position WNW of Layau Bay (13°12′N 61°16′W).

8.37

1 From a position WNW of Layou Bay (13°12′N 61°16′W) the track leads SE passing:

SW of Lapaze Rock (5½ miles S), lying close off the NW entrance point into Buccament Bay, thence:

SW of Questelles Point (7 miles S).

2 From this position the track continues SE for about 1mile to a position SW of Fort Charlotte Lighthouse standing above Johnson Point (13°09′N 61°15′W).

(Directions continue for Kingstown at 8.71, and for passage NW of Bequia at 8.123. Directions for passage S of Saint Vincent are given at 8.28)

Chateaubelair Bay

General information

8.38

1 **Description.** Chateaubelair Bay (13°18′N 61°14′W) is entered between Richmond Beach and Chateaubelair Island (71 m high) about 1 mile SW. At the head of the bay stands the town of Chateaubelair, which is the N town on Saint Vincent.

Directions

8.39

1 There are no dangers in the approach which may be made directly from seaward.

There is a narrow passage between Chateaubelair Island, which has a rock 2 m in height close off its SE extremity, and the coast. This passage has a depth of about 11 m in it and is occasionally used by small craft.

Local knowledge is required.

Anchorage

8.40

1 The bay is steep–to, with depths of 40 m within 2 cables of the shore.

Small vessels may find anchorage in depths of about 24 m, sand, about 2 cables NE of the concrete pier at the head of the bay, as shown on the chart.

Berths

8.41

1 There is a concrete pier, at the head of the bay, off the town of Chateaubelair, with depths of 3·2 m alongside its head.

Facilities

8.42

1 Customs clearance and a hospital are available in the town.

Anchorages and landings

Wallibou Bay

8.43

1 **Anchorage.** Exposed anchorage is available off the settlement of Wallibou (13°19′N 61°14′W) in a depth of 31 m.

Princes Bay

8.44

1 **Anchorage,** suitable only for smaller vessels, is available in Princes Bay (13°14′N 61°17′W) close S of Bottle and Glass (8.36), off the settlement of Barrouallie. The depths in the bay are considerable close inshore and

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the bottom is foul on the NW side. In the head of the bay a stream, marked by a concrete pier, discharges.

2 **Local knowledge** is required.

Layou Bay

8.45

1 **Description.** The shore of the bay is steep–to, with depths of 37 to 46 m 1 cable offshore. The NW side of the bay is rocky and a reef extends a short distance from Jackson's Point (the NW entrance point). The SE entrance point is steep–to and that side of the bay is sandy.

KINGSTOWN

GENERAL INFORMATION

Charts 799 plan of Kingstown Harbour and Approaches, 791

Position

8.46

1 Kingstown (13°09′N 61°14′W) is built along the shore at the head of Kingstown Bay. Behind the town the land rises gradually to the mountains which form an amphitheatre NE of the bay.

Area covered

8.47

1 This section describes Kingstown Bay and the adjoining bays from Questelles Point (13°10′N 61°15′W), the NW entrance point to Camden Park Bay (8.77), to Johnson Point (4½ miles SE) (8.28), at the SE end of Calliaqua Bay.

The adjoining bays have been included as they contain berths and facilities which are part of the Kingstown complex.

Function

8.48

1 Kingstown is the capital and largest town in Saint Vincent (1.183), with a population of 28 000 in 1999. In the same census the island population was 106 499.

Traffic

8.49

1 In 2001, 1049 vessels, with a total dwt of 2 696 490, used the port. This number included bulk carriers to Camden Park Bay (8.77) and tankers to Arnos Vale (8.82).

Port Authority

8.50

1 The Saint Vincent and The Grenadines Port Authority, PO Box 1237, Kingstown, Saint Vincent, West Indies.

Kingstown has a Port Manager and Harbour Master, PO Box 108, Saint Vincent.

Flow

8.51

1 The streams appear to turn at high and low water by the shore, the NW–going stream synchronising with the falling tide, but they are subject to great irregularities from wind and current.

Principal marks

8.52

1 **Landmarks:**

Fort Charlotte (13°10′N 61°14′W), in which the barracks, hospital and flagstaff are very prominent.

2 Duvernette Island (13°08′N 61°12′W) is a round sugar–loaf islet, covered with vegetation and having on its summit the ruins of an old fort. Duvernette Island Light (white framework tower, 9 m in height) stands on the summit.

3 **Major light:**

Fort Charlotte Light (6–sided wooden structure, 3 m in height) on the SE corner of the fort.

KINGSTOWN BAY

General information

Charts 799 plan of Kingstown Harbour and Approaches, 791

Function

8.53

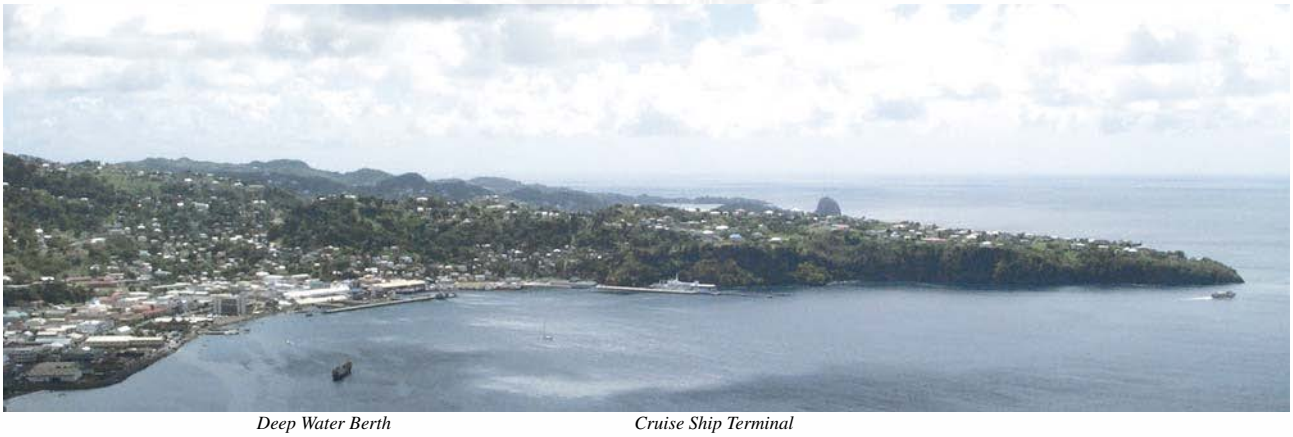
1 Kingstown Bay (13°09′N 61°14′W) the principal harbour in Saint Vincent, provides deep water facilities with a modern pier, exporting large quantities of perishable goods including bananas.

The harbour serves the town of Kingstown. It is a first port of entry for Saint Vincent and a popular port for cruise ships.

Port limits

8.54

1 The port extends from Old Woman Point (13°09′N 61°15′W) to Cane Garden Point (1¼ miles SE) and include Camden Park Bay (13°10′N 61°15′W) (8.77) and Arnos Vale tanker terminal (8.82) in Greathead Bay (13°08′N 61°13′W).



Deep Water Berth *Cruise Ship Terminal*

Kingstown Bay from WNW (8.53)

(Original dated 2002)

(Photograph – Gareth Kirk, mv "Logos II")

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Approach and entry

8.55

1 Kingstown Bay is open to the SW and there are no charted dangers in the approach, outside 2 cables from the coast.

Limiting conditions

Controlling depth

8.56

1 The depths in Kingstown Bay are considerable throughout. At distance of 3 cables before the town, at the head of the bay, recorded depths are 33 to 36 m.

Deepest and longest berth

8.57

1 The NW side of the Cruise Ship Jetty (8.74).

Mean tidal levels

8.58

1 MHHW 0·6 m.
MLLW 0·5 m.

Density of water

8.59

1 1·025 g/cm^3.

Maximum size of vessel handled

8.60

1 Length overall 168 m and draught 9·1 m berthed at the Deep Water Wharf.

Local weather and sea state

8.61

1 **Wind.** During the middle of the day the wind frequently blows down the valleys at the head of the bay with great violence.

An offshore wind is usually experienced at the Deep Water Berth and difficulties may be encountered in berthing. Its strength is likely to be less, early in the day.

2 **Sea state.** When a heavy swell enters the bay there is usually a surge alongside the berths.

Arrival information

Port operations

8.62

1 Fort Charlotte Signal Station (13°09′N 61°14′W) should be contacted on VHF by all vessels approaching, entering, manoeuvrering in, or departing from the port area; including Camden Park Bay berth (8.77) and Arnos Vale tanker berth (8.82).

2 The port launch and the Port Operations Office both monitor VHF Channel 16. See *Admiralty List of Radio Signals Volume 6(5).*

Coast radio

8.63

1 There is no coast radio station at Kingstown. Cables may be routed through Cable and Wireless (West Indies) Ltd.

Pilotage and tugs

8.64

1 Pilotage is compulsory for vessels of more than 150 nrt proceeding to the Deep Water Wharf (8.74), Camden Park Bay Berth (8.77) and Arnos Vale tanker berth (8.82), and available 24 hours a day (daytime only for Arnos Vale).

2 Requests for a pilot should be made 24 hours prior to the ETA. Pilots board about 2 miles from the anchorage (8.73). The boat displays the pilot flag by day and signal lights at night.

3 See *Admiralty List of Radio Signals, Volume 6(5).*

Tugs are not available but a launch is maintained for use as a pilot boat and to assist in berthing.

Regulations concerning entry

8.65

1 It has been reported that berthing is not recommended during the hours of darkness but that vessels may unberth at any time.

Quarantine

8.66

1 **Immigration and Port Health Officers** board at the anchorage where pratique is granted.

Harbour

General layout

8.67

1 Kingstown Bay is an open anchorage between Old Woman Point (13°09′N 61°15′W) and Cane Garden Point (1¼ miles SE), with a deep water wharf, Cruise Ship Terminal and other berthing facilities in the NE corner of the bay.

Storm warning signals

8.68

1 Displayed from the signal station at Fort Charlotte (13°09′N 61°14′W).

Signal	*Meaning*
	Cautionary warning. Storm or hurricane force winds possible.
	Definite warning. Hurricane force winds will affect the island.

Saint Vincent storm warning signals (8.68)

Tidal stream and current

8.69

1 For the approach see 8.51. Within Kingstown Bay, the tidal stream sweeps around the bay, sometimes attaining a rate of nearly 2 knots. Overfalls are charted off Old Woman Point and Cane Garden Point.

Principal marks

8.70

1 **Landmarks** (with positions from Fort Charlotte (13°09′N 61°14′W) (8.62)**:**

Duvernette Island (13°07′·7N 61°12′·2W) (8.52).
Fort Charlotte (8.52).
The cathedral (8 cables E), white square tower. At night the clock face is illuminated.

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2 The cupola on the police station (1 mile ESE) is reported (1996) to be a small red bell tower in the centre of a red roof.

3 Cruise Ship Terminal (1¾ miles ESE) (8.74), which has a green roof and cupola.

4 **Major light:**

Fort Charlotte Light—as above.

Directions for entering harbour

(continued from 8.29 and 8.37)

8.71

1 From a position 1 mile WSW of Cane Garden Point the approach track leads NE.

Leading mark: Light structure on the cupola of the police station (8.70) about 1½ cables N of the Deep Water Wharf. The line of bearing, 042½°, of this structure, which reportedly (2000) may be difficult to see, leads into Kingstown Bay, passing (with positions from Fort Charlotte Light (13°09′N 61°14′W):

2 SE of The Gimlets, a small ledge extending a short distance S from Johnson Point (3 cables SW), and:

About 7 cables NW of Cane Garden Point (1½ miles SE) the W extremity of a promontory which slopes gently to the sea. A wreck, position approximate, lies 1¼ cables S of Cane Garden Point. Thence:

3 SE of a 10 m patch lying 1 cable S of Old Woman Point (2 cables S), thence:

NW of the Cruise Ship Terminal (1 mile SE) (8.74). Thence as required for anchoring or berthing.

4 **Approach to berths**. If proceeding alongside, an approach on the cathedral tower (8.70) may be more appropriate.

Useful marks

8.72

1 Lights (columns) on the NW and SE corners of the Deep Water Wharf.

Light dolphin at SW end of Cruise Ship Terminal.

Anchorages and berths

Anchorages

8.73

1 Anchorage may be found in a depth of about 37 m, sand, in the middle of Kingstown Bay about 2¼ cables offshore, clear of the two submarine cables and foul area shown on the chart, taking care not to obstruct ships approaching or leaving the Deep Water Wharf and Cruise Terminal. The holding ground is good.

2 It has been reported that vessels anchor in the SE part of the bay.

In 1973 HMS *Intrepid* (10 000 tonnes) anchored in 55 m with the NE end of the Deep Water Wharf bearing 064° distant 3·3 cables. The holding was good.

Alongside berths

8.74

1 **Deep Water Wharf** is 274 m in length, with reported depths alongside of 10·9 m at the NW end and 12·8 m at the SE end. This wharf can accommodate two vessels, one drawing up to 9·1 m and the other up to 8·2 m, on its seaward side. Ro–Ro vessels berth stern–to the jetty. A container park is situated near the Deep Water Wharf.

2 E of the S end of Deep Water Wharf is a small basin with berths, including on the inside of the Wharf.

Regulation speed of 3 kn in the lagoon.

Schooner Jetty, nearly ½ cable in length, lies SE of the S end of Deep Water Wharf.

3 **Cruise Ship Terminal,** ½ cable SE of the Deep Water Wharf, see view page 346. The jetty for cruise ships extends about 300 m SW. It is prolonged a further 120 m by breasting and mooring dolphins connected by a walkway, the seaward dolphin marked by a light. The jetty reportedly can accommodate vessels 260 m LOA in 11 m of water on the N side; there is 7 m of water on the S side.

St. Vincent – Kingstown Cruise Ship Terminal (8.74)

(Original dated 2002)

(Photograph – Gareth Kirk, mv Logos II)

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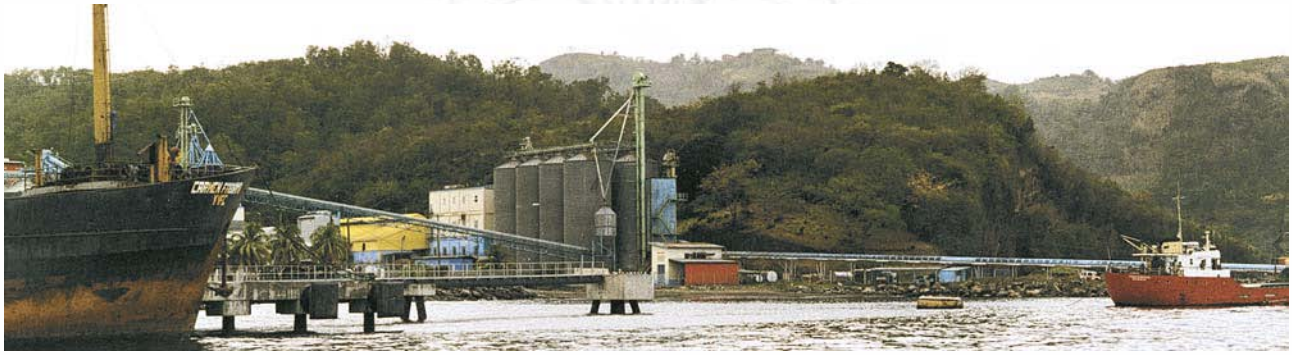
St Vincent Commercial Fishing Quay (8.76)

St.Vincents Camden Park Bay (8.76)

St.Vincents Camden Park Bay (8.76)



St.Vincents Camden Park Bay (8.76)

(Original dated 2000)

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4 Ferries berth on the quay extending NNW from the Cruise Ship Terminal.

Between 24 and 84 m S of the jetty there are 2 light–beacons (starboard hand), and 2 isolated danger beacons marking a wreck area.

Fish jetties. 1 cable NW of the Deep Water Wharf is a fish jetty, 49 m in length, and marked at the seaward end by a light–beacon (red post). Close SE is a smaller jetty, also marked by a light–beacon (red post).

5 **Landing** from boats is possible at a landing platform, with depth of 1·8 to 2·3 m alongside, situated inside the S end of the Deep Water Wharf. Boats should land passengers at the Customs Wharf, opposite the Harbour Office.

Port services

8.75

1 **Repairs.** Minor electrical and mechanical repairs, including welding.

Other facilities: deratting: exemption certificates; hospital; Oily waste reception facilities not available.

Supplies: diesel fuel, delivered by road; fresh water; provisions.

ADJOINING BAYS

Chart 799 plan of Kingstown Harbour and approaches

Camden Park Bay and vicinity

8.76

1 **Description.** York Bay (13°10′N 61°15′W) consists of Camden Park Bay to the NW, separated by a rocky outcrop from Lowmans Bay to the SE. There are general depths of 30 m in the centre of each bay, rising steeply close offshore; the seabed and the beach consist of black volcanic sand.

Camden Park Bay

8.77

1 **Description**. Camden Park Bay has a flour mill complex for receiving grain in bulk and for shipping flour. There is a container terminal.

Berths:

A T–shaped jetty with mooring dolphins of each end, and a mooring buoy to the S, crosses the rocky outcrop and extends about 100 m from the shore; it handles grain and flour

2 Camden Park container jetty, about 100 m in length with mooring dolphins off each end, and a mooring buoy to the S, 1ies about 1 cable N of the T–shaped jetty; the least depth alongside is 12·4 m.

Pilotage is given at 8.64.

Lowmans Bay

8.78

1 Works are in progress (2004) S of the above T–shaped jetty.

Ottley Hall Bay

8.79

1 **Description.** Ottley Hall Bay (13°10′N 61°15′W), is situated N of Johnson Point (8.71) about 1 mile W of Kingstown.

A harbour is formed by two breakwaters extending about 235 m SE from the NW shore and 65 m SW from the NE shore.

Greathead Bay

General information

8.80

1 **Description.** Greathead Bay (13°08′N 61°13′W) is entered between the headland (3 cables SE of Cane Garden Point) (8.71) and Villa Point, 9 cables E. Greathead River flows into the NE corner of the bay and the runway of Arnos Vale Airport extends to the head of the bay.

2 **Local weather**. It was reported in 1990 that strong E winds were prevalent, making it difficult to moor at the tanker berth in Arnos Vale. This wind increased with the heat of day and berthing at first light was recommended.

3 **Tidal streams** were also reported in 1990 to be strong, with an E set on the rising tide and a W set on the falling tide, based on HW Kingstown.

Arnos Bay Terminal from E (8.80)

(Original dated 2000)

(Photograph – Stephen Brookes, UKHO)

8.81

1 **Directions**. From the vicinity of 13°07′N 61°14′W, the approach to Greathead Bay leads NE, passing (with positions from Cane Garden Point (13°08′N 61°14′W)):

SE of Washing Rock (3 cables SE), on the edge of some foul ground extending about ½ cable from the coast, thence:

SE of Black Rock (4 cables E).

Tanker berth

8.82

1 **Description.** Arnos Vale tanker berth (13°08′N 61°13′W) consists of three mooring buoys connected by pipelines to the shore. This berth has a minimum depth of 8 m and can accommodate vessels with a maximum draught of 7·0 m.

Traffic. In 1987, 58 tankers, with a total dwt of 141 000 tonnes used these berths.

Pilotage is given at 8.64.

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THE GRENADINES

GENERAL INFORMATION

Charts 791, 793, 794, 795, 797, 597.

Area covered

8.83

1 The Grenadines (12°45′N 61°17′W), a chain of about 100 islands islets and rocks, extend like a series of unaligned stepping stones from Saint Vincent 60 miles SSW to Grenada.

For a general description of the major islands see 8.89.

For the national grouping of the islands see 1.183 and 1.118.

Topography

8.84

1 The islands are of moderate elevation, varying from low–lying cays to islands 335 m high.

During the winter most of the islands are dry and windswept but in the rainy season they are a bright lush green.

Depths

8.85

1 The Grenadines lie on a bank which has general depths of 10 to 53 m, providing large stretches of shoal water and several navigable channels between the islands.

There is a deep channel between The Grenadines and Saint Vincent, to the N (8.5 and 8.21).

Submarine volcano

8.86

1 **Kick 'em Jenny Volcano** (12°18′N 61°38′W), around which is an exclusion zone (8.176), lies 4½ miles N of Grenada.

Natural conditions

8.87

1 **Local weather.** General information (8.6).

Current. In deep water, away from the bank on which The Grenadines lie, a W to NW current of moderate or high constancy predominates, with an average rate of 1 to 1·5 kn; the maximum rate occurs in late spring and summer.

In 1974 MV *Geeststar* experienced a NW set of 1½ kn in the vicinity of 13°02′N 61°20′W.

2 **Flow.** General information on flow is given at 8.8.

The semi–diurnal tide prevails throughout The Grenadines, but the tidal stream is much influenced by local currents and appears, in consequence, irregular.

3 **The east–going stream**, as a rule, begins at about the time of HW Bermuda. Its duration is shorter than that of the W–going stream plus current. The E–going stream, slowly sweeping round the points, is first felt inshore, where it runs longest, whilst in mid–channel, the W–going stream may still be running.

The E–going stream seldom attains a rate of 2 knots and often of not more than ½ knot.

4 **The west–going stream** plus current is first felt in mid–channel, and, when the influence of the W–going Equatorial Current is strong, sometimes runs all day, overcoming the E–going stream. The resultant flow will, at times, run through the narrow channels at a rate of 4 knots.

Aids to navigation

8.88

1 It has been reported that the navigational lights and buoys established throughout The Grenadines should be treated with caution. It is claimed that particular problems may be as follows:

2 Leading or clearing lights are sometimes not as marked on the chart and are often poorly placed.

Lights are unreliable and frequently not lit.

Buoys may be poorly positioned in relation to the danger they mark. Once removed it may be a long time before they are replaced.

Principal islands

Island groups

8.89

1 The Grenadines are formed into three principal groups.

Northern group, to include:
- Bequia (13°00′N 61°15′W) (8.90).
- Battowia and Baliceaux (12°57′N 61°08′W) (8.91).
- Mustique (12°53′N 61°11′W) (8.92).

2 **Middle group**, to include:
- Canouan (12°43′N 61°20′W) (8.93).
- Mayreau and the Tobago Cays (12°39′N 61°24′W) (8.94).
- Union Island (12°36′N 61°27′W) (8.95).

3 **Southern group**, to include:
- Carriacou (12°30′N 61°27′W) (8.96).
- Petit (Little) Saint Vincent Island (12°32′N 61°23′W) (8.147).
- Petite (Little) Martinique (12°31′N 61°23′W) (8.145).
- Ronde Island (12°18′N 61°35′W) (8.174).

Charts 791, 793

Bequia

8.90

1 **Position.** Bequia (13°00′N 61°15′W), the N island in The Grenadines, is situated 4½ miles S of Saint Vincent.

Function. Bequia is the most important and largest of the islands in the N group. Its population is dependent on local produce, including fish, fruit and coconuts. Good yachting facilities and ideal beaches are attracting more tourists but lack of an airstrip has restricted the numbers. The capital, Port Elizabeth, in Admiralty Bay (8.125) is a first port of entry for Saint Vincent and The Grenadines.

2 **Topography.** Length of 6 miles and a maximum width of 2 miles, with a backbone of hills rising to 269 m at the S end.

Battowia and Baliceaux

8.91

1 **Position.** The islands of Battowia and Baliceaux (12°57′N 61°09′W) are connected by a shoal. Both are uninhabited.

Battowia is a small, cliffy island 213 m high.

Baliceaux is a rugged island with a length of 1½ miles, a width of 5 cables and rising to 119 m high. It is seldom visited except by local fishermen.

Mustique

8.92

1 **Position.** Mustique (12°53′N 61°11′W) is situated 14 miles S of Saint Vincent.

Function. Mustique is the largest of the privately owned islands but with a small population. There is one hotel, which is being developed as a tourist resort. There is an

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airstrip, available for light aircraft, in the N part of the island, from which daily flights are made to Saint Vincent.

2 **Topography.** The island has a length of 2½ miles and width of 1½ miles, with a 12 mile coastline of sandy beaches. The interior is hilly, with a large plain to the N and a series of cultivated valleys with wooded hills rising to an elevation of 151 m in the S part.

Mosquitoes are reported to be prevalent at night.

Charts 793, 794

Canouan

8.93

1 **Position.** Canouan (12°43′N 61°20′W), is situated 25 miles SSW of Saint Vincent.

Function. It is the least known and least populated of the major islands in The Grenadines. Fishing is the main industry.

Facilities. There is an airstrip in the SW part of the island and a jetty in Charlestown Bay, providing regular communications by sea and air, with Saint Vincent.

2 **Topography.** Length 3 miles and width of 1½ miles at the N end. Of volcanic origin it rises to The Peak (8.145) in Mount Royal, in the NE part of the island. The S part of the island curves W and forms the S side of Charlestown Bay (8.203).

The island is lush and fertile, the high land being covered in dense shrub and cacti.

Chart 794

Mayreau and the Tobago Cays

8.94

1 **Position.** Mayreau (12°39′N 61°24′W) is situated 30 miles S of Saint Vincent, midway to Grenada. Tobago Cays are situated about 1½ miles E of Mayreau.

Function. Mayreau, with a population of about 120, is reported to be increasing in prosperity owing to an increase in tourism.

2 There is no airstrip and access is by boat only.

Tobago Cays are uninhabited and are situated in the midst of coral sand shoals and translucent water, allowing easy viewing of the adjacent coral reef and fish. This has made them the most popular anchorage in the area.

3 **Topography.** Mayreau has a length of 1½ miles with a width of 1 mile, rising to an elevation of 99 m. It is reported that the peaks of Mayreau should not be confused with those of Union Island (4 miles SW) being only half as high. Reefs and cays extend about 3¾ miles ESE, within which lie the Tobago Cays, the highest of which rises to an elevation of 41 m.

Union Island

8.95

1 **Position.** Union Island (12°36′N 61°27′W) is situated just over midway between Saint Vincent and Grenada. Palm (Prune) Island lies 1 mile ESE of Union Island.

Function. In 1976 the combined population of Union Island and Palm Island was 2300.

2 Fishing is the main industry and it is reported that fish and lobsters are exported to Martinique. Both islands are developing as tourist centres and there is reported to be a hotel at Clifton, on the SE side of Union Island.

The water supply relies mainly on a large catchment at Ashton, a settlement on the S coast, and water rationing occurs frequently.

3 An airstrip joins what was Red Island to the rest of Union Island. A harbour at Clifton (8.159) provides regular sea communication with Saint Vincent and air links with Saint Vincent, Grenada, Saint Lucia, Martinique and Barbados. Clifton is a first port of entry for Saint Vincent (1.183).

4 **Topography.** The island has a length of 3 miles and a width of 2 miles. It is of volcanic origin and rises in its W part to an elevation of 304 m. The coast is fringed with reefs and the interior is covered with coarse grass and scrub.

Carriacou

8.96

1 **Position.** Carriacou (12°30′N 16°27′W) is situated 15 miles N of Grenada.

Function. Carriacou is the largest island in The Grenadines and is reported to be the most heavily populated.

2 Agriculture is the main occupation, with corn, peas, cotton and limes as the principal products. Boat building is also an important local industry. It is reported that many residents work away from the island, providing external income.

3 There is an airstrip at Lauriston, in the W part of the island, and a jetty in Tyrrel Bay (8.218) providing communication links with Grenada.

Hillsborough (8.215) is a first port of entry for Grenada (8.222).

4 **Topography.** The island has a length of 6½ miles and a width of 1¼ miles. It is generally of low relief, rising to its highest elevation (291 m) at High North (1½ miles S of the N extremity of the island) and at Chapeau Carré (2½ miles NE of the SW point).

MUSTIQUE — EAST SIDE

General information

Charts 791, 793

Route

8.97

1 From a position E of Milligan Cay (13°08′N 61°10′W, the route leads SSW for about 22 miles to a position ESE of Petit Canouan Island (12°47′N 61°17′W).

Topography

8.98

1 Bequia at 8.90.
Battowia at 8.91.
Baliceaux at 8.91.
Mustique at 8.92.

2 Petit Mustique at 8.135.
Savan Island at 8.135.

The E side of Mustique is bordered by reefs extending up to 3 cables offshore.

Depths

8.99

1 The coastal bank (8.85) extends up to 5½ miles E from the island chain, with some charted depths of 24 m near the outer edge of the bank, which is steep–to.

Natural conditions

8.100

1 **Flow.** General information (8.8 and 8.87).

Local weather. General remarks (8.6).

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Principal marks

8.101

1 **Landmarks:**

Battowia (12°58′N 61°08′W) (8.91). Battowia Island Light (white framework tower, 3 m in height) stands on the summit.

2 Baliceaux (12°57′N 16°09′W) (8.91).

All Awash Island (12°55′N 61°09′W), is prominent.

The S extremity of Mustique (12°51′N 01°11′W) which rises to Gun Hill.

Directions

(continued from 8.20)

8.102

1 From a position E of Milligan Cay (13°08′N 61°10′W), the track leads SSW passing (with positions from All Awash Island (12°55′N 61°09′W)):

2 ESE of Bullet (89 m high) (3 miles NNE), an isolated rock somewhat resembling a projectile, lying close off the N end of Battowia, thence:

ESE of the SE point of Baliceaux (1 mile N) (8.91), thence:

3 ESE of All Awash Island (8.101), thence:

ESE of Brooks Rock (2 miles SSW) which has breakers close NE of it, thence:

ESE of Rabbit Island (4 miles SSW) and of Wilks Rock, at the S end of a reef extending 3 cables from the E side of Mustique, thence:

4 ESE of a shoal with a depth of 2·7 m over it (4½ miles SSW), on which the sea breaks. A rock awash lies at the W end of the shoal, thence:

ESE of Petit Mustique (5½ miles SSW) (8.135).

ESE of Savan Island (8 miles SSW) (8.136).

5 From this position the track continues SSW for about 1 mile to a position ESE of Petit Canouan Island (12°47′N 61°17′W) (8.135).

(Directions continue for passage between Mustique and Canouan at 8.136, and for passage E of The Grenadines at 8.146)

BEQUIA — SOUTH–EAST SIDE

General information

Charts 791, 793

Route

8.103

1 From a position E of Milligan Cay (13°08′N 61°10′W), the route leads SW for about 31 miles passing between Bequia (to the NW) and Battowia, Baliceaux and Mustique (to the SE) to a position NW of Charlestown Bay (Canouan Island (12°43′N 61°20′W).

Topography

8.104

1 General topography.

Bequia. (8.90).

Battowia. (8.91).

Baliceaux. (8.91).

Mustique. (8.92).

Islands south of Bequia. A group of three islands extend up to 3 miles SSW from the SE extremity of Bequia. Île à Quatre (12°57′N 61°16′W), the largest island, rises to an elevation of 116 m; its E and S sides are deeply indented by small bays separated by projecting points.

8.105

1 **Mustique–W side** is fringed by reefs in many places. In 1971 the reef off the SW point of the island extended nearly 3 cables from the shore and was continuing to extend. A patch on the reef which dries 1 m at 1½ cables offshore is named Ellis Island.

Depths

8.106

1 General remarks (8.85).

The route SE of Bequia passes over the bank on which The Grenadines lie. This bank, which extends S and W from 13°06′N 61°04′W, has minimum charted depths of 31 m in the centre of the route.

Natural conditions

8.107

1 **Flow.** General information (8.8 and 8.87).

Local weather. General remarks (8.6).

Principal marks

8.108

1 **Landmarks:**

Radio mast (13°00′N 61°14′W) stands on a 215 m summit near the centre of Bequia (8.90).

2 Battowia (12°58′N 61°08′W) (8.91).

Baliceaux (12°57′N 61°09′W) (8.91).

All Awash Island (12°55′N 61°09′W) (8.101).

Petit Mustique (12°50′N 61°12′W) (8.135).

Petit Canouan (12°48′N 61°17′W) (8.135).

Directions

(continued from 8.20)

8.109

1 From a position E of Milligan Cay (13°08′N 61°10′W), the track leads SW passing (with positions from Battowia Light (12°58′N 61°08′W)):

NW of a rock (3 cables N) on which seas break lying 1½ cables N of Battowia (8.91), thence:

2 SE of Bullet Cay (6 miles NW), a rock 53 m high close to the NE coast of Bequia, see view 8.27. Thence:

SE of Brute Point (6 miles NW) the S end of the NE coast of Bequia, thence:

NW of Black Rock (1 mile W), thence:

3 NW of a bank (about 1½ miles SW) with general depths of 7 to 11 m over it, extending about 5 cables from the W side of Baliceaux. Two patches, with depths of 4·6 and 3·7 m over them, lie near the NW edge of the bank about 3½ and 5 cables respectively SSW of Cactus Cay. Thence:

4 SE of Saint Hilaire Point (6 miles WNW), the E entrance point to Friendship Bay, thence:

SE of Petit Nevis (88 m high) (6½ miles W), which has a slightly indented coastline, thence:

NW of The Pillories (4 miles SW), 3 islets, the NE and largest of which is 58 m high, thence:

SE of Île à Quatre (7 miles WSW) (8.104), thence:

5 NW of Montezuma Shoal (6½ miles SW), a detached steep–to shoal with a least depth of 0·9 m over it. When the sea is calm it does not break on this shoal, which cannot be seen until too late to avoid danger. A light–beacon (isolated danger), position approximate, stands on the of the shoal. For clearing lines see 8.115. Thence:

6 NW of Petit Mustique (12°50′N 61°12′W) (8.135). Thence:

NW of Petit Canouan (13 miles SW) (8.135).

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7 From this position the track continues SW for about 6 miles to a position NW of of Charlestown Bay (Canouan Island (12°43′N 61°20′W).

Useful mark

8.110

1 Stranded wreck of the 20 000 tonne French liner *Antilles* (12°54′N 61°11′W) 4 cables N of Mustique.

(Directions continue for passage W of The Grenadines at 8.200)

Side channels

South of Bequia

8.111

1 There are four narrow channels passing between the islands and the cays S of Bequia.

Between Semples Cay (12°59′N 61°14′W) and Middle Cay (3 cables SW), 19 m high and steep–to.

2 Between Middle Cay and Petit Nevis (3 cables S) (8.109). Two rocks lie on a shoal extending 1 cable NE from the NE point of Petit Nevis.

3 Between a sunken rock, on which seas usually break, 1 cable S of the SW extremity of Petit Nevis and the N end of Île à Quatre (8.104).

Between the SW end of Île à Quatre and Pigeon Island (4 cables WSW) (8.123).

4 The W–going current is strong in these channels and, as a general rule, the recommended track passes through the middle. However, between Petit Nevis and Île à Quatre the track passes closer to Île à Quatre.

Chart 793 with plan of Mustique

Between Baliceaux and Mustique

8.112

1 The channel between these two islands is encumbered on it S side by The Pillories, a group of islets and rocks narrowing the navigable width to about 1¼ miles. There is a least charted depth of 24·5 m in the fairway. The four narrow channels passing through The Pillories are suitable only for small craft. and should not be used without local knowledge.

8.113

1 From a position on the E coastal route ESE of Battowia Island Light (12°58′N 61°08′W) the track leads W for about 11 miles passing (with positions from All Awash Island (12°55′N 61°09′W)):

2 N of All Awash Island (8.101), thence:

S of the S end of Baliceaux (1¼ miles NNW) which is steep–to, rising to an elevation of 104 m, thence:

N of Pillory Rocks, (1¼ miles W) to the S of which lie two isolated dangerous rocks, distant 7 and 5 cables respectively, with depths of 2·4 and 3·9 m over them and over which seas usually break. Thence:

N of The Pillories (2½ miles WSW) lying contiguously on shoal ground littered with numerous rocks. A wreck (8.110) lies on an isolated shoal 5 cables S.

3 From this position the track continues W for about 3½ miles to a position on the W coastal route ESE of Pigeon Island (12°57′N 61°16′W).

Britannia Bay

Chart 793 with plan of Mustique

General information

8.114

1 Britannia Bay (12°52′N 61°12′W), a slight indentation in the W side of Mustique (8.92), has a width of 1 mile from N to S which provides safe anchorage for all types of vessels. Neither pilots, tugs nor lighters are available.

2 **Nets.** Local fishermen are reported to set nets in the NE corner of the bay.

Approach

8.115

1 The approach to Britannia Bay is impeded by Montezuma Shoal (8.109) situated 5 cables WSW of the N entrance point of the bay.

Clearing lines for Montezuma Shoal have been reported to pass as follows:

2 The alignment (173°) of the SW point of Mustique (12°52′N 61°12′W) with the NE point of Petit Mustique (1¾ miles S) passes E of the shoal.

The alignment (038°) of the W extremity of the W islet of The Pillories (12°55′N 61°11′W) (8.109), with Gun Hill (the N summit of Baliceaux) (8.91), passes NW of the shoal.

3 The reef at the S end of the bay (12°52′N 61°12′W) on which stands Ellis Island, should be given a wide berth.

Useful mark. The S extremity of Mustique.

Anchorages

8.116

1 **Large vessels** can anchor in depths of 20 to 27 m, about 1 mile WSW of Montezuma Shoal. The holding ground is good and the anchorage is reasonably sheltered from the prevailing wind.

In 1986, HMY *Britannia* (4961 tonnes), anchored 5 cables S of Montezuma Shoal.

Port facilities

8.117

1 **Minor repairs** can be undertaken.

Fuel. Small stocks of diesel oil, petrol and lubricating oil are maintained.

Limited provisions are available.

Fresh water is not available.

BEQUIA — NORTH–WEST SIDE

General information

Charts 791, 793

Route

8.118

1 From a position NW of Northwest Point (13°01′N 61°15′W) the route leads SSW for about 19 miles to a position WNW of Jupiter Head (12°44′N 61°20′W)

Topography

8.119

1 General topography for Bequia (8.90).

The principal feature on the W coast of Bequia is Admiralty Bay (8.125) but farther S lies another large bay, formed between the S coast of Bequia and the islands of Petit Nevis (8.109), Île à Quatre (8.104) and Pigeon Island (8.123).

Depths

8.120

1 General remarks on depths (8.85).

To the W of Bequia the coastal bank is steep–to, achieving a depth of 200 m within 2 miles of the coast.

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Natural conditions

8.121

1 **Flow.** General information (8.8 and 8.87).
Local weather. General remarks (8.6).

Principal mark

8.122

1 **Landmark:**
Radio mast (13°00′N 61°14′W) (8.108).

Directions

(continued from 8.29 and 8.37)

8.123

1 From a position NW of Northwest Point (13°01′N 61°15′W) the track leads SSW passing (with positions from West Cay Light (12°59′N 61°18′W)):
WNW of Man Point (6 miles NE) (8.28), thence:
WNW of Northwest Point (3 miles NE) the NW extremity of an elevated promontory forming the N side of Admiralty Bay, thence:
2 WNW of West Cay, the outer of two rocks lying close W of the SW extremity of Bequia. West Cay Light (white framework tower, 6 m in height) stands on the cay. Thence:
WNW of Pigeon Island (3 miles SSE) which is steep–to.
WNW of Petit Canouan (12 miles S) (8.135).
3 From this position the track continues SW for about 3½ miles to a position WNW of Jupiter Head (12°44′N 61°20′W)

Useful mark

8.124

1 Lawler Point (13°00′N 61°15′W) (8.125) (Chart 799, plan of Admiralty Bay).

(Directions for passage W of The Grenadines at 8.200.
Directions for passage between
Mustique and Canouan are given at 8.136)

Admiralty Bay

799 plan of Admiralty Bay, 791

General information

8.125

1 **Description.** Admiralty Bay (13°00′N 61°16′W), on the W side of Bequia, is the principal anchorage in the island.
Port Elizabeth, at the head of the bay, is the capital of Bequia and is a port of entry for Saint Vincent and the Grenadines.
2 **Depths** from 5 to 18 m exist in the inner part of Admiralty Bay, between the coastal banks extending up to 3 cables from the shore. By day, all the banks in the bay with depths of less than 9 m over them can be distinguished by the lighter colour of the water over them.
Vessels drawing more than 3·7 m are recommended not to enter the inner part of the bay.
3 **Local weather and sea state.** The surrounding hills protect the bay from all but SW winds and, on the rare occasions when the wind blows from the SW, the sea is broken by the shoals in the bay.
4 **Radio** contact may be made with the Frangipani Hotel, on VHF.
5 **Principal marks:**
Radio mast (13°00′N 61°14′W) (8.108).
White house on Lawler Point (13°00′N 61°15′W).

Directions for entering harbour

8.126

1 **Approach from the north.** From the vicinity of 13°02′N 61°17′W (2 miles WNW of Northwest Point (8.123)), the approach leads SE passing, (with positions from Northwest Point):
2 SW of Wash Rock (3 cables S), a rock awash on a shoal extending 1 cable SW from the coast, marked by a light–beacon (W cardinal), the charted position of which is approximate, thence:
SW of Point Peter (4½ cables S) on which stands an old fort.
3 **Clearing line.** The line of bearing 013° of Kingstown (8.46), or Mount Saint Andrew (13°11′·4N 61°12′·9W), open W of Northwest Point, clears to the W of Wash Rock.

8.127

1 **Entering Admiralty Bay.** From the vicinity of 13°00′N 61°15′W (3 cables NW of Lawler Point (8.125)) the white sector (048°–058°) of Admiralty Bay Jetty Root Direction Light (white framework tower, 6 m in height) (13°01′N 61°14′W) leads into the bay, passing (with positions from the light):
2 Over or clear of the N extremity of the bank extending N from Lawler Point, with charted depths of 5 m (6½ cables SW) extending to the centre of the white sector. By keeping to the NW side of the white sector, near the edge of the green sector, a minimum charted depth of 7·0 m can be maintained. Thence:
3 SE of a shoal extending SE from Point Peter, with a charted depth of 5·9 m (5 cables WSW) situated nearly 2 cables SE of Point Peter, thence:
4 Over or clear of the outer edge of Belmont Shoal, with a charted depth of 2·5 m (3 cables SW) extending into the SE side of the white sector. By keeping to the NW side of the white sector it is possible to avoid the edge of the shoal and to maintain a minimum charted depth of more than 9 m.

Anchorages

8.128

1 Admiralty Bay is reported to be a popular anchorage that is excellent in all weathers, but likely to be crowded in the yachting season. A dangerous wreck, position approximate, lies 1¼ cables W of Ocar Point (13°01′N 61°00′W).
Outer anchorage can be found in the outer part of the bay, between 3 and 5 cables NNE of Belle Point (13°00′N 61°15′W) in depths of 20 to 30 m sand, coral and shell, as shown on Chart 799.
2 In 1986 HMS *Achilles* (2350 tonnes) anchored with Belle Point bearing 193°, 4·2 cables, in 31 m, with good holding on fine sand and shingle. The radio mast (13°00′N 61°14′W) (8.108) is reported to be a good leading mark.
Inner anchorage. The inner part of the bay is suitable only for small coasters; the bottom is sand, with patches of coral and mud.

Port facilities

8.129

1 **Other facilities:** hospital.
Supplies: marine diesel and petrol; provisions; fresh water.

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Anchorages

South of Bequia

8.130

1 Between the S coast of Bequia (13°00′N 61°15′W) and the islands of Petit Nevis (8.109), Île à Quatre (8.104) and Pigeon Island (8.123) is a large expanse of water which is moderately smooth and in which there are depths of less than 37 m. It forms an open but safe anchorage, except during the hurricane season, and even then it is as safe as most other places.

2 It is reported that there is an anchorage off Paget Farm (12°59′N 61°16′W) which is usually calm and undisturbed by the ground swell but always subject to an onshore wind.

CANOUAN ISLAND — NORTH SIDE

General information

Chart 793

Route

8.131

1 From a position ESE of Petit Canouan Island (12°47′N 61°17′W). the route, with a minimum width of 3·7 miles, leads W between the islands extending SW from Mustique and the island of Canouan for about 20 miles, passing over the coastal bank to a position WNW of Jupiter Head (12°44′N 61°20′W)

Topography

8.132

1 General topography:
Mustique (8.92).
Petit Mustique (8.135).
Savan Island (8.135).
Petit Canouan (8.135).
Canouan (8.93).

Depths

8.133

1 The coastal bank (8.85) has a minimum charted depth of 25·5 m over an isolated shoal in position 12°44′N 61°13′W.

Natural conditions

8.134

1 **Flow.** General information (8.8 and 8.87).

Sea state. When the E–going tidal stream sets to windward against a strong prevailing wind, a heavy confused sea is caused off the NW extremity of Canouan.

Local weather. General remarks (8.6).

Principal marks

8.135

1 **Landmarks:**
Gun Hill, the S extremity of Mustique (12°51′N 61°11′W) (8.101).
Petit Mustique (12°50′N 61°12′W).

2 Savan Island (12°49′N 61°13′W) which is covered with grass and has a bright green appearance.
Petit Canouan (12°48′N 61°17′W). A light (white framework tower 9 m in height) stands on the summit of the island.
The Peak (12°44′N 61°19′W) (8.145).

Directions

(continued from 8.102)

8.136

1 From a position ESE of Petit Canouan Island (12°47′N 61°17′W) the track leads W passing (with positions from Petit Canouan Island Light (12°48′N 61°17′W)):

2 S of Savan Rock (3½ miles E), which is fringed with reefs and lying at the S end of a bank with depths of 5·5 to 18·3 m over it. Savan Rock has whitish sides and somewhat resembles Sail Rock (10 miles S) (8.146). However, Savan Rock is distinguished by being the S of a group whereas Sail Rock is isolated. Thence:

3 S of Petit Canouan (8.135) with depths of 18 to 29 m close around it, thence:
N of Point Moody (the NE point of Canouan) (4 miles SSW) which is steep–to, thence:
N of Jupiter Head (4½ miles SW) which is steep–to, thence:
N of a detached shoal (reported 2005), with a least depth of 5·8 m m over it (5 miles SW) (8.200).

4 From this position the track continues W for about 3½ miles to a position WNW of Jupiter Head (12°44′N 61°20′W).

(Directions continue for passage W of The Grenadines at 8.200).
(Directions continue for passage SE of Bequia at 8.109, and for passage NW of Bequia at 8.123)

Side channels

Channel between Mustique and Petit Mustique

8.137

1 The channel between Mustique and Petit Mustique (8.135) is 5 cables wide with depths of 13 to 16 m in the fairway and charted depths of 11 m, 1 mile W of the fairway, as shown on the chart. The route leads WNW, passing:
SSW of two dangerous rocks (12°51′N 61°10′W), thence:

2 SSW of the S extremity of Mustique (12°51′N 61°11′W), thence:
NNE of the shallow bank extending 1½ cables N from Petit Cay (1 mile SW of Gun Hill (12°51′N 61°11′W). which is surrounded by a reef, thence:

3 SSW of a rock awash (12°51′N 61°11′W) 2 cables SSW of the S entrance point to Gallicaux Bay, thence:
SSW of Ellis Island (12°52′N 61°12′W) (8.115).

Channel between Petit Mustique and Savan Island

8.138

1 The channel between Petit Mustique (8.135) and Savan Island (8.135) has a width of more than 1 mile with charted depths of 31 m through the middle of the fairway. The route leads WNW, passing:

2 SSW of a drying rock (12°50′N 61°12′W) lying 1 cable off the S extremity of Petit Mustique, thence:

3 NNE of a rock (10 m high) (12°49′N 61°13′W) lying on a reef which extends 2 cables N from Savan Island, which is the largest and NE of a group of rocks and islets, thence:

4 SSW of Dry Rocks (about 3½ cables SW of the NW extremity of Petit Mustique), a rocky shoal which lies on a small bank with depths of less than 9·1 m

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over it. There is a narrow channel between this bank and the bank on which Petit Mustique lies.

5 **Flow** is shown by arrows on the chart; see 8.8.

Channel between Petit Canouan and Savan Rock

8.139

1 The channel between Petit Canouan and Savan Rock is over 3 miles wide and clear of dangers in the fairway, with charted depths of 33 m in position 12°47′N 61°15′W. The route leads N, passing:

2 W of Savan Rock (12°48′N 61°13′W) (8.136) and:
E of Petit Canouan (3½ miles W of Savan Rock) (8.135).

THE GRENADINES — EAST SIDE

General information

Charts 793, 794, 795

Route

8.140

1 From a position E of Petit Canouan Island (12°48′N 61°17′W the route leads SSW for about 32miles to a position ESE of Large Island (12°24′N 61°29′W).

Routes

8.141

1 Three major routes pass through the island chain, from the coastal passage E of The Grenadines, as follows:
North Mayreau Channel (12°40′N 61°20′W) (8.150).

2 South Mayreau Channel (12°36′N 61°23′W) (8.152).
Martinique Channel (12°34′N 61°24′W) (8.154).

Topography

8.142

1 General topography for each island is given as follows:
Canouan at 8.93.
Mayreau and the Tobago Cays at 8.94.
Union Island at 8.95.
Carriacou at 8.96.

Depths

8.143

1 The coastal bank (8.85) extends up to 10 miles E from Canouan, reducing in width to 6½ miles E of Carriacou. There are charted depths of 25·5 m near the outer edge of the bank at the N end, reducing to 20 m at the S end. Isolated patches on the bank, E of the island chain, have a charted depth of 16·2 m in positions 12°28′N 61°21′W and 12°33′N 61°18′W.

Natural conditions

8.144

1 **Flow.** General information (8.8 and 8.87).
Local weather. General remarks (8.6).

Principal marks

8.145

1 **Landmarks:**
The Peak (12°44′N 61°19′W), the highest peak in Canouan.
Taffia Hill (12°42′N 61°21′W) on the SW side of Canouan.

2 Sail Rock (12°37′N 61°16′W) (8.146).
Mount Taboi (12°36′N 61°27′W), the highest peak in Union Island.
Petite (Little) Martinique (12°31′N 61°23′W).

Directions

(continued from 8.102)

Canouan Island to Sail Rock

8.146

1 From a position E of Petit Canouan Island (12°48′N 61°17′W the track leads SSW passing (with positions from Sail Rock (12°37′N 61°16′W)):
ESE of Dejeu or Big Point (6½ miles NNW), the E extremity of Canouan which is steep–to. Grand Cois Reef extends 1¼ miles SSW from the point. Thence:

2 ESE of reefs (6 miles NW) extending 7 cables E from Friendship Point from which Jim Hill rises, thence:
ESE of Sail Rock lying within the edge of the bank on which The Grenadines lie. It is steep–to and surounded by shoals with depths of 14·6 to 19·2 m over them.

(Directions continue for North Mayreau Channel at 8.151, for South Mayreau Channel at 8.153, and for Martinique Channel at 8.155)

Sail Rock to Large Island

8.147

1 From a position ESE of Sail Rock the track continues SSW passing (with positions from the peak of Petite Martinique (12°31′N 61°23′W):

2 ESE of Worlds End Reef (7 miles NNE) which dries in places and is the outermost danger of those extending ESE from Mayreau. A bank with depths of less than 10 m over it, extends 5 cables E from the E side of the reef. Thence:
ESE of the reef extending 4 to 6 cables E from Petit (Little) Saint Vincent (85 m high) (1 mile N) which is wooded. Thence:

3 ESE of the reef extending 4 to 6 cables E from Petite (Little) Martinique (8.145). Several banks, with depths of 7·9 to 10·0 m extend about 3 miles SSW from the island. Thence:
ESE of the reefs (3½ miles SSW) (8.157) lying up to 1¼ miles off the E coast of Carriacou.

4 From this position the track continues SSW for about 5 miles to a position ESE of Large Island (12°24′N 61°29′W).

Useful marks

8.148

1 Radio mast (red and white framework tower, about 36·6 m in height) (12°36′N 61°26′W) situated close E of Ashton, in Union Island. The mast is conspicuous but is visible only between 305° through N to 052° and from 180° to 207°.
Radio mast (elevation of 279 m) (12°28′N 61°27′W), the position of which is approximate, standing 1¼ miles WNW of Kendeace Point in Carriacou.

(Directions continue for passage between Carriacou and Grenada at 8.179, and for passage SE of Grenada at 8.232)

Side channels

Routes leading west

8.149

1 From the vicinity of Sail Rock (12°37′N 61°16′W) the widest and best passage leading W through the island chain is Martinique Channel (8.154).

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An alternative route passes through South Mayreau Channel (8.152).

For a more N direction North Mayreau Channel (8.150) may be taken but it is obstructed by Channel Rocks (8.150).

North Mayreau Channel

8.150

1 **Route.** North Mayreau Channel (12°40′N 61°20′W) passes between Canouan and Mayreau, with a width of 6 cables and a least charted depth of 20·1 m (12°40′N 61°19′W) in the fairway between the coastal bank and the bank surrounding Channel Rock (Rocks).

It is recommended that the passage N of Channel Rock should be taken in preference to that S of it.

2 **Flow.** In the channel the NW–going flow attains a rate of 2 to 2½ kn and the SE–going flow of 1 to 1½ kn.

Tidal stream. The rate and direction of the tidal stream close N of Channel Rock is shown on Chart 794.

Current sets strongly on to Worlds End Reef.

Principal marks:

Taffia Hill (12°42′N 61°21′W) (8.145).

Catholic Island (12°40′N 61°24′W) (8.199).

8.151

1 **Directions** *(continued from 8.146)* From the vicinity of Sail Rock (12°37′N 61°16′W) the route through North Mayreau Channel leads NW, passing (with positions from Channel Rock (12°40′N 61°21′W)):

NE of a bank (3¼ miles SE) with a depth of 8·5 m over it, extending NE from Worlds End Reef (8.147), thence:

2 NE of a detached shoal (2¼ miles SE) with a depth of 10·7 m over it, lying about 8 cables N of Worlds End Reef, thence:

NE of a bank (1½ miles SSE) with a least depth of 3·4 m over it and a drying reef near its W end, which extends 5 cables NE from Horseshoe Reef (8.211), thence:

3 SW of a bank (2 miles E) with depths of 10·7 m over it extending 1½ miles SE from Friendship Point (8.146) thence:

Between a detached shoal (6 cables SE) with a depth of 8·8 m over it and a bank with depths of 9·8 m over it, thence:

NE of Break Rock (awash) (5 cables SW), thence:

4 NE of Channel Rock which is flat and steep–to, thence:

SW of Canouan Baleine (1¼ miles N), an isolated rock 16 m high situated 1½ cables S of L'Islot (Dove Cay), thence:

NE of Mayreau Baline (1½ miles WSW), a group of coral reefs, rocks and a sandy islet, lying in the N part of Northern Channel in Tobago Cays.

(Directions for passage W of The Grenadines are given at 8.200)

South Mayreau Channel

8.152

1 **Route.** South Mayreau Channel (12°36′N 61°23′W) passes between Mayreau and Union Island, with a width of 6 cables and a least charted depth of 18 m (12°35′N 61°21′W) between the coastal banks and isolated shoals.

Flow. General remarks (8.87).

Current sets strongly on to Worlds End Reef.

Tidal streams are shown on Chart 794.

8.153

1 **Directions** *(continued from 8.146)* From a position S of Sail Rock (12°37′N 61°16′W) the route through South Mayreau Channel leads WNW, passing (with positions from NE end of Union Island Airport (12°36′N 61°25′W)):

SSW of Chelsea Bank, (4 miles E) lying about 5 cables S of Worlds End Reef (8.147), thence:

2 SSW of Long Bank, (2½ miles ENE) lying about 5 cables S of Horseshoe Reef (8.211), thence:

NNE of a bank with depths of 10·4 m over it (1½ miles E) extending 6 cables NNE from Palm (Prune) Island (45 m high) surrounded by reefs extending up to 4 cables offshore, except on the W side. Thence:

3 SSW of Tanlow Bank with a least depth of 10·1 m over it (1¾ miles ENE), thence:

NNE of a bank with depths of 7·9 m over it (6 cables NE) extending NNW from Palm Island, thence:

SSW of Monkey Point (1¾ miles NNE), the SW extremity of Mayreau, thence:

4 NNE of Sand Cay (dries 0·3 m) (1½ miles WNW) lying in the middle of Richmond Bay. This cay is connected with the NE extremity of Union Island by a bank with depths of 7·3 to 9·1 m over it. Thence:

NNE of Bloody Head (2 miles WNW) the NE extremity of Union Island.

(Directions for passage W of The Grenadines are given at 8.200)

Martinique Channel

8.154

1 **Description.** Martinique Channel (12°34′N 61°24′W) passes between Union Island and Carriacou with general depths of 20 to 35 m in the fairway, which is not less than 1 mile wide and is clear of dangers. Isolated shoals, charted in the approach, have a least depth of 16 m over them (12°33′N 61°19′W).

2 This channel should be used in preference to those between Carriacou and Petite Martinique, described at 8.156.

Flow. The rate and direction of the tidal stream in mid–channel and off Gun (Rapid) Point are shown on Chart 794.

3 **Principal marks:**

Radio mast (12°36′N 61°26′W) (8.148).

Petite Martinique (12°31′N 61°23′W) (8.145).

8.155

1 **Directions.** (*continued from 8.146).* From a position S of Sail Rock (12°37′N 61°16′W) the route through Martinique Channel leads W, passing (with positions from Miss Irene Point Light (12°36′N 61°28′W):

N of a reef which dries in patches (5 miles ESE) extending 4 to 6 cables from the N and E sides of Petit Saint Vincent (8.147), thence:

2 S of a reef (4 miles E) extending 4 cables S from Palm Island (8.153), thence:

N of the reef surrounding Mopion (4¾ miles SE) a cay, which is reported to be growing and shifting, at the W end of the reef around Petit Saint Vincent, thence:

3 N of a detached shoal with a least depth of 7·6 m over it (4 miles SE) lying 5 cables NW of Punaise, which was reported in 1984 to be no longer visible, and:

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S of a bank with charted depths of 9·1 m over it (3 miles ESE) extending 3 cables S from Grande de Coi (8.164), thence:

4 N of an isolated shoal with a depth of 11 m over it (2½ miles SE) lying 1¼ miles N of Gun (Rapid) Point, the N extremity of Carriacou, and:

S of Frigate Island (1½ miles ESE) (8.169), thence:

5 N of an isolated patch with a least depth of 8·8 m over it (3 miles S) lying 1¼ miles WNW of Gun Point. Jack Adan Light (3 miles S) is obscured over this patch. Thence:

S of Miss Irene Point (8.201).

(Directions for passage W of The Grenadines are given at 8.200)

Chart 795 with plan of Watering Bay and Approaches

Inshore channel east of Carriacou

8.156

1 **Description.** The inshore channel (12°31′N 61°25′W) E of Carriacou passes between Carriacou and Petite Martinique. The fairway of the channel between the fringing reefs and banks is about 3 cables wide with depths of 11 to 22 m in it.

2 **Flow.** The rate and direction of the tidal stream in the channel and to the S of Petite Martinique are shown on the chart. The times of change and the rates of the flow are greatly affected by the strength of the currents, which have been found to be N–going and W–going with rates of ½ to 1½ knots. The NW–going tidal stream combined with the current, at times, attains a rate of flow of 3 kn.

3 **Principal mark:**

Petite Martinique (12°31′N 61°23′W) (8.145).

8.157

1 **Directions.** From the vicinity of 12°32′N 61°26′W (7 cables N of Gun Point) the inshore route E of Carriacou leads E then SSE passing (with positions from the peak of Petite Martinique (12°31′N 61°23′W):

S of a detached shoal, with a least depth of 7·6 m over it (2½ miles NW) (8.155), thence:

2 NE of shoals with depths of 7·0 to 7·9 m over their outer edges (2¾ miles WNW) extending about 6 cables from the NE coast of Carriacou and ENE from Gun Point, thence:

WSW of a bank with a depth of 3·7 m (1¾ miles NW) extending about 8 cables S from Punaise (8.155), thence:

3 ENE of the reef (2 miles W) which fringes the E coast of Carriacou, lying from 2 cables to 1¼ miles offshore, extending 3¾ miles S to a position off Kendeace Point, thence:

WSW of a detached shoal with a least depth of 7·9 m over it (1¼ miles WNW) lying 5 cables NW of Fota (22 m high), thence:

4 WSW of a bank with a least depth of 5·2 m (1¼ miles W) extending 4 cables WNW from Petite Dominique, thence:

WSW of a rock with a depth of 2·4 m over it (1½ miles WSW) lying on a detached bank which liess 3 cables SSW of Petite Dominique.

8.158

1 **Approaching from the south**, the recommended track lies closer to the reef off Carriacou, to clear the rock (8.157) until Fota bears 030° and is open NW of Petite Dominique.

Clifton Harbour and approaches

Chart 794 plan Clifton Harbour

General information

8.159

1 **Description.** Clifton Harbour (12°36′N 61°25′W) lies in a bay on the SE side of Union Island (8.95). It is protected on its E side by Thompson Reef (8.162).

Clifton is the principal settlement in Union Island and is the port of entry for those islands of The Grenadines lying to the N.

2 **Approach** to the harbour may be made from the N, through South Mayreau Channel (8.152) and a narrow channel between Union Island and Palm Island; or from the S, through Martinique Channel (8.154).

Limiting conditions

8.160

1 **Charted depths:**

In the N approach channel 9·8 m (12°37′N 61°24′W).

In the S approach channel 10·4 m (12°35′N 61°25′W).

2 **Deepest and longest berth** is the concrete jetty (8.166).

Mean tidal levels:

MHHW 0·8 m.

MLLW 0·5 m.

Harbour

8.161

1 Formed by a natural bay between the coast and Thompson Reef to the E. Copper (Roundabout) Reef lies in the middle of the bay.

Current in the approach is predominantly NW but varies with the weather.

2 **Landmarks:**

Palm Island (12°35′N 61°24′W) (8.153).

Radio mast (12°36′N 61°26′W) (8.148).

A large white house standing on the S entrance point of Clifton Harbour.

Directions for entering harbour

8.162

1 Approach from north may be made through a channel between Thompson Reef and the reefs and shoals surrounding Palm Island and Grand de Coi (8.164) with a width of about 3 cables and depths of 10·6 to 26·5 m in the fairway.

2 The route leads generally S, in mid–channel passing, (with positions from Clifton harbour front leading light (12°36′N 61°25′W)):

W of a bank with depths of less than 9·1 m over it (1 mile ENE), extending 1 mile N from Palm Island, thence:

E of the E end of the airport extension (8.153), thence:

3 E of Thompson Reef (extending 6 cables S from the airport extension), composed of coral with depths of less than 0·9 m over it. The reef rises abruptly from deep water and is usually marked by breakers. Thompson Islet, reported as being named Green Island, (5 m high) (4 cables E) is covered with scrub and stands in the middle of Thompson Reef. Thence:

4 E of a light–beacon (starboard hand) (6½ cables ESE) marking the SE extremity of Thompson Reef.

8.163

1 From a position SE of Thompson Reef (which is reported as easy to see) the track alters to the W, passing:

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N of a buoy (red can) (9 cables SE) marking a patch, with a depth of 5·8 m over it, at the outer end of a bank extending generally W from Palm Island. In 1994 the buoy was reported to be missing. Thence:

2 S of the SW extremity of Thompson Reef, marked by a light–beacon (starboard hand), thence:

N of a detached shoal with a depth of 7·2 m over it (7 cables SE), lying 1½ cables N of Grand de Coi (8.164).

8.164

1 **Approach from south.** From the vicinity of 12°35′N 61°25′W the approach route leads generally NE in mid–channel, passing (with positions from Clifton harbour front leading light):

SE of an isolated patch with a depth of 8·8 m over it (6 cables SSW), lying close to the coastal reef, and:

2 NW of a light–beacon (W cardinal) (8 cables SSE) marking the W side of Grande de Coi, a drying reef over which it is reported the sea does not always break (0·3 m), with a ruined iron framework structure (0·9 m in height) near its SE edge. In 2003 the ruined structure was reported as no longer visible.

3 The channel passing E of Grande de Coi has depths of less than 5 m in the fairway.

Clearing Marks are reported to be visible as follows:

The alignment (023°) of Glossy Hill (12°42′N 61°21′W (8.200) with the E extremity of Mayreau (4¼ miles SSW) passes close E of Grande de Coi but over the patch with a depth of 5·8 m (8.163).

8.165

1 **Entrance channel.** From the vicinity of 12°35′N 61°25′W the route leads NNW.

Leading lights:

Front light (white concrete tower, elevation 4 m) standing on the head of the concrete jetty in the NW corner of the harbour.

2 Rear light (white concrete tower, elevation 38 m) (3 cables from the front light).

The alignment (327½°) of these lights leads into the entrance of the harbour, passing (with positions from the front light):

SW of the SW extremity of Copper (Roundabout) Reef (3 cables SE) and:

3 NE of the shoal ground extending E from Petit Bay (3 cables SSE), with depths of 7 m close SW of the leading line. Thence:

SW of a light–beacon (starboard hand) (2½ cables SE) and:

NE of a light–beacon (port hand) (2½ cables S).

8.166

1 **Secure anchorage** is available for coasters in the N part of the harbour in depths of 5 to 12 m, sand. Local knowledge is required.

2 **Alongside berth** is available at the head of a concrete jetty 49 m in length, with a depth of 4·9 m alongside, situated near the Customs House in the NW corner of the harbour.

There is one other jetty.

8.167

1 **Anchorage** off Ashton (8.169) may be used by vessels wishing to communicate with Clifton.

Port services

8.168

1 **Supplies.** Limited quantities of water and provisions are available, including fresh fish.

Fuel is not available.

Anchorages and harbours

Chart 794 with plan Union Harbour

Ashton Harbour

8.169

1 **Description.** Ashton Harbour (12°35′N 61°26′W), situated 1¼ miles WSW of Clifton, in a bay N of Frigate Island, is encumbered with shallow flats. Frigate Island, 5 cables ESE of Queensberry Point (the S extremity of Union Island) is connected by a chain of reefs to Petit Bay at Clifton.

Ashton is a large settlement at the head of the harbour.

2 **Temporary anchorage** may be obtained SW of Frigate Island in depths of 9 to 15 m by vessels wishing to communicate with Ashton or Clifton. This anchorage is recommended for short periods only.

Chart 795 plan Watering Bay and Approaches

Petite Martinique

8.170

1 **Description.** Good anchorage can be obtained in the vicinity of 12°32′N 61°24′W, as shown on the chart, between Petite Martinique (8.145) and the cays about 1½ miles NNW. A dangerous wreck is reported to lie 2½ cables NW of the N point of the island.

Directions

8.171

1 **Deep water approach**, with a least charted depth of 16·1 m (12°32′N 61°25′W)) leads from the inshore channel (8.156) E of Carriacou. From the vicinity of 12°31′N 61°25′W the approach route leads ENE, passing (with positions from the peak of Petite Martinique (12°31′N 61°23′W):

2 NNW of a bank (1½ miles WNW) extending about 6 cables NW from Fota (8.157), thence:

SSE of a bank (1¾ miles NW) extending about 8 cables S from Punaise (8.155), thence:

NNW of Ba Congo, a shoal with a depth of 3·4 m over it (9 cables WNW), lying about 3 cables NNW of Point Mion.

Anchorage

8.172

1 Good anchorage in depths from 9 to 22 m on fine sand and coral is available. The area is protected by Petite Martinique, to the SE, and by Petit Saint Vincent Island and the cays and a reef lying off the island, to the E and N.

CHANNELS BETWEEN CARRIACOU AND GRENADA

General information

Chart 795

Routes

8.173

1 There are three main channels between Carriacou and Grenada which are deep, clear of dangers and easy to identify.

2 **Northern channel.** From the vicinity of 12°21′N 61°20′W the northern channel, with a minimum width of

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4 miles, leads between the islands and rocks extending 3 miles S from Carriacou and the island group, centred on Ronde Island (Isle de Ronde), 6 miles N of Grenada, passing over the coastal bank for about 13 miles to deep water off the W side of the bank.

3 **Centre channel**, with a minimum width of 1 mile, leads between the island group (northern channel) and isolated dangers lying 2½ miles N of Grenada.

Southern channel, with a minimum width of 6 cables, leads between the N coast of Grenada and the isolated dangers of the centre channel.

Topography

8.174

1 General topography for the main islands is given as follows:

Carriacou at 8.96.

Grenada at 8.223.

The passage between Carriacou and Grenada is encumbered with rocks and islands, the largest of which is Ronde Island (Isle de Ronde) (12°18′N 61°35′W) lying in the centre of a group of small islands.

2 The S coast of Carriacou is bordered by a shoal bank extending 2 to 6 cables offshore and is fringed with reefs at its W end.

Depths

8.175

1 The coastal bank (8.85) has minimum charted depths in the channels, as follows:

Northern channel 38 m (12°20′N 61°34′W).

Centre channel 27 m (12°17′N 61°36′W).

Southern channel 23·5 m (12°14′N 61°36′W).

Submarine volcano

8.176

1 **Exclusion zone.** A permanent exclusion zone, radius 8·1 cables has been established around Kick 'em Jenny (12°18′N 61°38′W), a submerged volcano with a depth of 178 m over it.

An outer exclusion, radius 2·7 miles, may be established by local authorities at times of increased or dangerous volcanic activity, and promulgated by navigation warnings.

2 The mariner is warned that Kick'em Jenny Volcano has been in continuous low level activity since 1939, but volcanic activity is not visible nor audible until it is in full eruption, which may occur with little or no warning. It is dangerous, therefore, to enter the exclusion zones.

Natural conditions

8.177

1 **Flow.** General information on flow is given at 8.8 and 8.87. The flow attains a considerable rate in the following areas:

Channels in the vicinity of Bonaparte Rocks (12°23′N 61°30′W) (8.179).

2 Channel (8.185) between Les Tantes and Ronde Island (12°18′N 61°35′W).

Local weather. General remarks (8.6).

Principal marks

8.178

1 **Landmarks:**

Radio mast (12°28′N 61°27′W) (8.148).

Conspicuous chimney (6 cables SW of the radio mast) at the disused lime factory in Dumfries.

Diamond Island, or Kick 'em Jenny Rock, (12°20′N 61°35′W) which rises steeply to its peak.

Directions

(continued from 8.148)

Northern channel

8.179

1 From the vicinity of 12°21′N 61°20′W the route between Carriacou and Ronde Island leads W for about 14 miles, passing (with positions from the summit of Large Island (12°24′N 61°30′W)):

S of a shoal with a charted depth of 20·1 m (7½ miles E) lying along and close–to the E edge of the coastal bank (8.85), thence:

2 S of a shoal patch with a charted depth of 10·4 m (4½ miles NE) lying on a bank 6 cables S of Kendeace Point, the SE extremity of Carriacou, thence:

S of Rose Rock (7 cables E) situated 3 cables S of Frigate Island, thence:

3 S of Large Island, thence:

S of Bonaparte Rocks (1 mile SSW); the S rock is 6 m high and the largest rock (in the N group) is 12 m high. There are depths of about 20 m in the channel between the two groups but it is dangerous and should not be used. Both groups of rocks should be given a wide berth. Thence:

S of an isolated shoal with a depth of 4·6 m (15 ft) over it (1½ miles SW), thence:

4 N of Dry Rock (above–water) (6 miles SSW) near the NE extremity of the bank surrounding Les Tantes, the SW and largest of which is 82 m high. There are no hidden dangers around Les Tantes, which may be passed close–to; however, it was reported in 1986 that volcanic activity had been seen on the N side of Les Tantes in the vicinity of 12°19′N 61°32′W but the location has not been confirmed. Thence:

5 N of Diamond Island (7 miles SW) (8.178).

(Directions continue for passage NW of Grenada at 8.282)

Centre channel

8.180

1 From the vicinity of 12°16′N 61°26′W the route between Ronde Island and dangers lying N of Grenada, leads generally W for about 12 miles, passing (with positions from the S point of Caille Island (12°17′N 16°35′W):

N of a small coral patch, with a least depth of 14·6 m over it (1½ miles SSE), thence:

2 S of Caille Island (Isle de Caille) lying close S of Ronde Island (8.174), thence:

N of London Bridge (20 m high) (1¾ miles SSW) which is a rock with a hole in it. An above–water rock lies close to London Bridge. Thence:

3 S of a detached patch with a depth of 11·9 m over it (8 cables WNW), thence:

S of a shoal with a least depth of 7 m over it (2 miles WNW) lying 5 cables WSW of The Sisters (8.186), thence:

S of the exclusion zone around Kick'em Jenny Volcano (3¼ miles WNW) (8.176).

(Directions continue for passage NW of Grenada at 8.282)

Southern channel

8.181

1 From the vicinity of 12°15′N 61°26′W the route passing N of Grenada leads generally W for about 13 miles,

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passing (with positions from London Bridge (12°15′N 61°35′W):

N of Bird Island (3¾ miles SE) (8.232), thence:

S of a small coral patch, with a least depth of 14·6 m over it (1 mile E), thence:

2 N of Green Island, thence:

S of a bank, with depths of less than 12 m over it, extending about 5 cables S of London Bridge (8.180); two above–water rocks lie on the bank, thence:

3 N of Sugar Loaf (Levera Island) (1¾ miles SSW), thence:

N of foul ground (2 miles SW) extending as much as 4 cables from the N shore of Grenada, W of Sugar Loaf. The sea breaks in the vicinity during heavy weather.

(Direction continue for passage NW of Grenada at 8.282)

Side channels

Chart 795

Between Saline Island and Frigate Island

8.182

1 **Directions.** From the vicinity of 12°25′N 61°27′W, a channel, with a least width of 5 cables and depths of 21·5 to 42 m in the fairway leads W, passing (with positions from the S extremity of Saline Island (12°26′N 61°28′W)):

2 S of Saline Island which lies off the entrance to Manchineel Bay. It is reported that a kiln stands on the E end of the island. Thence:

N of rocks fringing the N extremity of Frigate Island (1 mile SW) (8.169); and of Dry Rock (0·9 m high) (2 cables NW of Frigate Island), thence:

S of White Island (6 cables WNW).

Between Frigate Island and Large Island

8.183

1 **Description.** This channel passing N of Frigate Island (12°25′N 61°29′W) (8.169) is clear of dangers. Strong currents are reported around Frigate Island.

Ronde Island

8.184

1 **North side.** A least depth of 11·9 m exists in the channel between Ronde Island and Diamond Island (4 cables N) (8.178). The fairway has a width of about 4 cables, passing N of the reefs which fringe the N end of Ronde Island and extend across the bay on its N side. In the middle of the channel is a deep hole in which there is a depth of 71 m. See 8.177 for water flow.

8.185

1 **East side.** The channel between Ronde Island and Les Tantes (1¼ miles E) (8.179) is deep and clear of dangers in the fairway, passing E of the reef which extends across the bay on the E side of Ronde Island. See 8.177 for water flow.

8.186

1 **West side.** There are channels between Ronde Island and the E group of The Sisters (4 cables W), also between the E group and the W group (3 cables W).

8.187

1 **South side.** A narrow channel, with depths of 3·7 to 6·4 m in it, between Ronde Island and Caille Island (2 cables S) (8.180), in which seas break during strong winds.

Anchorages and harbours

Saline Island

8.188

1 **Description.** Good shelter exists in the channel, with depths of 5 to 14 m, between Saline Island (12°26′N 61°28′W) (8.182) and the narrow reef to the N of the Island. This reef connects White Island (2 cables W of Saline Island) (8.182) with Cassada Rocks (9 cables E of White Island.

2 **Tidal streams** run at 3 knots is this channel and there is likely to be a set towards White Island.

Local knowledge is necessary.

Mushroom Island

8.189

1 **Anchorage** exists in depths of 3 m, white sand, to the N of One Tree Rock (12°26′N 61°30′W). It lies inside the reef extending 7 cables NE from Little Mushroom Island which itself, lies 2 cables N of Mushroom Island (12°26′N 61°30′W). Atlantic swell tend to be broken by the coral heads on the reef.

Frigate Island

8.190

1 **Anchorage** is available for coasters off the W side of Frigate Island (12°25′N 61°29′W) (8.179) as shown on the chart. Narrow, rock encumbered, beaches limit available anchorages and restrict the anchorage area.

Large Island

8.191

1 **Anchorage** may be obtained in a depth of about 9 m in the bay on the NW side of Large Island (12°25′N 61°30′W) (8.179), about 1 cable offshore, clear of an above–water rock about 1 cable W of the W extremity of the island.

Les Tantes

8.192

1 **Anchorage** may be obtained on the W side of Les Tantes (12°19′N 61°33′W) (8.179) 1½ cables SW of the N islet, as shown on the chart.

Swell and current are problematic.

Ronde Island

8.193

1 **Anchorage** may be obtained by coasters in convenient depths off the W coast of Ronde Island (12°18′N 61°35′W) (8.174), N of a shallow spit extending N from the S part of the W side of the island, as shown on the chart. It is sheltered from North–east Trade Winds.

Caille Island

8.194

1 **Anchorage**, suitable for small vessels, is available under the lee of Caille Island (12°17′N 61°35′W) (8.180) protected from North–east Trade Winds.

THE GRENADINES — WEST SIDE

General information

Charts 794, 795, 597

Route

8.195

1 From a position NNW of Canouan (12°43′N 61°20′W) the route leads SSW for about 29 miles to a position WNW of Ronde Island (12°18′N 61°39′W).

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Topography

8.196

1 General topography for each island is given as follows:
Canouan at 8.93.
Mayreau and the Tobago Cays at 8.94.
Union Island at 8.95.
Carriacou at 8.96.

Depths

8.197

1 The coastal bank (8.85) extends up to 5 miles W from Canouan, reducing in width to 3 miles W of Carriacou. Depths generally increase with distance from the coast and the outer edge of the bank is generally steep–to.

Natural conditions

8.198

1 **Flow.** General information (8.8 and 8.87).
Overfalls. See 8.134 for details of confused sea conditions off the NW extremity of Canouan.
Local weather General remarks (8.6).

Principal marks

8.199

1 **Landmarks:**
The Peak (12°44′N 61°19′W) (8.145).
Taffia Hill (12°42′N 61°21′W) (8.145).
Catholic Island (41 m high) (12°40′N 61°24′W). Catholic Island Light (white metal framework tower 3 m in height) stands on the summit.
Mount Taboi (12°36′N 61°27′W) (8.145).

Directions

(continued from 8.110, 8.124 and 8.136)

Canouan to Union Island

8.200

1 From a position NNW of Canouan (12°43′N 61°20′W) the track leads SSW passing (with positions from Catholic Island Light (8.199)):

2 WNW of a detached shoal (reported 2005) with a least depth of 5·8 m over it (6 miles NE) which is situated 6½ cables WNW of Point Jupiter or Jupiter Head, steep–to. This shoal creates a heavy swell in its vicinity and it is possible that there may be less water over it than charted. Thence:

3 WNW of Glossy Hill (4 miles NE) the W extremity of Canouan, which is steep–to and reported to appear detached when viewed from the S, thence:
WNW of the W entrance to North Mayreau Channel (2 miles NE) (8.150), thence:

4 WNW of a detached coral patch with a least depth of 6·7 m over it (7 cables W), lying on a bank extending 4 cables WNW from Catholic Rocks which comprise Ellen Rock, which stands 2 cables NNE of Pelican Cay; thence:
NW of the W entrance to South Mayreau Channel (3 miles SW) (8.152).

Union Island to Carriacou

8.201

1 From this position the track continues SSW passing (with positions from Jack Adan Light (12°30′N 61°28′W)):

2 WNW of Miss Irene Point (6 miles N), the SW extremity of Union Island. Miss Irene Point Light (white framework tower 6 m in height) stands on the point. Thence:

3 WNW of the W entrance to Martinique Channel (4 miles N) (8.154), thence:
WNW of an isolated patch with a least depth of 8·8 m over it (3 miles N), thence:

4 WNW of Jack Adan Island lying on the W edge of a small shoal, with depths of 4 m over it, on the edge of the coastal bank. Jack Adan light is occasionally exhibited, at an elevation of 4 m, from a small white structure on the SE end of the island, which was reported in 1985 as not easily seen from a distance. This light is also reported to be totally obscured from the N by tall trees. Thence:

5 WNW of Mabouya Island (1½ miles WSW) (8.216), thence:
WNW of a light–beacon (W cardinal) marking Sister Rocks (2¾ miles WSW), situated close together on a shoal which extends about 1 cable SE from them, thence:

6 WNW of Southwest Point (4 miles SSW), the SW extremity of Carriacou, from which above–water rocks extend about 1½ cables S. Thence:
WNW of Large Island (5½ miles SSW) lying contiguously with Frigate Island.

7 From this position the track contrinues SSW for about 7 miles to a position WNW of Ronde Island (12°18′N 61°39′W).

Useful marks

8.202

1 Radio mast (12°36′N 61°26′W) (8.148).
Radio mast (12°28′N 61°27′W) (8.148).

(Directions continue for passage NW of Grenada at 8.282.Directions for North Mayreau Channel are given at 8.151, for South Mayreau Channel at 8.153, for Martinique Channel at 8.155, and for passage between Carriacou and Grenada at 8.179)

Anchorages and harbours

Charts 793 with plan of Charlestown Bay, 794

Charlestown Bay

8.203

1 **General information.** Charlestown Bay is contained between the headlands of L'ance Guyac Point (12°44′N 61°20′W) and Glossy Hill, 1½ mile SW. Lying on the W side of Canouan Island it provides safe anchorage for all types of vessels. Charlestown, the principal settlement, stands on the SE shore of the bay.

2 **Topography.** The E side of Charlestown Bay, fronted by tree covered hills, is divided into Rameau Bay in the N part and Grand Bay in the SE part. Grand Bay is entered between White Rock and Bachelor's Hill Point 6½ cables SW. West of Bachelor's Hill Point a curving spit of low–lying land extends W to Glossy Hill. North Glossy Bay, Taffia Bay and Nen's Bay are contained within the curvature of this spit and are encumbered with coral heads. The airport runway has been extended WNW into Taffia Bay.

Local weather. Gale force squalls may funnel down the valley from the N making this an uncomfortable anchorage.

Development. Mooring facilities for leisure craft including a protective breakwater are proposed on the foreshore immediately in front of the hotel in Grand Bay.

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3 **Landmark:**
White Rock (4 m high) (6½ cables NE of Bachelor's Hall Point) which stands ½ cable offshore and is covered with guano.

Light:

4 Aero obstruction lights on the peaks of Taffia Hill and Glossy Hill and on the point 1 cable N of Glossy Hill.

Navigation aids in Charlestown Bay should not be relied upon.

Directions for entering harbour

8.204

1 **Directions.** From a position on the coastal route WNW of Jupiter Head (12°45′N 61°20′W) the track leads SE for about 6 miles directly into the bay.

Leading lights:

Front light (white concrete tower, elevation 5 m) (12°42′N 61°20′W), standing on the HW line.

2 Rear light (white concrete tower, elevation 50 m) (2½ cables from the front light), standing on a hillside.

The alignment (158½°) of these lights leads into the inner anchorage, passing (with positions from the front light):

3 WSW of detached coral heads, marked by a light–beacon (port hand), with a depth of less than 1·8 m over them (7 cables N) which lie to the NW of a prominent rock (8.203), thence:

Clear of buoy (starboard hand) (4 cables NNW), position approximate, lying on the leading line, thence:

4 ENE of detached coral heads, marked by a light–beacon (starboard hand), with depths of 1 to 1·7 m over them (3 cables NW) extending up to 2 cables E from Bachelor's Hall Point.

5 **Anchorages.** Large vessels may anchor off Charlestown Bay in a depth of about 31 m on sand, with the NE extremity of the island bearing 015° and the SW extremity bearing 228°.

Smaller vessels may be anchored closer in, but, within a depth of 30 m, the depth decreases rapidly.

6 In 1973 HMY *Britannia* (4961 tonnes) anchored with The Peak (8.145) bearing 061°, 1¾ miles.

Charles Bay

8.205

1 **Charles Bay**, in the NE corner of Grand Bay, can be approached along a leading line, from the vicinity of the centre of Grand Bay.

Leading lights:

Front light (black and white daymark on a white framework tower, 9 m in height) (12°43′N 61°20′W) standing near the Fisheries Building.

2 Rear light (black and white daymark on a white framework tower 3 m in height) 1½ cables from the front light.

The alignment (060°) of these lights leads into Charles Bay, passing:

SSE of a light–beacon (port hand) (8.204), thence:
Close SSE of the prominent rock (8.203).

Berths

8.206

1 Retreat Pier (2 cables SSE of Bachelor's Hall Point) is a wooden structure 61 m in length, with a depth of 0·9 m alongside its head. A second pier, 200 m in length and used by ferries, is situated 2¼ cables farther E. Lights are exhibited from both pierheads.

Two further piers (not charted) for boats are reported (2003) to lie between ferry pier and the hotel, 2 cables ENE.

Side channels

Chart 794 with plan of Tobago Cays

South–east of Catholic Island

8.207

1 **Description.** The channel between Catholic Island (12°40′N 61°24′W) (8.199) and the NW coast of Mayreau (8.94) is clear of dangers, with depths of about 9 m in the fairway. It is convenient for vessels of suitable draught bound from the N to an anchorage W of Mayreau.

2 **Directions.** The route through the channel leads SW, passing (with positions from Catholic Island):

SE of Jondell, a rock 2·4 m (4 cables E), and of a rock 1·2 m high 4 cables ESE), both of which lie on a shallow bank extending nearly 5 cables E from Catholic Island. A light–beacon (E Cardinal) marks the SE corner of the bank. Thence:

3 NW of Mount Carbuit (1 mile SE) the N extremity of Mayreau, thence:

NW of Nord d'Ouest (1 mile SSE) the NW extremity of Mayreau, thence:

SE of a shallow bank (5 cables WSW) extending 1 cable SE from Catholic Rocks (8.200).

South–west of Catholic Island

8.208

1 The narrow channel between Catholic Island (12°40′N 61°24′W) (8.199) and the shallow bank (4 cables SW) surrounding Catholic Rocks (8.200) has a depth of 8·8 m in the fairway.

Anchorages and harbours

Mayreau

8.209

1 **Description.** Good anchorage in a depth of 11 to 13 m may be obtained on a bank (12°39′N 61°24′W) which extends about 6 cables from the W side of Mayreau. A wreck, with a charted depth 3·4 m, lies 1 cable N of the W extremity of a rocky ledge extending over 2 cables SW from Grand Col Point (12°38′N 61°24′W).

2 **Clearing bearing.** The line of bearing, 045°, of the NW extremity of Mayreau clears NW of the rocky ledge. This bearing also clears NW of the charted position of the wreck.

Saline Bay

8.210

1 **Description.** Saline Bay (12°38′N 61°24′W) is situated on the SW side of Mayreau, sheltered from the swell which sweeps around the SW end of the island.

Flow. Between the months of September and April, the likely flow in the approach to Saline Bay is as follows:

2 To the N if the North–east Trade Wind is blowing at 15 kn or more.

To the S if the wind is blowing less than 15 kn. The rate of the S flow increases as the wind reduces.

Directions. From a position 1 mile WSW of Monkey Point (12°38′N 61°24′W), the alignment (055½°) of the following marks leads into the bay:

3 Front mark. A rectangular orange board (5 cables NNE of Monkey Point).

Rear mark. The NW corner of a yellow–white building with conspicuous arched windows,

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(1½ cables NE of the front mark) situated to the right of the general settlement.

4 **Anchorage**. The preferred anchorage position is 2¾ cables SSW of Grand Col Point (12°38′N 61°24′W), clear of a rock, with a depth of 3·7 m over it, lying close S of the rocky spit extending WSW from Grand Col Point (8.209). Anchor bearings are as follows:

The alignment (025°) of Grand Col Point with Nord d'Ouest Point (7 cables NNE).

5 The alignment (095°) of the N end of Jamesby (12°38′N 61°22′W) with Sail Rock (5¾ miles E) (8.146).

Cruise ships, up to 20 000 tonnes, 169 m in length with a draught of 7·5 m, are reported to anchor in the bay, using both anchors, in a depth of 10 m with good holding on sand with some rock and coral.

6 **Coasters** can anchor closer inshore as shown on the chart.

Clearing bearing. It is reported that the alignment of the E extremity of Palm Island (12°35′N 61°24′W) (8.153) with Petit Saint Vincent (3 miles SSE) (8.147) clears SW of the reef.

7 **Landing.** Two jetties extend from the coast. The S jetty has a length of 40 m and is able to accommodate ship's boats.

Tobago Cays

General information

8.211

1 **Description.** Tobago Cays (12°38′N 61°22′W) (8.94) are four islets lying within the semicircle formed by Horseshoe Reef, which has a length of about 3 miles with two small sand cays (0·6 m high) near its S end, lying about 1½ miles E of Mayreau.

2 Between Mayreau and Horseshoe Reef there are many other reefs with narrow channels between them, the positions of which can best be seen on the chart.

Tidal stream predictions are given on the chart. It is reported that the tidal stream runs swiftly through the cays.

Directions

8.212

1 **Approach.** The recommended approach is from the NW.
Initial position: 12°40′N 61°24′W.

2 **Leading beacons:**

Front beacon (white framework tower with black and white daymark) (12°38′N 61°22′W) situated on the SW extremity of Petit Rameau, the N of the Tobago Cays.

3 Rear beacon (white framework tower with black and white daymark) (1½ cables SE of the front beacon) situated on the NE extremity of Petit Bateau the middle and highest of Tobago Cays.

The alignment (129°) of these beacons leads in the approach channel, which is about 5 cables wide with depths of 8·2 to 12·8 m in the fairway, passing (with positions from the front beacon):

4 NE of Catholic Island (2¾ miles WNW) (8.199), thence:

NE of the bank extending 2 cables NE from Jondell (2½ miles WNW) (8.207), thence:

SW of One Fathom Bank (with a least depth of 2·1 m over it) (1½ miles NW) lying close S of Mayreau Baline (8.151), thence:

5 Half a cable SW of an isolated shoal with a depth of 1·5 m over it (1¼ miles NW) reported in 1990 to lie close S of One Fathom Bank, thence:

NE of the coastal bank, with depths of less than 5 m (1¼ miles WNW) extending 2 cables NE from the coast of Mayreau, thence:

NE of an obstruction (9 cables WNW) reported 2004, position approximate.

Anchorages and harbours

Petit Rameau

8.213

1 Good anchorage may be obtained off the W side of Petit Rameau. It is protected by Horseshoe Reef which forms a breakwater.

Chart 794

Chatham Bay

8.214

1 **Description.** Anchorage exists in Chatham Bay (12°36′N 61°27′W) off the W coast of Union Island, in a depth of about 31 m, sand. Water Rock, a shoal with a depth of 2·4 m over it, lies in the middle of the bay, about 2½ cables offshore, close within depths of 20 m.

Smaller vessels may anchor closer to the coast, to the N of Water Rock, as shown on the chart.

Charts 795 with plan of Hillsborough Bay, 794

Hillsborough Bay

8.215

1 **Description.** Located at 12°29′N 61°28′W it is the principal anchorage off the island of Carriacou (8.96). The coast is bordered by a bank, with depths of less than 10 m, which extends as much as 7 cables offshore.

Hillsborough, which stands on the shores of the bay, is a first port of entry for Grenada (1.118) and has a small hospital.

2 **Principal marks**:

Radio mast (12°28′N 61°27′W) (8.148).

Church (Green roof) (12°29′N 61°28′W) standing half way up the knoll behind the village, is dilapidated but easily identified.

Directions for entering harbour

8.216

1 From the vicinity of 12°30′N 61°29′W, the line of bearing (133°) of the Church (8.215) leads towards the anchorage. It is reported that the line of bearing (138°) on the radio mast (8.148) also leads clear of all dangers. Both tracks, which are quite close together, lead into the bay, passing (with positions from Jack Adan Light (12°30′N 61°28′W):

2 NE of Mabouya Island (1½ miles WSW), thence:

NE of the shoal surrounding Sandy Island (1 mile SW) on which stand some trees, the tops of which had an elevation of 4·6 m in 1970. The E extremity of the shoal is marked by a light–beacon (starboard hand). Thence:

3 SW of Jack Adan (8.201) and the shoal extending 2 cables SE, thence:

NE of a detached shoal with a depth of 6·7 m over it (6 cables SSW).

Anchorages

8.217

1 **Anchorage** may be obtained in a depth of 26 m, on fine sand, with the Church (8.215) bearing 133° and the S side of Sandy Island (8.216) in line with the W side of the

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lower of Sister Rocks (8.201) bearing 253°, as shown on the chart.

2 HMS *Alacrity* (2750 tonnes) anchored with Jack Adan (8.201) bearing 002°, 3½ cables, in 1985.

HMS *Invincible* (16 256 tonnes) anchored with Jack Adan (8.201) bearing 095°, 6½ cables, in 1986.

3 **Smaller vessels** may approach closer to the beach.

Tyrrel Bay

Charts 794, 795

General information

8.218

1 **Description.** Tyrrel Bay (12°28′N 61°30′W), entered between a point 6½ cables S of Point Cistern and a point 1½ miles farther S, serves the Esso bulk installation at Harvey Vale.

Pilotage is compulsory for vessels of more than 200 grt. Pilots may be requested in advance from Grenada Ports Authority (8.296).

Anchorage

8.219

1 Anchorage is available, in depths of 9 to 27 m sand, in the N and outer part of the bay.

Berths

8.220

1 A T–shaped jetty (12°28′N 61°29′W), extending from the coast in the centre of Tyrrel Bay, is 82 m in length. It is reported that some silver tanks are situated at the head of the bay.

Facilities

8.221

1 Minor repairs and provisions.

GRENADA

GENERAL INFORMATION

Chart 797

Position

8.222

1 Grenada (12°05′N 61°40′W) is situated 75 miles N of Trinidad and 130 miles SW of Barbados. It is the S of the Windward Islands.

Topography

8.223

1 Grenada has a length of 18 miles and a width of 8 miles, with an area of 120 square miles. It rises from the coral bank on which The Grenadines lie (8.85).

2 The appearance of the land is that of a gradual rise from the coast to the mountains which form a ridge that runs like a spine down the length of the island. The highest peak is Mount Saint Catherine (4½ miles S of Tanga Langua (David Point) (8.283) the NW extremity of the island). Apart from a little limestone in the N, the island is wholly volcanic and, in its principal features, resembles the other volcanic islands of the West Indies.

3 Lakes have formed in the craters of three of the extinct volcanoes in the central ridge. The highest of these is Grand Etang (4 miles SSW of Mount Saint Catherine) which is 530 m above sea level. The mountains are cut by deep valleys with swift flowing streams which provide a plentiful supply of fresh water. These valleys are thickly wooded, with a green appearance throughout most of the year.

4 The coastline is rugged and the S coast is deeply indented, providing several natural inlets. There are many harbours around the coast and some sixty separate anchorages.

Saint George's Harbour, at the SW end of the island, is landlocked and forms the principal port.

Fishing

8.224

1 Extensive local fishing by seine, trolling, banking and drifting with hand lines, takes place around the island.

Natural conditions

8.225

1 **Weather**. The climate is tropical, uncomfortably hot and humid at times.

Rainfall is abundant, being heaviest in the mountains, greatly reduced at Saint George's and reduced yet again along the S coast.

A mild, dry season, lasts from January to May.

2 **Flow.** General information (8.8).

Buoyage

8.226

1 The IALA Maritime Buoyage System, Region B, is in use around the island.

GRENADA — SOUTH–EAST SIDE

General information

Charts 797, 597

Route

8.227

1 From a position ESE of Large Island (12°24′N 61°29′W) the route leads SSW for about 23 miles to a position ESE of Saint Pierre Point (12°03′N 61°38′W).

Topography

8.228

1 General topography (8.223).

The E coast of Grenada, from Bedford Point to Telescope Point, a small promontory (6 miles S), is sandy and bordered by a shoal bank extending up to 7 cables offshore, with detached rocks farther seaward.

Depths

8.229

1 The coastal bank, with charted depths of less than 50 m (12°07′N 61°31′W), extends 8 miles E from the NE end of the island, decreasing to 3 miles off the SE end.

Natural conditions

8.230

1 **Flow.** General information (8.8).

The West or North–west Equatorial Current is of high constancy for most of the year with mean rates of about

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1¼ kn from November to January and 1¾ to 2 kn during the summer months. Individual observations have exceeded 3 kn. On striking the E coast of Grenada the current divides, flowing N and SW along the coast, usually leaving an area immediately W of the island where scarcely any flow is felt.

2 Off Great Bacolet Point (12°05′N 61°37′W) (8.232) the E–going tidal stream is scarcely evident. In this vicinity the W–going current, combined with the W–going tidal stream, runs SW at a considerable rate for about 6 hours; for a further 2 hours it is weak; then slack water lasts for the remaining 4 hours. From May to December the E–going tidal stream is often overcome by the current.

8.231

1 **Sea state.** The whole of the E coast is exposed to the full force of the North–east Trade Wind and, during strong breezes, seas break everywhere in depths of less than 10 m.

Directions

(continued from 8.148)

8.232

1 From a position ESE of Large Island (12°24′N 61°29′W) the route leads SW passing (with positions from Telescope Point (12°07′N 61°36′W):

2 ESE of Bird Island (6 miles NNE), lying on a small bank with depths of 10 to 17 m over it, thence:
ESE of a shoal patch with a depth of 5·5 m over it (5 miles N), lying 1 mile NE of High Cliff Point, thence:

3 ESE of a detached coral bank with a least depth of 12·8 m over it (4 miles NNE), thence:
ESE of Black (Anthony) Rock (3 miles NNE) lying about 1 mile ENE of Ariste (Conference) Point, thence:

4 ESE of Pearls Rock (Conference Island) (1¾ miles NNE), thence:
ESE of Telescope Rock (6 cables E) which is steep–to, lying on a narrow detached bank with depths of 7·3 to 9·1 m extending 2½ miles NNE and SSW from the rock, thence:

5 ESE of an isolated shoal with a depth of 4·6 m over it (7 cables ESE). The charted position of this shoal is approximate but it is reported (1986) that the shoal has been confirmed by divers as the top of a cone rising from the seabed. Thence:
ESE of Great Bacolet Point (3 miles SSW).

6 From this position the track continues SSW for about 2 miles to a position ESE of Saint Pierre Point (5 miles SSW) (8.227).

Useful mark

8.233

1 Radio mast (12°10′N 61°40′W) standing about 5 cables ENE of Mount Saint Catherine.

(Directions continue for passage S of Grenada at 8.248)

Grenville Harbour

Chart 797 with plan of Grenville Harbour

General information

8.234

1 **Description.** Grenville Harbour (12°07′N 61°37′W) is suitable for coasters. It is the only port of entry on the E coast of Grenada and serves the town of Grenville, which is the second place of importance in Grenada.

It is reported that the outer reef provides shelter, whilst allowing the wind to cool the harbour.

2 **Pilotage** is compulsory for vessels over 150 grt; pilots can be requested in advance from Grenada Ports Authority (8.296).

8.235

1 **Navigation aids.** Buoys and beacons marking the channel to Grenville Harbour are frequently destroyed or moved out of position by bad weather and they should be treated as unreliable.

In 1993 it was reported that all the buoys had been replaced by beacons. Although the beacons were established close to the charted position of the buoys they replaced, their positions remain approximate.

2 Two sets of leading marks (uncharted) have been established by the Grenada Ports Authority to assist passage through the outer approach channel and the Luffing Channel. The marks are of orange rectangles with white stripes, supported on framework towers.

Extreme caution is advised and it is recommended that entry should be made prior to 1400, in order to reveal the reefs clear of the sun's glare.

Directions for entering the outer harbour

8.236

1 From the vicinity of 12°07′N 61°36′W the approach to Grenville Harbour leads through a channel (75 m wide) in the outer reef, passing (with positions from Pilot Hill (12°07′N 61°37′W) (8.235):

SSW of a light–buoy (starboard hand) (9 cables SE) marking the SE extremity of the outer reef, with depths of 2·7 m over it, which breaks in heavy weather, and:

2 NNE of the N edge of the outer reef, with a depths of 3 m over it (9 cables SE), which breaks in heavy weather, thence:
SSW of a light–buoy (starboard hand) (8 cables SE) marking the SW extremity of the outer reef with a depth of 2·4 m over it, thence:
NNE of Barrel of Beef, (6 cables SE) marked by a light–buoy (port–hand).

Directions for entering the inner harbour

8.237

1 **Luffing Channel,** width 45 m, was reported (1984) to be reduced in width by silting on the E side. A controlling depth of 3 m along the centre line leads N between the inner reefs, passing:

W of a beacon (4½ cables SE of Pilot Hill) marking the SW extremity of the reef extending S from the S coast.

2 Luffing Channel is buoyed, but see 8.235.

Anchorages

8.238

1 **Outer anchorage.** Shelter exists within the outer reefs, anchoring in depths of 6 to 20 m.

Inner anchorage. Smooth water exists within the inner reefs, with charted depths of 2 to 5 m. However, it was reported in 1984 that there was less water than charted in the basin fronting the town.

Berths

8.239

1 A pier on the W side of the inner harbour has depths of 3·6 m alongside its head.

The intention in 1989 was to construct a jetty 50 m N of the existing pier.

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Supplies

8.240

1 It is reported that food supplies are available but in lesser quantities than at Saint George's (8.329).

Anchorages off Bedford Point

Chart 797 plan of Grenada Bay and Approaches

General information

8.241

1 There are three anchorages in the vicinity of Bedford Point (12°13′N 61°36′W), each in the lee of an offshore island.

Flow. The W–going tidal streams, augmented by the prevailing winds, attain considerable rates around Bedford Point.

GRENADA — SOUTH–EAST AND SOUTH SIDES

General information

Charts 797, 597, 956 (See 1.24)

Route

8.242

1 From a position ESE of Saint Pierre Point (12°03′N 61°38′W) the route leads SW for about 10 miles to a position SE of Calivigny Island (12°00′N 61°44′W) from whence the route leads NW for about 18 miles to a position W of Point Salines (12°00′N 61°48′W).

Topography

8.243

1 General topography (8.223).

The S coast of Grenada is indented by a number of inlets and creeks separated by points, from which shoals extend up to 5 cables from the general line of the coast.

This part of the coast generally presents a wooded appearance.

2 Point Salines International Airport, with towers and masts, extends 1½ miles E from Point Salines, the SW extremity of Grenada.

Depths

8.244

1 SW of Grenada, the bank on which The Grenadines stand (8.85), extends for a farther distance of 20 miles, with depths less than 40 m. In general, the rim of the bank is shoaler than the centre and along its S edge there are depths of 17 to 27 m.

2 Shoal areas exist on the bank, the most extensive of which is Reindeer Shoal (11°58′N 61°58′W) lying between 6½ and 12½ miles WSW of Point Salines. Over the whole area of the shoal there are numerous patches with depths of 10·5 to 18 m, the position of which can best be seen on the chart.

3 Shoal patches with less water than charted may exist on the bank S of Grenada, see caution on Chart 956.

Natural conditions

8.245

1 **Flow.** General information (8.8).

Inshore flow. Off the bank, SW of Grenada, the usual rate of the W–going current is 2 knots; on the bank it is checked by the SE–going tidal stream which sets around Point Saline then E along the S coast of Grenada, but only lasts for 2 or 3 hours. The W–going tidal stream, accelerated by the W–going current, then runs W for 8 or 9 hours.

2 **Tidal stream.** It is reported that offshore the W–going tidal stream commences about 2½ hours after the time of HW at Bermuda and the E–going stream about 3½ hours before the time of HW at Bermuda.

Inshore the tidal streams turn about 1½ hours later than the offshore tidal stream.

8.246

1 **Sea state.** During strong breezes seas usually break along the length of the S coast in depths of less than 10 m.

Principal mark

8.247

1 **Major light:**

Petit Cabrits Light (12°01′N 61°46′W) (8.322).

Directions

(continued from 8.233)

Saint Pierre Point to Point of Fort Jeudy

8.248

1 From a position ESE of Saint Pierre Point (12°03′N 61°38′W) the track leads SW passing (with positions from Glover Island Light (11°59′N 61°47′W)):

SE of Saint David's Point (7 miles ENE) which is formed of square cliffs, thence:

2 SE of rocks and shoals lying 4 cables SE of Westerhall Point (5½ miles ENE) consists of cliffs light in colour and backed by three separate hills. Less water than charted off the point was reported in 1980. Thence:

3 SE of a detached rock and shoal patches extending 3 cables SE from Point of Fort Jeudy (5 miles E).

Point of Fort Jeudy to Point Salines

8.249

1 The recommended passage for deep–draught vessels, particularly those drawing more than 12 m, continues SW, outside the coastal bank (8.244) passing SE of Reindeer Shoal (11°58′N 61°58′W).

8.250

1 From the vicinity of 11°54′N 61°40′W (SSE of Point of Fort Jeudy), the coastal passage for vessels of moderate draught leads WNW over the coastal bank (8.244) passing (with positions from Glover Island Light (11°59′N 61°47′W)):

SSW of foul ground extending 2 cables S from Calivigny Island (4 miles E), thence:

2 SSW of The Porpoises, a group of rocks (2 miles ESE) lying near the edge of a shallow bank extending about 6 cables SSE from Prickly Point. A detached coral patch, with a depth of 6·4 m over it, lies 3 cables ESE; and a shoal, with a depth of 18 m over it, lies 1½ miles SSE of The Porpoises. Thence:

3 SSW of Glover Island lying near the S extremity of a shallow bank with depths of less than 5 m over it, extending about 1¼ miles S from the coast. Glover Island Light (S cardinal, 6 m in height) stands near the SW extremity of the island. Thence:

4 SSW of Point Salines (30 m high) (1¼ miles NW), the SW extremity of Grenada. Point Salines Light (box with solar panels, 1 m in height) stands near the SW extremity of the point. There is reported to be an uncharted rock, with a depth of 2·1 m over it, within an area 2 cables S and 2½ cables E of Point Salines. A similar report refers to a submerged rock, which is dangerous to navigation,

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lying off the SW point of Grenada. The sea is always confused off this point and a wreck was reported in 1987 to be visible to the N of the point. Thence:

5 SSW of Seringapatam Shoal (1½ miles WNW) lying 3½ cables SW of Point Salines. HMS *Seringapatam* struck this shoal in 1839. A shoal patch, with a depth of 7·3 m over it, lies close SW of Seringapatam Shoal and a shallow bank extends 6 cables farther SW. Thence:

6 NNE of an isolated patch with a depth of 13·4 m over it (7 miles WSW) and other shallow patches on Reindeer Shoal (8.244).

7 From this position the track continues WNW for about 4 miles to a position W of Point Salines (12°00′N 61°48′W).

Useful marks

8.251

1 Point Salines Aero Light (radio mast, 76 m in height) (12°01′N 61°47′W) standing close N of the runway of Point Salines International Airport, exhibits a light for the use of aircraft. The control tower for the airfield is reported to be situated 252° distant 4 cables from the radio mast; and from another tower 083° distant 2½ cables.

(Directions continue for SW approach to Saint George's Harbour at 8.323. Directions for passage NW of Grenada are given at 8.283)

Anchorages and berths

Chart 797

General information

8.252

1 The S coast of Grenada provides many anchorages for coasters. These vary in size and facilities but, whilst Prickly Bay (12°00′N 61°46′W) (8.271) is the most popular and best equipped, none of them form an actual port. Therefore all anchorages have been described in sequence from E to W, irrespective of size.

Saint Pierre Point to Saint David's Point

8.253

1 **Description.** Between Saint Pierre Point (12°03′N 61°38′W) and Saint David's Point (3 miles SW) lie several small bays used by local craft; however, this part of the coast is exposed and the bays are more or less open.

Saint David's Harbour

Chart 797 plan of St David's Harbour to Prickly Bay

General information

8.254

1 **Description.** Saint David's Harbour (12°01′N 61°41′W) is a narrow inlet which provides anchorage for coasters of moderate draught, sheltered from all but S winds.

Local knowledge is required.

Directions for entering harbour

8.255

1 **Approach** to the harbour can be made on the alignment (340°) of Saint David's Point with the W peak of Mount Sinai (12°05′N 61°42′W).

Entrance channel, marked by light–buoys, has a charted width of 2 cables and a charted depth of 8·2 m. The route leads NNW in mid–channel, passing (with positions from Saint David's Point):

2 ENE of a shoal with a depth of 6·7 m over it (2½ cables SW), thence:

WSW of an above–water rock close S of Saint David's Point, thence:

ENE of a shoal with a depth of 3·4 m over it (2 cables W), thence:

Between the reef extending 3 cables SSE from Middle Point (5 cables NW) and Saint David's Peninsula.

Anchorage

8.256

1 Anchorage can be obtained in a depth of 10 m E of Middle Point.

Westerhall Bay

General information

8.257

1 **Description.** Westerhall Bay (12°01′N 61°42′W), situated between Westerhall Point (8.248) and the coast about 3 cables N, affords good anchorage for smaller vessels at its W end, in an area reported to be named Bacaye Harbour.

Entering harbour

8.258

1 The entrance is constricted by rocks and shoals lying within 5 cables E and SE of Westerhall Point. It was reported in 1989 that regular users of the bay had found less water than shown on the chart over much of the bay, and that soundings do not give warning of the reefs, as they are steep–to. The shoal to the SE breaks in heavy weather.

Local knowledge is essential.

Entry and departure. It is recommended to enter harbour before 1300 and to leave after 1200.

Anchorage

8.259

1 Anchorage is available in depths of about 7 m.

The best anchorage is reported to be in a cove on the S side of Bacaye Harbour, in depths of about 3 m soft mud.

Landing

8.260

1 Several jetties extend from the S shore of the bay and one is situated in the NW corner.

Calivigny Harbour

General information

8.261

1 **Description.** Calivigny Harbour (12°01′N 61°43′W) at the head of Chemin Bay, provides anchorage in the E part of the basin in depths of 6 or 7 m.

Local knowledge is required.

Directions for entering harbour

8.262

1 **Approach** to Chemin Bay can be made from the SE passing midway between the shoals off the S extremity of Westerhall Point (8.248) and those off the E extremity of Point of Fort Jeudy.

2 **The entrance** to Chemin Bay is encumbered by a 2·1 m patch (12°00′N 61°42′W) near the middle of the deep water channel which leads midway between the reefs and shoals. It was reported in 1978 that this patch connected with the reef extending E from Point of Fort Jeudy and the recommended passage is to the E of the shoal.

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3 The deep water channel then continues through Chemin Bay to the narrow entrance to Calivigny Harbour.

Landing

8.263

1 A jetty extends from the coast on the E (Westerhall) side of the harbour.

Egmont Harbour

General information

8.264

1 **Description.** Egmont Harbour (12°01′N 61°43′W), leading N from Port Egmont, consists of an inner and an outer harbour connected by narrows, less than ½ cable wide, with depths of less than 5 m in them. It was reported in 1978 that the minimum depth in the narrows was 3·6 m and that a rock with a depth of 2·7 m over it lay on the S side of the narrows.

2 The inner harbour is reported to be surrounded by high hills and likely to provide safety during the most violent hurricane.

Directions

8.265

1 **Approach.** The alignment (341°) of the E extremity of Gary Islet (12°00′N 61°43′W) with the NE extremity of Egmont leads towards Outer Egmont Harbour, passing (with positions from Gary Islet):

WSW of shoal patches, with charted depths of less than 8·2 m over them, (1 mile SSE) lying up to 3½ cables S of Point of Fort Jeudy, and:

2 ENE of an isolated shoal with a minimum charted depth of 6·4 m (1 mile S), thence:

Between foul ground (6½ cables SSE) extending up to 1 cable SW from Point of Fort Jeudy; and an isolated patch with a charted depth of 1·8 m (5½ cables S).

3 **Entering harbour.** From a position W of Point of Fort Jeudy the track leads N then NNW between the bank fringing Point of Fort Jeudy and the reefs extending 2½ cables ENE from Adam Islet (4 cables SSW) and 2 cables SSE from Gary Islet. Near the head of the outer harbour the deeper water is to be found to the E of a shoal spit extending 1 cable from the W shore.

Anchorage

8.266

1 Anchorage is reported to be available at the head of the outer harbour, in a charted depth of 12·8 m; also in the inner harbour in charted depths of about 7 m.

Woburn Bay

General information

8.267

1 **Description**. Woburn (Clarkes Court) Bay (12°00′N 61°44′W) is a large harbour with many coves which affords secure anchorage, even in a hurricane, in depths of 11 to 13 m.

Directions for entering harbour

8.268

1 **Approach.** The approach from about 4 cables S of Calivigny Island to W of the W point of the island is through a channel marked by buoys. From the vicinity of 11°59′N 61°43′W (5 cables S of Calivigny Island), the alignment (330°) of the E and NE extremities of Hog Island (1½ miles NW) leads towards Woburn Bay entering the buoyed channel and passing (with positions from the E extremity of Hog Island):

2 ENE of a shallow bank, with depths of 4·3 m over it (1 mile SSE) extending 1 mile SSE from Hog Island. This bank is reported to break in heavy weather. Thence:

3 Very close WSW of the SW edge of the bank, with a charted depth of 4·6 m (7½ cables SSE), extending SW from Calivigny Island, and:

ENE of a shoal patch with a charted depth of 3·7 m (7 cables SSE).

8.269

1 **Entrance.** From a position on the leading line, 5 cables SSE of Hog Island, the line of bearing (000°) of conspicuous palm trees (025° distant 6 cables from the E extremity of Hog Island) standing on the N shore of a small bay with a cliff at each end and a jetty in the centre, leads into the bay, passing (with positions from the E extremity of Hog Island):

2 Close E of an isolated reef (5 cables SSE) lying on the bank extending SSE from Hog Island, thence:

Close off the W edge of a reef (4½ cables SE) extending ½ cable W from the W extremity of Calivigny Island.

Anchorages

8.270

1 Anchorage exists, avoiding isolated shoals, the position of which can best be seen on the chart. It is reported that the shoals are difficult to distinguish and that less water than charted has been found over them.

Prickly Bay

General information

8.271

1 Prickly Bay (12°00′N 61°46′W) is situated W of Lance aux Épines, which has Prickly Point at its S extremity. The bay is wide and easy of access. It is a first port of entry.

2 **Radio** contact can be made on VHF during working hours.

Mean tidal levels:

MHHW 0·7m.
MLLW 0·3m.

Directions for entering harbour

8.272

1 **Approach** may be made from the S or E.

If approaching from the E it is recommended to pass 3 cables S of The Porpoises (11°59′N 61°45′W) (8.250).

Entering from the S, the recommended track leads generally N, passing (with positions from Prickly Point (11°59′N 61°46′W)):

Over a bar with a depth of 7 m over it (3 cables SW), thence:

2 W of Prickly Point. A light (occasional), position approximate, is exhibited from a lighthouse 1 cables NE of the point. Thence:

E of a bank with depths of less than 5 m over it, close W of the track, thence:

Clear of a 1·5 m shoal (6 cables N) which is not easily distinguished, lying about 2 cables off the E side of the bay.

Anchorages

8.273

1 Anchorage is available, in depths of 11 to 15 m, S of the 1·5 m patch (6 cables N of Prickly Point) (8.272).

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Port services

8.274

1 **Repairs:** electronic and electrical.
Supplies: diesel, fresh water and provisions.

True Blue Bay

8.275

1 **Description.** True Blue Bay (12°00′N 61°46′W) provides protected anchorage, for vessels with a draught of 4·6 m, on the E side of the bay (2 cables N of True Blue Point, the W entrance point to Prickly Bay (8.271)).

2 **Local knowledge** is required.

GRENADA — WEST PART

General information

Charts 795, 797, 597

Route

8.276

1 From a position WNW of Ronde Island (12°18′N 61°35′W) the route leads SW for about 27 miles to a position W of Point Salines (12°00′N 61°48′W).

Topography

8.277

1 General topography (8.223).

The W coast is steeper than the E coast and the coastline is especially rugged on the W side of the island.

There have been reports of erosion in the N part of the island, where the coast road has been breached.

Depths

8.278

1 The W coast is steep–to, with the coastal bank extending less than 1 mile offshore, except off Molinière Point (12°05′N 61°45′W) where it extends 2 miles W.

Submarine volcano

8.279

1 **Exclusion zone.** A permanent exclusion zone, radius 8 cables has been established around the Kick 'em Jenny Volcano (12°18′N 61°38′W) and an outer exclusion zone, radius 2¾ miles, will be declared at times of increased or dangerous volcanic activity, see 8.176.

Flow

8.280

1 General information (8.8).

On the W side of Grenada, under the lee of the island, scarcely any tidal stream or current is usually evident. A weak flow may be experienced close offshore.

Principal Mark

8.281

1 **Major Light:**
Petit Cabrits Light (Red framework tower) (12°01′N 61°47′W). Reported 1986 to be unreliable.

Directions

(continued from 8.179, 8.180, 8.181 and 8.202)

Grenada – north and west sides

8.282

1 From a position WNW of Ronde Island (12°18′N 61°35′W) the track leads SW passing (with positions from the SW extremity of Ronde Island):
NW of Diamond Island (2 miles NNE) (8.178), thence:
NW of Ronde Island (8.174), thence:

2 NW of The Sisters (8 cables W) (8.186), thence:
NW of the exclusion zone around Kick'em Jenny Volcano (2½ miles W) (8.279), thence:
NW of an isolated shoal (8.180) (1¼ miles W) lying 5 cables WSW of The Sisters.

8.283

1 From this position the track continues SW passing (with positions from Gros Point (12°11′N 61°43′W)):
NW of Tanga Langua (David Point) (5 miles NE). Tide rips are reported to occur around this point. Thence:

2 NW of Gros Point, thence:
NW of Black Bay Point (4 miles SSW), thence:
NW of Molinière Point (6½ miles SSW), thence:
NW of Petit Cabrits Light (8.322), thence:

3 From this position the track continues SW for about 7 miles to a position W of Point Salines (12°00′N 61°48′W).

Useful marks

8.284

1 Radio mast (12°10′N 61°40′W) (8.233).
The church in Gouyave (12°10′N 61°44′W).

(Directions continue for the NW approach to Saint George's Harbour at 8.324.
Directions for the coastal passage S of Grenada are given at 8.249)

Halifax Harbour

Harbour

8.285

1 **Description.** Halifax Harbour (12°07′N 61°45′W) lies N of Saint George's Harbour. It affords anchorage close to the shore in the SE corner of the bay or to the S of a small promontory, 2 cables N.

Anchorage

8.286

1 Good anchorage can be obtained on the bank, with depths of 9 to 13 m extending 6 cables W from Halifax Harbour, as shown on the chart. A recommended anchor bearing is with Point Salines (8.250) bearing about 203°, open W of Molinière Point. It is reported that this anchorage can become completely untenable.

Overhead cables

8.287

1 High tension power cables span both arms of the bay from the S entrance point NE to the dividing headland and thence NNW to the N shore. Vertical clearance of the S span is reported to be about 18 m above MHHW; the N span somewhat lower. Yachts with masts in excess of 15 m should exercise extreme caution. In the N arm yachts should anchor to seaward of the cables and avoid anchoring too close to their lower ends.

Anchorages

Irvins Bay

8.288

1 Anchorage may be obtained off Irvins Bay (12°14′N 61°38′W) in depths of 11 to 13 m, about 3 cables NW of the E entrance point, as shown on the chart, where the holding ground is good.

2 This anchorage is uncomfortable as the vessel will roll continuously. It is not, however, dangerous in the spring.

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The wind occasionally blows freshly from NNE, when the use of extra cable is recommended.

Tanga Langua
8.289

1 Anchorage is available on the coastal bank (12°14′N 61°40′W) as shown on the chart, in a depth of about 13 m.

Saint Mark Bay
8.290

1 Saint Mark Bay (12°12′N 61°42′W) affords anchorage in depths of 18 to 20 m, about 2½ cables offshore. The bay is exposed to N winds which, however, seldom blow.

The town of Victoria (Saint Mark) stands at the head of the bay.

Gouyave Bay
8.291

1 **Description.** Gouyave Bay (12°10′N 61°44′W) affords anchorage in a depth of about 13 m, about 2 cables offshore.

The town of Guoyave is situated to the N of the bay.

SAINT GEORGE'S HARBOUR AND APPROACHES

General information

Charts 799 plan of St George's Harbour and Approaches, 797

Position
8.292

1 Saint George's Harbour (12°03′N 61°45′W) lies on the W side of Grenada at the head of a large bay entered between Molinière Point (12°05′N 61°45′W) and Point Salines, about 5 miles SW.

Two tanker terminals lie to the N of Saint George's Harbour, within the large bay.

Function
8.293

1 The principal port in Grenada, it provides deep water and a modern wharf. It serves the town of Saint George's which is the capital of Grenada. In 2001 the Borough of Saint George's had a population of 35 559

Approach and entry
8.294

1 Approached directly from seaward the harbour is entered through a winding channel between coastal banks extending about 5 cables offshore.

Traffic
8.295

1 In 2004, 559 vessels, with a total dwt of 2 447 930 used the port.

Port Authority
8.296

1 The Grenada Ports Authority, PO Box 494, The Carenage, Saint George's, Grenada.

It is reported that Saint George's Harbour Port Manager also acts as Harbour Master.

Limiting conditions

Controlling depth.
8.297

1 Depths of less than 16 m are charted over the bar (8 cables WNW of Fort George Point (12°03′N 61°45′W)) in the vicinity of the 098° leading line (8.325). Deeper water is charted to the S of this bar.

2 Controlling depth in the entrance channel is 10·5 m on the leading line (132°) (8.326), about 3 cables W of Fort George Point.

Deepest and longest berth
8.298

1 The main berth (8.328) provides both the deepest and longest berth.

Mean tidal levels
8.299

1 MHHW 0·7m.
MLLW 0·5m.

Density of water
8.300

1 1·025 g/cm^3.

Maximum size of vessel handled
8.301

1 Single screw vessels up to 182 m in length. Larger vessels may berth after special consideration.

Arrival information

Port operations
8.302

1 The Grenada Ports Authority can be contacted by VHF radio. See *Admiralty List of Radio Signals Volume 6(5).*

Coast radio
8.303

1 See *Admiralty List of Radio Signals Volume 1(2).*

Notice of ETA required
8.304

1 At least 24 hours notice of ETA to the vessel's agents is advised. A minimum of 3 hours notice to the Port Authority.

Berthing between 1700 and 0700 notice must be advised to the Port Authority before 1500.

Outer anchorages and berths
8.305

1 Descriptions at 8.311 and 8.317.

Pilots
8.306

1 Compulsory for vessels in excess of 200 tons, are available from 0500 to 2300. They are required also for the tanker terminals and outer anchorages (8.311). Pilots meet vessels 4 cables N of Annas Shoal, as shown on Chart 799 (plan of St George's Harbour and Approaches), except for vessels bound for the outer anchorages which are met 1 mile W of Fort George Point.

2 See *Admiralty List of Radio Signals Volume 6(5).*

Tugs
8.307

1 Not necessary but a the pilot launch can assist with berthing.

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Local knowledge
8.308

1 It is recommended that mariners should not proceed beyond the pilot boarding area unless they have local knowledge or a pilot embarked.

Regulations concerning entry
8.309

1 In order to keep the entrance channel clear, vessels should not be anchored on or near the 132° leading line, within 600 m of the outer light–buoy (starboard hand) (3 cables W of Fort George Point).

Quarantine
8.310

1 Health declaration is to be given to the Port Health Visiting Officer on arrival.

Outer anchorages

Off Saint George's Harbour
8.311

1 The banks off Saint George's Harbour afford good anchorage but in several places they are very deep. A pilot is required for the outer anchorages (8.306). The following recommended anchorages are positioned from Fort George Point:

Good anchorage, in 15 to 18 m (5 cables NW), as shown on the chart. HM Yacht *Britannia* (4961 tonnes) anchored in this position in 1986.

2 Coasters anchor in charted depths of about 6 m (2 cables NNW) as shown on the chart.

It has been reported that heavy swells are likely in the anchorage area.

Grand Mal Bay
8.312

1 **Description** Grand Mal Bay (12°04′N 61°45′W) affords good anchorage either N or S of the narrow trench extending into the middle of the bay. The bay is sheltered and calm.

2 Two small jetties extend from the coast at the N end of the bay. A concrete jetty, 91 m long and exhibiting a light, also lies at the N end of the bay, but its use is restricted to local fishing vessels.

Tanker terminal (see 8.318).

Grande Anse Bay
8.313

1 Grande Anse Bay (12°02′N 61°46′W) is no longer the principal anchorage for Saint George's owing to the difficulty of navigation in the unmarked approach channel. Anchoring is prohibited within 1 cable of the beach.

8.314

1 **Directions from north–west.** A channel with a width of about 1 cable, between the bank extending 1 mile NNE from Quarantine Point (12°01′N 61°46′W) and the bank extending 8 cables WNW from Ross Point (1½ miles NE), gives access to Grande Anse Bay, passing (with positions from Quarantine Point):

2 NE of Lloyd Shoal (1 mile NNE) (8.323), thence:
SW of Three Fathom Banks (1¼ miles NNE) (8.323), thence:
NE of Vidal Patch, (1 mile NNE), near the NE edge of the bank, thence:
SW of rocky patches with depths of 4·6 m over them (1½ miles NE).

Quarantine Point from W (8.314)

(Original dated 2002)

(Photograph – Gareth Kirk, mv "Logos II")

8.315

1 **Directions from south–west.** A secondary channel, with a width of about 2 cables, passes between Quarantine Point (8.314) and Long Point Shoal (8.323). This channel can be used in case of necessity but the recommended route passes W of Long Point Shoal.

Prohibited anchorage
8.316

1 Anchoring is prohibited within an exclusion zone in the vicinity of submarine cables extending from the shore 1¼ miles SW of Quarantine Point, as shown on chart 797. (See 1.45).

Outer berths

Queen's Park Terminal
8.317

1 Queen's Park Terminal, which is the closest tanker terminal to Saint George's Harbour, consists of two mooring buoys (12°03′N 61°45′W), off the mouth of St John's River. The reported depth at the berth is 7·9 m.

Two detached rocky patches, with depths of about 4·6 m over them, lie just over 1 cable SSW of the reported position of the tanker berth.

2 Pilotage (8.306) is available during daylight hours for berthing and at any time for unberthing.

Two mooring buoys lie in Saint George's Bay, 2 cables NW of the tanker berth.

Grand Mal Terminal
8.318

1 Grande Mal Terminal, situated in Grand Mal Bay (8.312), consists of two moorings buoys (12°04′N 61°45′W), situated about 1½ miles N of the town. The terminal, which is connected by a submarine pipeline (see 1.44) to some fuel tanks standing near the shore at the head of the bay, is the only one to handle liquified gas. A depth of 9·1 m exists in the berth at the outer end of the pipeline, and the maximum permitted draught is 8·8 m.

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2 A shoal, with a depth of 8 m over it, was reported in 1989 to lie in position 12°04′N 61°46′W, and an additional shoal, with a depth of 12·3 m over it, was reported in 1990 to lie 3 cables SW.

It is reported that, owing to shallows, manoeuvring in the area of the terminal is difficult and is not carried out during the hours of darkness; for pilotage see 8.306.

Harbour

General layout

8.319

1 A small natural harbour consisting of two inlets with a single entrance. It is protected from the NW by the promontory on which Fort George stands.

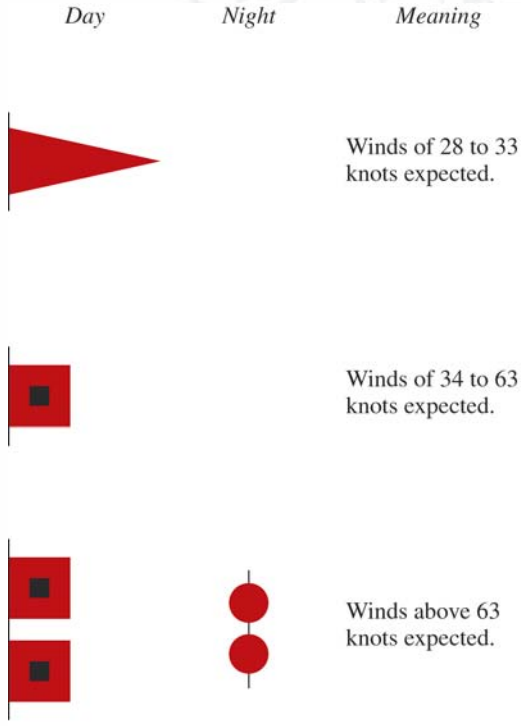
2 **The Carenage** forms the N inlet and contains the major berths. It is the only part of the harbour available for anchoring. The turning basin in the Carenage is approximately 1½ cables by 1 cable, which provides little room for swinging prior to berthing at the main berth (8.328).

3 **The Lagoon** is the S inlet. It is approached from the Carenage through a narrow channel between the berths to the N and a shallow bank, and contains the Schooner Berth and marinas.

Storm warning signals

8.320

1 The following visual storm warning signals may be displayed from the flagstaff at Fort George (8.322).



Grenada storm warning signals (8.320)

Natural conditions

8.321

1 **Strong winds** may be experienced in the vicinity, up to hurricane force.

Ground swell from November to March which at times enters The Carenage (8.319) but does not endanger vessels there. At the head of The Carenage the water is usually smooth.

2 **Flow.** General information (8.8.)

It was reported in 1989 that a current, with a rate of up to 1 kn, sets SW off Saint George Point, across the entrance channel between the seaward buoys (8.326).

Principal marks

8.322

1 **Landmarks** (with positions from Fort George Point (12°03′N 61°45′W)):

The Kirk (2½ cables NE) with a red roof and a tower at its N end.

2 Fort George (1¼ cables NE) is distinguished by Fort George Lighthouse (brick structure, elevation 57 m) at its N end and a flagstaff, with an elevation of 77 m, near the NE corner.

Fort Frederic, (1 mile E), situated on Richmond Hill.

3 Islander Hotel (ruins) (3 cables SE) standing on the summit above the SE entrance.

A bridge (6½ cables N), painted green, at the mouth of St John's River.

4 **Major lights:**

Fort George Light—as above.

Petit Cabrits Light (12°01′N 61°47′W) (8.322).

Directions for approaching harbour

Approach from south–west

(continued from 8.251)

8.323

1 From the vicinity of 11°59′N 61°52′W (WSW of Point Salines) the approach to Saint George's Harbour leads NE in deep water, passing (with positions from Quarantine Point (12°01′N 61°46′W)):

NW of Point Salines (2 miles SW) (8.250), thence:

NW of the dangerous wreck of *Bianca C* (1½ miles W), thence:

2 NW of shoal patches with depths of less than 8·5 m over them (1 mile W), thence:

NW of a dangerous wreck (6 cables WNW) lying 2 cables NW of Long Point Shoal, with a least depth of 1·5 m over it, thence:

NW of Deverell Patch, (7 cables N) near the NW edge of a bank, thence:

3 NW of Lloyd Shoal, (1 mile N) near the N extremity of a bank, thence:

NW of Three Fathom banks, with a least depth of 5·3 m over them (1½ miles NE).

4 **Useful marks** in the vicinity of Point Salines International Airport are given at 8.251.

(Directions continue for Saint George's Harbour at 8.325)

Approach from north–west

(continued from 8.284)

8.324

1 From the vicinity of 12°06′N 61°48′W (NW of Molinière Point) the approach to Saint George's Harbour leads SSE, passing (with positions from Fort George Point (12°03′N 61°45′W)):

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Clear of a marine farm (3½ miles NW), the position of which is approximate, thence:

2 W of the reef extending 1 cable from Saint Eloi Point, which rises to an elevation of 128 m (8 cables N), and:

W of the bank, with depths of less than 9 m over it, extending about 3½ cables WNW from Fort George Point.

Directions for entering harbour

Approach to entrance channel

8.325

1 **Initial position,** in the vicinity of 12°03′N 61°47′W (about 1 mile WNW of Fort George Point).

Leading marks:

Front mark. Fort George Point, a bluff headland, rising to an elevation of between 35 and 55 m, forming the SW extremity of a promontory.

2 **Rear mark.** S extremity of the prison (8 cables E of the front mark) situated on a summit.

Prison

Entrance Channel Approach on 098° alignment of Fort George Bluff with S end of Prison (8.325)

(Original dated 2002)

(Photograph – Gareth Kirk, mv "Logos II")

The alignment (098°) of these marks leads into the entrance channel, in a least charted depth of 15·9 m, passing (with positions from Fort George Point):

3 Over the S end of a bar (8 cables WNW), 1 cable S of the least charted depth (14·7 m), thence:

N of Annas Shoal, (5½ cables W) and the bank on which it lies, thence:

S of the bank extending 3½ cables WNW from Fort George Point, with a charted depth of 8·1 m near its W end.

Entrance channel

8.326

1 **Initial position** 3½ cables W of Fort George Point.

Leading lights (reported to be visible at 3 miles):

Front light (orange rectangle, white stripe, on framework tower, elevation 14 m) (4 cables SSE of Fort George Point).

Rear light (similar structure, elevation 28 m) (½ cable SE of the front light).

2 The alignment (132°) of these lights leads along the entrance channel, in a least charted depth of 10·5 m, passing (with positions from Fort George Point):

Close NE of No 2 Light–buoy (starboard hand) (3 cables W). This light–buoy is moored close W of the NE extremity of a bank with depths of less than 10 m extending 8 cables from the shore. The leading line passes close to the edge of the bank, shortly after passing the light–buoy. Thence:

3 SW of No 3 Light–buoy (port hand) (1¾ cables WSW) marking the SW extremity of the bank,

Entrance Channel on 132° alignment of Leading Lights (8.326)

(Original dated 2002)

(Photograph – Gareth Kirk, mv "Logos II")

with depths of 4·5 m extending 1½ cables SSW from Fort George Point.

These light–buoys may be whitened by guano.

4 **Current**. See 8.321 for possible cross–current.

8.327

1 **Initial position** 2 cables SW of Fort George Point.

Leading lights (reported to be visible when clear of Fort George Point):

2 Front light (orange rectangle, white stripe, on framework tower, elevation 31 m) (6 cables ENE of Fort George Point) situated on the slope at the head of the harbour.

Rear light (similar structure, elevation 91 m) (2¾ cables ENE of the front light).

3 The alignment (068½°) of these lights leads into the harbour, passing (with positions from Fort George Point):

Close SE of the bank extending S and SE from Fort George Point, thence:

4 NW of No 5 Light–buoy (starboard hand) (2 cables SE), marking the edge of the bank extending NW from the SE entrance point of the harbour, thence:

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SE of No 4 Light–buoy (port hand (1¼ cables E) marking the edge of the bank, thence:

NW of No 8 Light–buoy (starboard hand) (2¾ cables ESE) moored close W of the entrance to The Lagoon (8.319).

Entrance Channel on 068½° alignment of Leading Lights (8.327)

(Original dated 2002)

(Photograph – Gareth Kirk, mv "Logos II")

Basins and berths

Alongside berths

8.328

1 **The Carenage.** The main berth is a quay lying NNW–SSE on the E side, 349 m in length, with charted depths alongside between 8·4 and 9·5 m.

There are berths for smaller vessels on the E and W sides of the N part of the Carenage.

2 **The Lagoon.** On the N side of the entrance lies the Schooner Berth, 85 m in length, on the E extension to the main berth.

Port services

Port Services

8.329

Facilities: hospital; no oily waste reception facilities.

1 **Supplies:** diesel fuel; fresh water; fresh provisions.

Communications: international airport.

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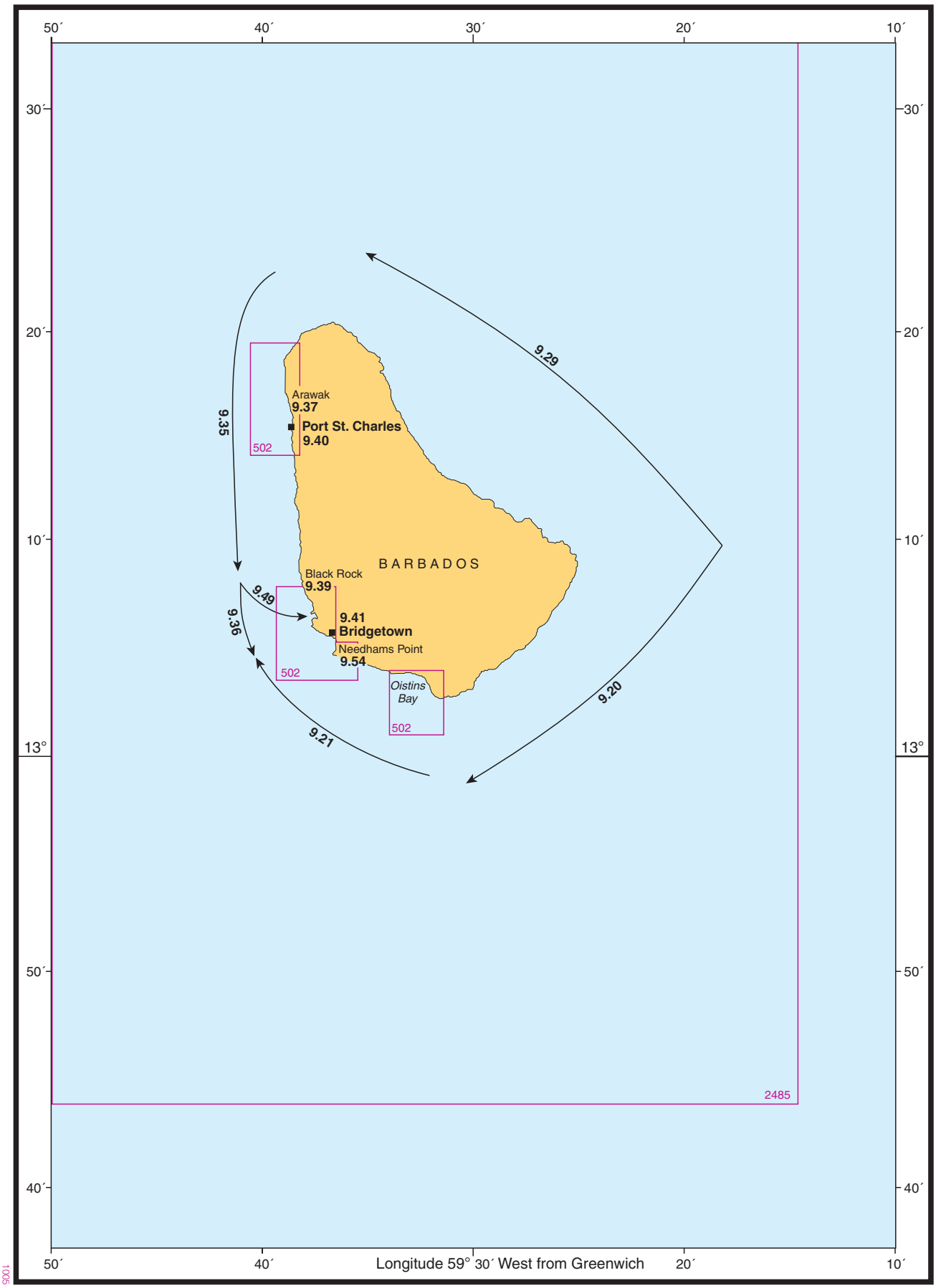
Chapter 9 - Barbados



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CHAPTER 9

BARBADOS

GENERAL INFORMATION

Chart 2485

Scope of the chapter

9.1

1 This chapter describes the island of Barbados (13°10′N 59°35′W), which is the E–most of the Windward Islands, lying well out in the Atlantic, situated 85 miles E of Saint Vincent, 300 miles N of Guyana and 2500 miles W of Africa.

Harbours

9.2

1 There are no natural harbours in the island which, except in the N, is surrounded by coral reefs. There are a number of sheltered bays in which vessels can anchor in deep water.

Bridgetown Deep Water Harbour (9.66), the principal port, is situated at the SW extremity of the island.

2 **Tanker terminals** are situated around the SW end of the island as follows:

Oistins Bay (13°03′N 59°33′W) (9.23).
Black Rock (13°08N 59°39W) (9.39).
Needhams Point (13°05′N 59°37′W) (9.54).
Spring Garden (13°07′N 59°38′W) (9.63).
Bridgetown (13°06′N 59°38′W) (9.79).

3 **Cement Works**, situated at the N end of the W coast, containing:

Arawak Jetty (13°17′N 59°39′W) (9.37).

Anchorages for all classes of vessels are situated as follows:

Speightstown (13°15′N 59°39′W) (9.38).
Carlisle Bay (13°05′N 59°37′W) (9.51).

Topography

9.3

1 A low lying island of 166 square miles,with a length of about 18 miles and a maximum width of 12½ miles, Barbados is unique in lying outside the volcanic island arc of the Windward and Leeward islands and E of the Puerto Rico Trench. It is the pinnacle of a seamount and therefore not of recent volcanic origin though it does lie in the region of the earthquake belt that extends E from the trench.

Natural features (9.10).

Fishing

9.4

1 The Island thrives on extensive fishing using about 500 small boats 6 to 9 m in length.

Weather

9.5

1 Barbados enjoys one of the healthiest climates in the West Indies. Tropical temperatures, cooled by the prevailing winds, result in little variation over the year (22° to 30°C). It is seldom excessively hot, and on the windward side the climate is especially invigorating, owing to the North–east Trade Wind. (See 1.129).

2 The island is subject to both sea and land breezes which may influence berthing times. Advice regarding the Bridgetown Deep Water Harbour is given at 9.88.

Barbados also lies in the hurricane belt (1.235) and has been plagued by occasional hurricanes (May to September) of great intensity.

3 Annual rainfall varies from 1100 mm in some coastal districts to 2300 mm in the central ridge area. There is a wet season from June to November and a dry season from December to May. Climatic table is given at 1.260.

Flow

9.6

1 **Current.** General remarks (1.209).

A NW current flows for most of the year, but from about November to February it often swings W. Its constancy is moderate or high and its average rate is generally from 1 to 1¼ kn but may slacken to ¾ kn in winter.

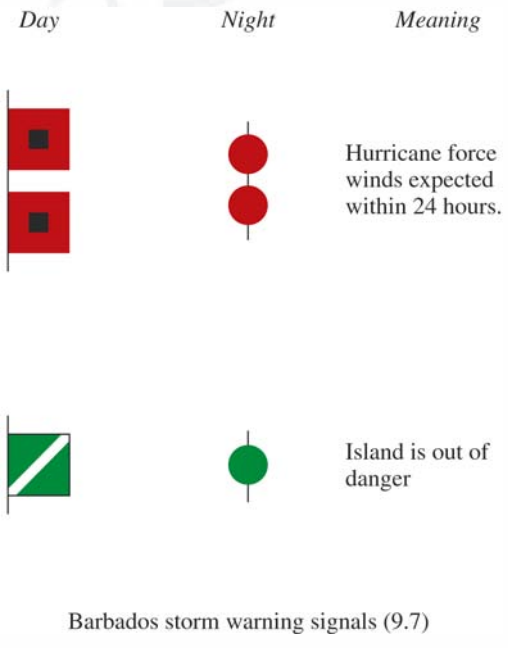
2 **Tidal stream.** General remarks (1.215).

The effects of the tidal stream are felt within a distance of about 1 mile of the coast. It then follows the trend of the coast.

Storm signals

9.7

1 The following visual storm warning signals are displayed if storm force winds or greater are expected.



Barbados storm warning signals (9.7)

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2 These visual storm warning signals are displayed at the following stations:

Name	*Latitude N*	*Longitude W*
Police Station "C"	13°09′	59°29′
Crane Hotel	13°06′	59°27′
South Point Light	13°03′	59°32′
Highgate Signal Station	13°05′	59°35′
Bathsheba	13°13′	59°31′
Police Station "F" (Bissex Hill)	13°13′	59°33′
Police Station "E" (Speightstown)	13°15′	59°38′
Mount Standfast	13°12′	59°38′
Police Station "D"	13°11′	59°36′
Deep Water Harbour Signal Station	13°06′	59°38′

Aids to navigation

9.8

1 **Lights.** It is reported that, when approaching Barbados from the E at night, the lights of houses and buildings on the hills inland from the coast can be seen long before the navigation lights on Ragged Point or South Point.

Cloud. Although low lying, Barbados will often produce clouds overhead, which may provide a first sighting.

ROUTES AROUND BARBADOS

GENERAL INFORMATION

Chart 2485

Routes

9.9

1 The coastal routes around Barbados are described in the following order:

Kitridge Point (13°09′N 59°25′W) to Bridgetown (9.14).

Kitridge Point to North Point (13°20′N 59°37′W) (9.24).

North Point to Bridgetown (9.30).

Topography

9.10

1 The general appearance of the island is low and level, but within this aspect there is considerable variety. A deep valley traverses the S part of the island from E to W, dividing it into two parts. To the S, the hills are soft and undulating. To the N, from Mount Hillaby (13°13′N 59°35′W), the highest point in the island, conical hills range NE towards the E coast forming highlands that are rugged and weather worn.

2 Except during the rainy season there are virtually no rivers. Rainwater percolates through the coral limestone surface to form underground channels. A few gullies exist but these provide no facilities for navigation or fishing.

Depths

9.11

1 All of the dangers which lie in the vicinity of the island are contained within or adjacent to the 20 m depth contour which lies within 1½ miles of the coast.

There are no offshore dangers.

Natural conditions

9.12

1 General remarks:

Flow (9.6). Local weather (9.5).

Principal marks

9.13

1 **Landmarks:**

Radio mast (13°12′N 59°35′W) (9.34).

Television mast (8 cables ESE of the radio mast) (9.34).

BARBADOS — SOUTH SIDE

General information

Chart 2485

Route

9.14

1 From a position E of Kitridge Point (13°09′N 59°25′W) the route leads SW for about 14 miles to a position S of South Point (13°03′N 59°32′W) from whence it leads WNW for about 7 miles to a position SSW of Needham's Point Light (13°05′N 59°37′W).

Topography

9.15

1 General topography (9.10).

From Kitridge Point to South Point the coast consists chiefly of bold rocky cliffs (15 to 18 m high) but in some places the cliffs have fallen in large masses on to the beach below. Within the cliffs the land is flat for about 2 miles inland, where it begins to rise in a series of ridges to hilly country in the centre.

2 From South Point to Needhams Point (5 miles WNW) the coast is low and flat, but a short distance inland the ground rises in terraces to an elevation of 60 m.

Depths

9.16

1 From Kitridge Point to South Point the coast is bordered by a barrier reef lying up to 1 mile offshore, through which there are several passes. To seaward of this reef, just over a mile offshore, lies a narrow ridge of coral with depths of 13 to 18 m over it. To seaward of the ridge the depths increase rapidly.

From South Point to Needhams Point the coast is bordered by a shoal bank extending up to 5 cables offshore.

2 The Shallows, an extensive area of depths between 60 and 200 m, lies 5 miles SE of South Point (13°03′N 59°32′W), and an isolated 77 m patch (reported 1977) lies 9 miles SSW of South Point. Trader Bank, with depths of 37 m, lies 2½ miles SW of Needhams Point (13°05′N 59°37′W).

Storm warning signals

9.17

1 For visual storm warning signals and the stations from which they are displayed, see 9.7.

Natural conditions

9.18

1 **Current.** General remarks (9.6).

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Ragged Point Lighthouse from ENE (9.19)

(Original dated 2002)

(Photograph – Stephen Mendes)

South of the island, probably in association with shelter from The Shallows (9.16), the current is sometimes said to be very weak and during the period July to November is especially variable with rates of ½ to 1 kn.

The prevailing current sets on to Cobblers Reef (9.20).

2 **Overfalls.** During spring tides, the tidal stream causes overfalls outside the reefs off Kitridge Point (9.20) and South Point (9.20).

3 The combination of an E–going tidal stream, with a heavy W swell, can set up turbulent seas over The Shallows (12°59′N 59°28′W) (9.16). Broken water, similar to tide–rips, has been observed over Trader Bank (13°03′N 59°39′W), lying SW of Needhams Point.

Principal marks

9.19

1 **Landmarks:**

Ragged Point Lighthouse (white round stone tower, 30 m in height) (13°10′N 59°26′W).

Radar dome (13°05′N 59°29′W) situated to the N of Grantley Adams Airport.

2 South Point Lighthouse (white tower, red bands, 27 m in height) (13°03′N 59°32′W) situated on South Point.

The clock–tower of the Savannah Clubhouse (13°05′N 59°36′W).

Major lights:

Ragged Point Light—as above.

South Point Light—as above.

Directions

Kitridge Point to South Point

9.20

1 From a position E of Kitridge Point (13°09′N 59°25′W) the route leads SW passing (with positions from South Point Light (13°03′N 59°32′W)):

SE of the reef extending 1¼ miles ESE from Kitridge Point (9 miles NE), thence:

2 SE of Cobblers Reef (7 miles NE) which extends from Kitridge Point to New Falls Cliff and lies between 5 cables and 1 mile offshore. Seas break heavily along the reef, even in the finest weather. Thence:

3 SE of Bow Bells Reef (5 cables SW) the SW extremity of the coastal reef off South Point, which is comprised of bold rocky cliffs. The recommended track passes at least 2 miles S of South Point Light.

Charts 502 plan of Bridgetown Harbour and Approaches, 2485

South Point to Needhams Point

9.21

1 From a position S of South Point the track leads WNW passing:

SSW of Oistins Fishing Jetty Light (9.23) (1¼ miles NNW) (on the roof of a hut with an elevation of 6m), thence:

SSW of a dangerous wreck (5 miles WNW).

2 From this position the track continues WNW for about 5 cables to a position SSW of Needham's Point Light.

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Needhams Point *Old Lighthouse*

Needhams Point from S (9.22)

(Original dated 2002)

(Photograph – Stephen Mendes)

Useful mark

9.22

1 Needhams Point Light (red metal mast, 9 m in height) standing on Needhams Point (13°05′N 59°37′W).

(Directions continue for approach to Bridgetown from S at 9.50.

Directions for passage W of Barbados are given at 9.35)

Chart 502 plan of Oistins Bay

Oistins Bay

9.23

1 **Description.** Oistins Bay (13°03′N 59°33′W) affords anchorage for small vessels, in depths from 10 to 20 m. There is a tanker terminal and a jetty in the bay.

Directions. The bay is open to the SW and the only dangers in the approach are the reefs (9.20) off South Point.

2 **Anchorage** may be found in suitable depths clear of the tanker terminal and clear of submarine cables, shown on the chart, which have their landing on the E side of the bay about 6 cables NNW of Kendal Point.

Abandoned submarine cables are landed at Saint Lawrence (13°04′N 59°34′W), at the W end of Oistins Bay, as shown on Chart 2485.

3 **Berths** A tanker terminal, comprised of three mooring buoys (1 mile NW of South Point Light), is connected to the shore by a submarine pipeline, which is marked at its seaward end by an orange coloured float.

Depth of water at the berth is 11·6 m, permitting vessels with a draught of 10 m and a length of 172 m to be accommodated. However, it was reported (2001) that the maximum permitted draught is 8·5 m.

4 **Fishing Jetty** extends 150 m from the shore (9.21).

Density of water: 1·025 g/cm^3.

5 **Radio facilities** are through Bridgetown Signal Station (9.76).

Pilotage, compulsory for berthing, is available day and night. Pilots board off Bridgetown, after clearance by the Health Authority (9.80).

Tugs are available.

Berthing: during daylight only.

Facilities: no waste oil facilities

BARBADOS — EAST SIDE

General information

Chart 2485

Route

9.24

1 From a position E of Kitridge Point (13°09′N 59°25′W), the route leads NW for about 21 miles to a position N of North Point (13°20′N 59°37′W).

Topography

9.25

1 General topography (9.10).

The SE end of the island is about 30 m high and continues flat for about 2 miles inland before it begins to rise. Along the centre of the E coast, between 5 and

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9 miles SE of Pico Tenerife (Teneriffe) (13°17′N 59°35′W), the central ridge approaches the coast with rugged hills rising abruptly from the water.

2 From Pico Tenerife, the coast extending NW to North Point consists of cliffs (12 to 18 m high).

Depths

9.26

1 From Ragged Point (13°10′N 59°26′W) to Pico Tenerife (11½ miles NW) the coast is fringed with a coral reef extending up to 5 cables offshore. Within the reef there are sandy bays and beaches.

Storm warning signals

9.27

1 See 9.7.

Principal marks

9.28

1 **Landmarks:**

Ragged Point Lighthouse (13°10′N 59°26′W) (9.19).

Dish aerial (13°11′N 59°29′W).

Television mast (13°11′N 59°35′W) (9.34).

Radio mast (8 cables WNW of the television mast) (9.34).

2 Pico Tenerife (13°17′N 59°35′W), a hill situated on the coast at the N end of the central ridge. From a distance it appears almost detached from North Point.

Tower (13°17′N 59°37′W), reported to resemble a white windmill which is floodlit at night.

Wind motor (13°18′N 59°36′W).

3 **Major light:**

Ragged Point Light (13°10′N 59°26′W) (9.19).

Directions

9.29

1 From a position E of Kitridge Point (13°09′N 59°25′W), the track leads NW passing (with positions from Bathsheba Signal Station (13°13′N 59°31′W)):

NE of the reef (6 miles SE) extending 4 cables NE from Ragged Point (9.19), thence:

NE of Conset Point (4 miles ESE) the NW extremity of a length of cliff, thence:

2 NE of Three Boys Rock (1 mile ESE), thence:

NE of Paul's Point (6 miles NNW) the NE entrance point to Gay's Cove which has a beach of smooth round stones and is dominated by Pico Tenerife (9.28), thence:

3 NE of North Point (9 miles NW), the N extremity of Barbados, a steep headland from the summit of which level open ground extends about 1 mile S before rising gradually.

4 From this position the track continues NW for about 2½ miles to a position N of North Point.

(Directions continue for passage W of Barbados at 9.35)

Conset Point from ENE (9.29)

(Original dated 2002)

(Photograph – Stephen Mendes)

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BARBADOS —WEST SIDE

General information

Charts 502 plan of Speightstown including Arawak Jetty, 2485

Route

9.30

1 From a position N of North Point (13°20′N 59°37′W), the route leads WSW for about 4 miles to a position NNW of Harrison Point Light (13°18′N 59°39′W) (9.34) whence the route leads S for about 15 miles to a position W of Black Rock Tanker Terminal (13°08′N 59°38′W). From this position the route leads SSE for about 6 miles to a position SSW of Needhams Point Light (13°05′N 59°37′W) (9.22).

Topography

9.31

1 General topography (9.10).

From the W, Barbados presents a flat appearance rising to a central ridge in a succession of terraces, intersected by numerous deep ravines.

2 From North Point (9.29) to Harrison Point (3 miles SW) the coasts consists of low rugged cliffs (12 to 18 m high). From Harrison Point to Bridgetown (11 miles S) the coast is generally low, indented by sandy beaches separated by points fringed with coral.

Local weather

9.32

1 General remarks (9.5).

The low–lying land in the N part if the island does not provide an effective lee to the prevailing trade winds.

Chart 2485

Holetown

9.33

1 **Marine Park** (13°11′N 59°38′W) (9.35) has been established in an area of the coastal shallows around Holetown. The area is marked by buoys as shown on the chart.

Principal marks

9.34

1 **Landmarks:**

Harrison Point Lighthouse (white stone tower, 26 m in height) (13°18′N 59°39′W) situated 3 cables NE of Harrison Point.

Wind motor (13°18′N 59°36′W).

Tower (13°17′N 59°37′W) (9.28).

2 Tower (13°17′N 59°39′W), position approximate, standing in Arawak Cement Works (9.37) near the coast 1 mile S of Harrison Point. The tower, which is floodlit at night, is readily identified from the N or NW.

3 Saint Peter's Church (13°15′N 59°39′W), in the centre of Speightstown.

Radio mast (red and white bands, elevation 372 m) (13°12′N 59°35′W) standing on Mount Misery.

4 Television mast (red and white bands, elevation 504 m) (8 cables ESE of the radio mast—above).

Two radio masts (13°08′N 59°38′W) situated near the coast, 2 cables N of Lazaretto.

5 Two chimneys (13°08′N 59°38′W) (9.47).

Grain terminal (13°07′N 59°38′W) (9.47).

Three loading towers (13°06′N 59°38′W) (9.47).

Major light:

Harrison Point Light—as above.

Directions

(continued from 9.29)

North Point to Black Rock Tanker Terminal

9.35

1 From a position N of North Point (13°20′N 59°37′W), the track leads WSW for about 4 miles to a position NNW of Harrison Point Light (13°18′N 59°39′W) (9.34) passing (with positions from Mount Standfast Signal Station (13°12′N 59°38′W)):

2 NNW then W of Harrison Reefs (7 miles NNW) a dangerous reef extending 5 cables offshore between North Point and Harrison Point, formed by a bold bluff.

3 From this position the track leads S passing:

W of Arawak Cement Works (5 miles N) (9.37), thence:

W of a marine farm (4¼ miles NNW), thence:

4 W of a dangerous wreck (3¼ miles NNW) which is marked on its W side by an orange buoy (Chart 502, plan of Speightstown), thence:

W of a marine park area (1½ miles SSW) which lies between the coast and 4 marker buoys (5 cables offshore), as shown on the chart (see 1.53). This park is designated for the use of amateur divers. Thence:

5 W of a wreck (3¾ miles SSW), with a depth of 5·5 m over it marked on its SW side by a light–buoy (isolated danger).

6 From this position the track continues S for about 5 cables to a position W of Black Rock Tanker Terminal (4 miles SSW) (9.39).

(Directions continue for approach to Bridgetown from NW at 9.49)

Chart 502 plan of Bridgetown Harbour and Approaches, 2485

Black Rock Tanker Terminal to Needhams Point

9.36

1 From a position W of Black Rock Tanker Terminal (9.39) the track leads SSE passing (with positions from Breakwater Head Light (13°06′N 59°38′W)):

2 WSW of Long Shoal (1 mile NW), with depths of 6·9 m over it. Two orange light–buoys, positioned close W of Long Shoal, are used by tourist submersibles. Thence:

WSW of Bridgetown Deep Water Harbour (9.66), thence:

WSW of The Inter Island vessels anchorage lying off the mouth of Constitution River which passes through the centre of Bridgetown and empties into Carlisle Bay (9.51).

3 From this position the track continues SSE for about 1¾ miles to a position SW of Needhams Point Light (13°05′N 59°37′W) (9.22).

(Directions continue in reverse for Barbados S side at (9.21)

Anchorages and harbours

Chart 502 plan of Speightstown including Arawak Jetty

Arawak Cement Works

9.37

1 **Arawak Jetty** with a T–head, marked by lights, projects 285 m in a direction 249° from the coast abreast the cement works. The head has a length of 145 m and a depth

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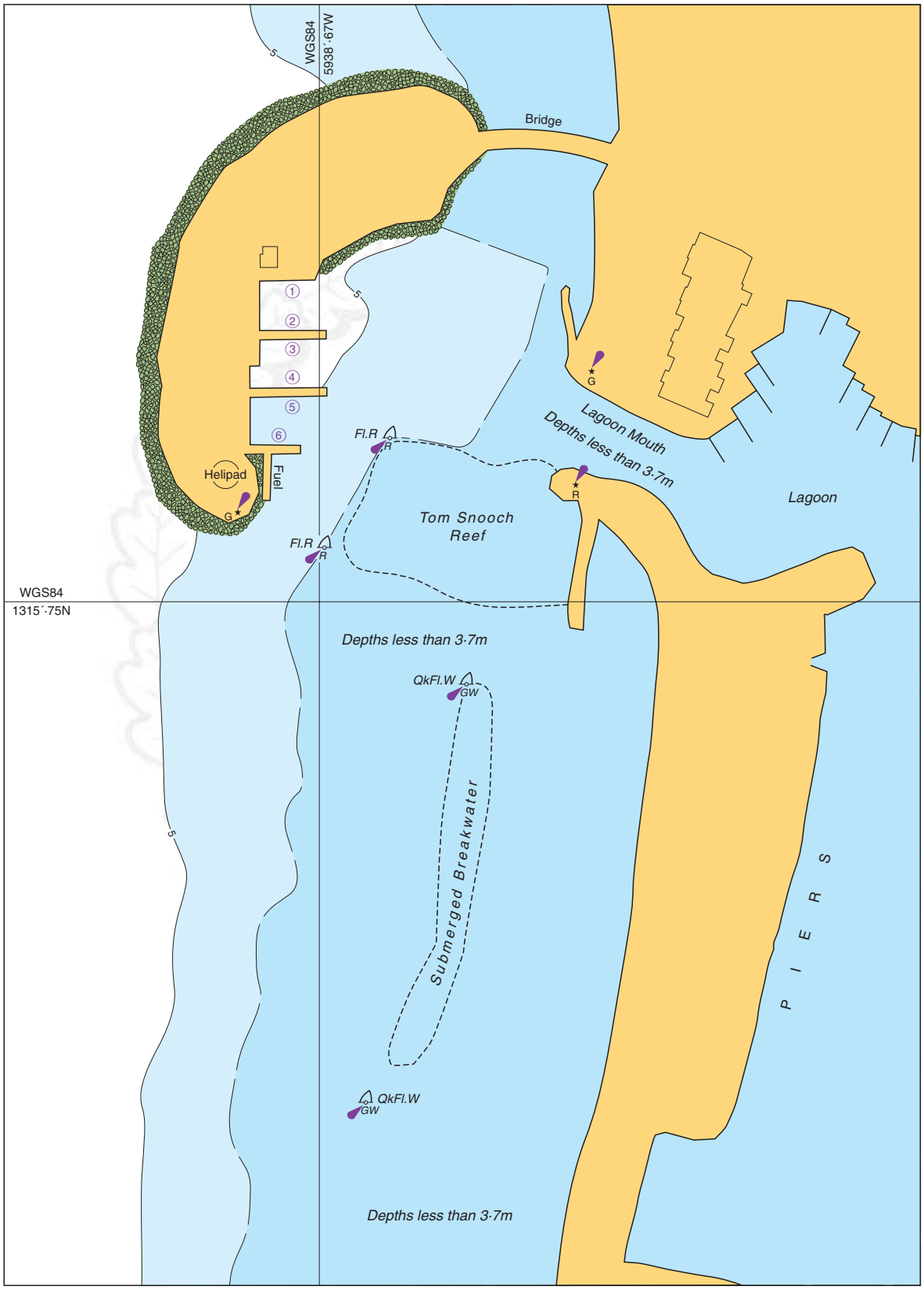
Not to be used for Navigation



Approaches to Port St. Charles Barbados (9.40)

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Port St. Charles Marina from WNW (9.40)

(Original dated 2002)

(Photograph – Stephen Mendes)

of 9·1 m alongside. The line of the berth is 172°–352°; it is provided with breasting and mooring dolphins.

Vessels awaiting a berth should anchor in Carlisle Bay (9.51).

Speightstown

9.38

1 **Anchorage,** seldom used**,** exists in the roadstead off Speightstown (13°15′N 59°39′W), the second largest town on the island, in depths of 20 to 40 m.

Black Rock Tanker Terminal

9.39

1 **Description.** Black Rock Tanker Terminal, which is not charted, in approximate position 13°08′N 59°39′W, is situated about 7½ cables N of Spring Garden Tanker Terminal (13°07′N 59°38′W) (Chart 502 plan of Bridgetown Harbour and Approaches).

This terminal, which comprises three large mooring buoys and an underwater pipeline, is used in conjunction with the bulk storage facility adjacent to Lazaretto. (see 1.44).

2 Vessels with a length of 122 m and a draught of 7·5 m can be accommodated.

Pilotage and clearance regulations are the same as those for Bridgetown but vessels do not berth at night.

Minor Port

Chart 502 plan of Speightstown including Arawak Jetty

Port St. Charles

9.40

1 **General information.** A harbour complex lies at Port St. Charles (13°16′N 59°39′W) in Six Men's Bay. It is a Port of Entry.

Caution. The plan of the approaches to Port St Charles is for guidance only and is not updated. It should not be used for navigation.

The harbour comprises an inner lagoon entered via the lagoon mouth, and a breakwater connected by a bridge to the shore, N of the lagoon mouth. The breakwater extends in a curve about 220 m W and S, the S end being marked by a light (13°16′N 59°39′W), from which locations are referenced.

2 **Dangers:**

Submerged breakwater (120 m SE) with depths of less than 2 m over it, and marked at its N and S ends by light buoys (green and white);

Tom Snooch Reef (40 m E) with depths of less than 2 m over it. The W and N sides are marked by light–buoys (starboard hand).

3 **Depths** in the approach channel and most of the outer harbour are between 4 and 5 m. In the N part of the outer harbour and the lagoon, including the lagoon mouth, there are depths of less than 3·7 m. The depths on the plan are for guidance only. Further information should be obtained from the harbour master.

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Regulations. Maximum speed of 3 kn in the lagoon.

4 **Directions.** From a position on the coastal route the vicinity of 13°16′N 59°41′W the track leads E, passing close S of the breakwater head, thence NE passing between the breakwater head and light–buoys (starboard hand) marking the W and N sides of Tom Snooch Reef, and into the outer harbour. The lagoon is entered via the lagoon mouth (140 m ENE), 22 m in width; the entrance marked on each side by a light.

5 **Berths.** (See plan) The inner side of the breakwater provides three piers, with six docks, length 30 m, and a fuelling berth.

Repairs: possible

Other facilities: hospital in Bridgetown and medical facilities in Speightstown.

Supplies: fuel (diesel and petrol); fresh water; provisions.

6 **Port authority.** The harbourmaster may be contacted by VHF, see *Admiralty Maritime Communications, Caribbean,*

BRIDGETOWN

GENERAL INFORMATION

Chart 502 plan of Bridgetown Harbour and Approaches

Position

9.41

1 Bridgetown (13°06′N 59°37′W), which stands around the shores of Carlisle Bay, is divided into two parts by The Careenage (9.55), the larger part being N of Constitution River. The bridge over The Careenage, at the river entrance, gives Bridgetown its name.

Function

9.42

1 Bridgetown is the capital of Barbados, its largest town and chief commercial centre with a population in 2000 of 133 000. It provides useful facilities for transhipment.

Traffic

9.43

1 In 2004, 1466 vessels used the port complex with a total dwt of 13 033 417.

Port Authority

9.44

1 University Row, Saint Michael, Bridgetown.

There is a General Manager and a Harbour Master, whose office is outside the immediate port area, 4 cables SE of the head of the breakwater.

The area within the jurisdiction of the Barbados Port Authority includes:

2 Port of Bridgetown (13°06′N 59°38′W) (9.66).
Spring Garden Anchorage (13°07′N 59°38′W) (9.63).
Speightstown Bay (13°15′N 59°39′W) (9.38).
The remainder of the territorial sea of Barbados (1.90).

Storm warning signals

9.45

1 See 9.7.

Rescue

9.46

1 Harbour tugs are available for rescue and short ocean towage operations.

Principal marks

9.47

1 **Landmarks** (with positions from Breakwater Head Light (13°06′N 59°38′W):

Two aluminium chimneys (1 mile N) (the two most seaward of a group of six chimneys at the power station).

Grain Terminal (3 cables NE) with two orange towers, 38 and 40 m in height, situated at the N end of the port.

Sugar Loading Towers on S breakwater from N (9.47)

(Original dated 1997)

(Photograph – Crown Copyright)

2 Three sugar loading towers (4 cables SSE), situated on the breakwater at the S end of the Deep Water Harbour.

Bulk sugar store (building) (5 cables SE), which is 171 m in length with a height of 31 m.

Two silver domes on Bridgetown Clubhouse (1 mile SE).

3 Hotel (2 miles SE). There is a pavilion with a green roof at the seaward end of the pier adjacent to the hotel.

Clock–tower of the Savannah Clubhouse (2¼ miles SE) (9.19).

APPROACHES TO BRIDGETOWN

Charts 502 plan of Bridgetown Harbour and Approaches, 2485

9.48

1 **General information** (9.41).

Directions

Approach from north–west

(continued from 9.35)

9.49

1 From a position W of Black Rock Tanker Terminal (13°08′N 59°39′W) (9.39), the track leads SE for about 2½ miles passing (with positions from the Grain Terminal (13°07′N 59°38′W)):

SW of a wreck (2¼ miles NNW) (9.35), thence:

SW of an isolated patch (1 mile NW) with a depth of 6·9 m over the shallowest of a close group of shoals.

2 From this position the track continues SE for about 3 cables to a position SW of two conspicuous chimneys (1 mile N) at the Spring Gardens Power Station. This is the pilot boarding ground.

(Directions continue for The Careenage at 9.59, and for Deep Water Harbour at 9.90)

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Approach from south

(continued from 9.21)

9.50

1 From the vicinity of 13°05′N 59°39′W the track leads N towards Bridgetown Deep Water Harbour (9.66) for a distance of about 2½ miles, or NE towards Carlisle Bay (9.51) for a distance of 2 miles, passing (with positions from Needhams Point (13°05′N 59°37′W)):

2 Clear of a rocky spit, with depths of less than 10 m over it, extending nearly 3 cables W from Needhams Point. This spit is steep–to and soundings give little warning. Inshore of the spit is a reef which borders Needhams Point. Thence:

3 Clear of detached coral patches, (6 cables N and 1 mile NNW) with depths of less than 10 m over them, and a spit with depths of less than 10 m over it (8 cables NNW), all lying within about 4 cables of the shore.

(Directions continue for The Careenage at 9.59, and for Deep Water Harbour at 9.90)

Carlisle Bay

General information

9.51

1 **Description.** Carlisle Bay (13°05′N 59°37′W) 1 mile SE of Bridgetown Deep Water Harbour, is the principal anchorage in Barbados for all classes of vessel. The bay forms an open roadstead with a sandy bottom and coral formations, sheltered from the prevailing wind.

A Coastguard Station is situated on the molehead at The Careenage (13°06′N 59°37′W) (9.59).

Anchorages

9.52

1 **Quarantine Anchorage**, with depths of 18 to 50 m, lies within a circular area with its centre about 9 cables WNW of Needhams Point (13°05′N 59°37′W), as shown on the chart.

Smaller vessels and coasters may anchor in a charted depth greater than 20 m, with Needhams Point Light (9.22) bearing 129° distant about 1 mile.

Inter–island Vessels Anchorage is charted within a circular area with its centre 9 cables NNW of Needhams Point as shown on the chart.

2 It is reported that Carlisle Bay is a relatively poor anchorage because it is open to rollers (1.222) from the NW and seas curving round Needhams Point.

Prohibited anchorages

9.53

On a bank enclosed by the 20 m depth contour (13°05′N 59°38′W),

Within 1 cable of an outfall (13°06′N 59°38′W).

1 Within an area 1¾ cables S of the ruins of the Police Pier (13°05′N 59°37′W) as shown on the chart. This area is centred on an outfall which extends 220 m seaward from a wooden jetty, 97·5 m in length.

Needhams Point Tanker Terminal

9.54

1 **Description.** Needhams Point Tanker Terminal, consisting of three mooring buoys connected by a submarine pipeline to the shore, lies 2½ cables NNW of Needhams Point (13°05′N 59°37′W) (9.21), see also 1.44.

2 **Controlling size.** The berth has a depth of 13·2 m and can accommodate vessels up to a length of 198 m.

Pilotage, provided from Bridgetown, is compulsory, see 9.80.

3 **Berthing** in daylight only, at any state of the tide.

Other Facilities: hospitals; no facility for the disposal of dirty ballast.

Supplies: fresh water.

The Careenage

General information

9.55

1 **Position**.The Careenage (13°06′N 59°37′W) lies on the N part of Carlisle Bay.

Function. It is currently used by fishing vessels, inter–island commercial vessels, small craft, resident yachts and the Barbados Coast Guard.

Limiting conditions

9.56

1 Vessels with a length of 61 m and a draught of 4·1 m can be accommodated alongside in the The Careenage.

The approach channel is reported to have a depth of about 4 m (charted as 2·6 m).

Arrival information

9.57

1 **Pilotage** is compulsory. See 9.80.

Tugs are available.

Harbour

9.58

1 An enlargement of the mouth of Constitution River extending about 2½ cables within the entrance. It is crossed by Chamberlain Bridge and terminates about ¾ cable farther inland at another crossing bridge.

2 **Fishing Harbour** is entered between breakwater heads 1¼ cables W of the entrance of The Careenage.

Directions for entering harbour

9.59

1 From the vicinity of 13°05′N 59°38′W the track leads ENE into the harbour passing (with positions from the molehead (13°06′N 59°37′W)):

SW of a coral bank with a least charted depth of 1·6 m over it (4½ cables WNW) extending up to 1 cable from the shore, thence:

2 SW of the Fishing Harbour, thence:

Between the N entrance point of The Careenage (⅓ cable N) and the head of the mole, on which stands a light (silver metal framework structure, 5 m in height). Deeper water is charted on the S side of the entrance.

9.60

1 **Useful marks** (with positions from the molehead):

The square clock–tower and white flagstaff of the Parliament Buildings (2 cables ENE).

The grey square tower at the W end of Saint Michael's Cathedral (3½ cables ENE).

Basins and berths

9.61

1 The Careenage consists of an outer and an inner basin, separated by Chamberlain Bridge.

Outer basin is bordered by wharves on both sides.

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Deep Water Harbour from NW (9.66)

(Original dated 2002)

(Photograph – Stephen Mendes)

2 **Inner basin,** entered by way of Chamberlain Bridge which, with a maximum span of 9·7 m and a vertical clearance of 2·5 m at HW, is available for vessels not exceeding 3 m draught.

Supplies:

9.62

1 Fuel oil available at the Fishing Harbour; fresh water; fresh provisions; chandlery.

Spring Garden Anchorage and Tanker Terminal

Anchorage

9.63

1 **Description.** Spring Garden Anchorage (13°07′N 59°38′W) lies about 3 cables W of Spring Garden Point, between Kettle Bottom Shoal, to the N, and Pelican Shoals, to the S, both with depths of less than 1 m. These shoals often cause significant breakers and dry during July and August.

2 **The anchorage** has depths of 3·8 to 7 m in it, with a bank with depths of less than 5 m in the approach, and is encumbered by a number of buoys.

Berth

9.64

1 **Spring Garden Tanker Terminal,** consists of three mooring buoys (2 cables NW of Spring Garden Point) connected to the shore by a floating pipeline which is awash and marked by floats. This terminal handles liquefied gas.

Controlling size.

Draught of vessel 4·9 m.

Length of vessel 103 m.

2 **Pilotage** is compulsory, see 9.80.

Tugs are available, see 9.81.

Berthing in daylight only.

Landing

9.65

1 The ruins of a jetty are situated less than 1 cable SE of Spring Garden Point, near a rum refinery.

BRIDGETOWN DEEP WATER HARBOUR

General information

Chart 502 plan of Bridgetown Harbour and Approaches

Position

9.66

1 Bridgetown Deep Water Harbour (13°06′N 59°38′W) is situated on reclaimed land, NW of the town, at the N entrance point of Carlisle Bay.

Function

9.67

1 Bridgetown Deep Water Harbour, consisting of the Deep Water Berths, Bulk Grain Terminal and Esso Tanker Berth, fulfils much of the overall function of the harbour complex. It is the only port of entry for Barbados.

During the tourist season (November to April) the port is visited by many cruise ships.

Port limits

9.68

1 The seaward limit of Bridgetown Deep Water Harbour is established by a line joining the N end of the breakwater to the N extremity of the Bulk Grain Terminal (3 cables NNE).

Approach and entry

9.69

1 Approach from the NW (9.49) or from the S (9.50) and enter between the breakwater head and the SW corner of the Bulk Grain Terminal.

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Limiting conditions

Controlling depth
9.70

1 The recommended track into Bridgetown Deep Water Harbour, passing S of the fairway light–buoy (port hand) has a reported (2003) least depth of 11·9 m, see also 9.85. It is reported that no vessels are permitted to pass N of Fairway Light–buoy when entering Bridgetown Deep Water Harbour.

Deepest and longest berths
9.71

1 **Deepest berths:**

Inside the breakwater; the Bulk Grain Terminal (9.95).

Outside the breakwater; the Esso Jetty (9.79).

Longest berth is situated inside the outer arm of the breakwater (9.94).

Mean tidal levels
9.72

1 MHHW 1·0 m.
MLLW 0·4 m.

Density of water
9.73

1 1·025 g/cm^3.

Maximum size of vessel handled
9.74

1 Vessels up to 244 m in length (293 m if fitted with bow thrusters) 31·1 m beam and 9·6 m draught can enter Bridgetown Deep Water Harbour. The largest cruise ship handled (1996) was 74 000 grt.

For vessels using the Esso Jetty see 9.79.

Arrival information

Port operations
9.75

1 Bridgetown Port Control issue berthing instructions and control movements; for visual signals see 9.86.

Port radio
9.76

1 See *Admiralty List of Radio Signals Volume 6(5).*

Notice of ETA
9.77

1 ETA should be sent as early as possible, see *Admiralty List of Radio Signals Volume 6(5)*

Outer anchorages
9.78

1 **Explosives anchorage.** The anchorage for vessels carrying explosives is centred 6 cables NW of Breakwater Head Light, as shown on the chart, in depths of 9 to 25 m. This anchorage is also used for tankers waiting to use Spring Garden Tanker Terminal (9.64).

2 **Quarantine anchorage** (9.52).

Anchorage is available, good holding ground, 5 cables WSW of Deep Water Harbour Signal Station (on the elbow of the breakwater) (9.86).

Anchoring is prohibited in the approach to the harbour, within the area shown on the chart.

Outer berth
9.79

1 A T–shaped jetty, known as the Oil Pier or Esso Tanker Berth (13°06′N 59°38′W), extends about 122 m from the coast, close SE of the root of the breakwater. The head of the jetty, including dolphins at each end, has a length of about 85·3 m and a depth alongside of 13·2 m. Vessels with a length of 244 m and a draught of 11·6 m can be accommodated, allowing for an under–keel clearance of 1·6 m. Lights are exhibited from the berth and the jetty can be illuminated by floodlights on request.

2 Mooring buoys are situated SE and NW of the jetty as indicated on the chart.

Pilots and tugs
9.80

1 **Pilotage** is compulsory for all vessels except warships and small craft, see *Admiralty List of Radio Signals Volume 6(5)*. It is available 24 hours a day. The pilot boards on the port side of the vessel 8 cables WNW of the Breakwater Head Light, as shown on the chart.

9.81

1 **Tugs** are available to assist with turning and berthing. They are compulsory for all vessels over 1000 tonnes.

Use of tugs is recommended for turning in the approaches to the berths.

Port Exclusion Zone
9.82

1 An exclusion zone is established in the approaches to Deep Water Harbour, extending WSW from the NW corner of the Grain Terminal, to the Fairway Light–buoy, thence generally SE to the Esso Jetty as shown on the chart.

2 Vessels, including recreational craft, are not to enter this zone without prior permission from Port Control (9.75).

Quarantine
9.83

1 **Pratique** can be obtained in advance, by radio, between 4 and 18 hours before arrival.

Port Medical Officer boards ships on arrival alongside.

Quarantine anchorage (9.52).

Harbour

General layout
9.84

1 Bridgetown Deep Water Harbour is enclosed between a breakwater on its S and W sides and by the Quay Wall on its E side. The Grain Terminal extends WSW from the coast close N of Deep Water Harbour and an inner basin for shallow draught vessels extends SSE from this terminal.

2 Works are in progress (2003) to reclaim land and construct additional berths N of the berths on E side of Deep Water Harbour.

Depths
9.85

1 In the Deep Water Harbour there is a least depth of 11·7 m in the centre of the harbour, with lesser depths near the berths as shown on the chart.

2 In the approach to the Grain Terminal the least charted depth is 11·9 m.

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Signals

9.86

1 **Traffic signals** are shown from a flagstaff at the Port Control Signal Station, a concrete building about 2·5 m high, on the elbow of the breakwater.

2 **Visual storm warning signals** see 9.7.

Day	*Night*	*Meaning*
Flag E		Port open; fairway clear for inward traffic
Flag D		Port closed; fairway clear for outward traffic

Bridgetown traffic signals (9.86)

Natural conditions

9.87

1 **Flow.** Currents are generally weak and variable to the W of the breakwater. However an unpredictable N or S set of up to 2½ kn can be experienced immediately to the W of the breakwater head.

Swell is particularly noticeable in November and is at a minimum in summer.

2 **Climatic table** (1.260).

Local weather. The port is protected from the North–east Trade Wind but a fresh E wind usually blows from about 1 hour after sunrise to 1 hour before sunset.

Movements within the port

9.88

1 There are no restrictions on the time of movements but it is recommended that they be made before 0900 or after 1800 to avoid fresh winds. Larger vessels move before 0730 and it is reported that the local pilots usually commence berthing and unberthing operations at daybreak.

Principal marks

9.89

1 See 9.47.

Directions for entering harbour

(continued from 9.49)

9.90

1 **Leading lights:**

Front light (red and yellow stripes) (13°06′·5N 59°37′·7W),

Rear light (similar structure) (190 m E of front light).

2 From the vicinity of the pilot boarding ground (13°07′N 59°39′W the alignment (088°) of the above lights leads into the harbour entrance passing (with positions from the head of the breakwater (13°06′N 59°38′W)):

S of Fairway Light–buoy (port hand) (3 cables WNW) marking the SW extremity of the coastal bank, with a depth of 7·2 m over it (3 cables NNW), thence:

N of a buoy (starboard hand) (2 cables WNW),

3 N of Breakwater Head Light (yellow triangle on red beacon, 9 m in height)

S of a buoy (red can) (2 cables NNE) marking the S edge of shoal water with depths less than 10 m.

Turning basin

9.91

1 Vessels are usually swung in the turning basin before berthing head–to–sea.

Approaching Grain Terminal

9.92

1 From the harbour entrance the track continues on the 088° alignment of the leading lights passing:

N of No 2 Light–buoy (9.91).

From this position the track leads ENE towards the berth passing:

2 NNW of No 3 Light–buoy (starboard hand) (3 cables ENE) marking the N edge of the bank extending N from land being reclaimed (9.84).

Useful marks

9.93

1 Light (red mast, 4 m in height) standing at the SW corner of reclaimed land containing the Bulk Grain Terminal (9.95).

Bridgetown Grain Terminal from SW (9.92)

(Original dated 2002)

(Photograph – Gareth Kirk, mv Logos II)

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Light (yellow inverted triangle on red beacon, 11 m in height) standing at the NW corner of the Container Berth.

Basins and berths

Deep water berths

9.94

1 Berths are available on all sides of the Deep Water Harbour, including the breakwater. The largest berthing area lies along the inside of the breakwater, with a length of 522 m and a reported depth alongside of 9·7 m.

2 Ro–Ro facilities are available at the S end of the harbour and containers are handled at the N end of the E side.

Grain Terminal

9.95

1 Situated on the N side of the harbour, along the SE side of reclaimed land, is a dolphin berth able to accommodate vessels up to 30 000 tonnes displacement. Length of berth is 152 m, allowing maximum vessel length of 183 m alongside. The reported depth alongside is 11·5 m, but there is a 9·3 m shoal off the W end of the berth. This berth is equipped to handle bulk grain and flour.

Inner basin

9.96

1 The inner basin E of the deep water berths, known as the Shallow Draught Harbour, has a quay on its W side, about 156 m in length with a minimum depth alongside of 6·9 m. It is used by inter–island cargo and passenger vessels.

Port services

Port facilities

9.97

1 **Repairs:** minor repairs including machinery.

Other facilities: deratting exemption certificates can be issued; general hospital; oily waste reception facilities are available for use at 4 hours notice.

2 **Salvage** operations are conducted by the Marine Unit of the Barbados Defence Force. Contact can be made through the Harbour Master.

Tugs are equipped for firefighting.

3 **Supplies:** fuel oil; heavy and light diesel, at all berths in the Deep Water Harbour; fresh water; provisions.

Communications: international airport.

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APPENDIX I

CODE OF FEDERAL REGULATIONS TITLE 33 — NAVIGATION AND NAVIGABLE WATERS

PART 26 — VESSEL BRIDGE-TO-BRIDGE RADIOTELEPHONE REGULATIONS

Appendix I contains extracts from the United States Bridge-to-Bridge Telephone Act. For a complete description of this part see 33 CFR 26.

§26.01 Purpose. (See 33 CFR 26)

§26.02 Definitions. (See 33 CFR 26)

§26.03 Radiotelephone required.

(a) Unless an exemption is granted under §26.09 (waters not applicable to this volume) and except as provided in paragraph (a)(4) of this section, this part applies to:
  (1) Every power–driven vessel of 20 m or over in length while navigating;
  (2) Every vessel of 100 gross tons and upward carrying one or more passengers for hire while navigating;
  (3) Every towing vessel of 26 ft (7·9 m) or over in length while navigating; and
  (4) Every dredge and floating plant engaged in or near a channel or fairway in operations likely to restrict or affect navigation of other vessels except for an unmanned or intermittently manned floating plant under the control of a dredge.

(b) Every vessel, dredge or floating plant described in paragraph (a) of this section must have a radiotelephone on board capable of operation from its navigational bridge, or in the case of a dredge from its main control station, and capable of transmitting and receiving on the frequency or frequencies within the 156-162 MHz band using the classes of emissions designated by the Federal Communications Commission for the exchange of navigational information.

(c) The radiotelephone required by paragraph (b) of this section must be carried on board the described vessels, dredges and floating plants upon the navigable waters of the United States.

(d) The radiotelephone required by paragraph (b) of this section must be capable of transmitting and receiving on VHF FM channel 22A (157.1 MHz).

(f) In addition to the radiotelephone required by paragraph (b) of this section each vessel described in paragraph (a) of this section, while transiting any waters within a Vessel Traffic Service Area, must have on board a radiotelephone capable of transmitting and receiving on the VTS designated frequency in Table 161.12 (c) (VTS and VMRS Centers, Call Signs/MMSI, Designated Frequencies and Monitoring Areas).

Note. A single VHF-FM radio, capable of scanning or sequential monitoring, (often referred to as dual watch capability) will not meet the requirements for two radios.

§26.04 Use of the designated frequency.

(d) On the navigable waters of the United States channel 13 (156.65 MHz) is the designated frequency required to be monitored in accordance with §26.05 (a), except that in the area prescribed in §26.03 (e) (not listed – waters not applicable to this volume) channel 67 (156.375 MHz) is the designated frequency.

(e) On those navigable waters of the United States within a VTS area, the designated VTS frequency is an additional designated frequency required to be monitored in accordance with §26.05.

Note: As stated in 47 CFR 80.148 (b) a VHF watch on channel 16 (156.800 MHz) is not required on vessels subject to the Vessel Bridge-to-Bridge Radiotelephone Act and participating in a Vessel Traffic Service (VTS) system when the watch is maintained on both the vessel bridge-to-bridge frequency and a designated VTS frequency.

§26.05 Use of radiotelephone.

Section 5 of the Act states that the radio telephone required by this Act is for the exclusive use of the Master or person in charge of the vessel, or the person designated by the Master or person in charge to pilot or direct the movement of the vessel, who shall maintain a listening watch on the designated frequency. Nothing herein shall be interpreted as precluding the use of portable radiotelephone equipment to satisfy the requirements of this act.

§26.06 Maintenance of radiotelephone; failure of radiotelephone. (See 33 CFR 26)

§26.07 Communications.

No person may use the service of, and no person may serve as, a person required to maintain a listening watch under Section 5 of the Act, 33 U.S.C 1204 unless that person can communicate in the English language.

§26.08 Exemption procedures. (See 33 CFR 26)

§26.09 List of exemptions. (See 33 CFR 26)

§26.10 Penalties.

Section 9 of the Act states:

(a) Whoever, being the Master or person in charge of a vessel subject to the Act, fails to enforce or comply with the Act or the regulations hereunder; or whoever, being designated by the Master or person in charge of a vessel subject to the Act to pilot or direct the movement of the vessel fails to enforce or comply with the Act or the regulations hereunder is liable to a civil penalty of not more than $500 to be assessed by the Secretary.

(b) Every vessel navigated in violation of the Act or the regulations hereunder is liable to a civil penalty of not more than $500 to be assessed by the Secretary, for which the vessel may be proceeded against in any District Court of the United States having jurisdiction.

(c) Any penalty assessed under this section may be remitted or mitigated by the Secretary, upon such terms as he may deem proper.

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APPENDIX II

CODE OF FEDERAL REGULATIONS TITLE 33 — NAVIGATION AND NAVIGABLE WATERS

PART 160 — PORTS AND WATERWAYS SAFETY — GENERAL

Appendix II contains extracts from Subpart C of the above regulations issued by the United States Department of Commerce. For a complete description of this part see 33 CFR 160.

Subpart C — Notification of Arrival, Hazardous Conditions, and Certain Dangerous Cargoes.

§160.201 General.

This subpart contains requirements and procedures for submitting Notices of Arrival (NOA) and Notice of Hazardous Condition. The sections in this subpart describe:

(a) Applicability and exemptions from requirements in this subpart;
(b) Required information in a NOA;
(c) Required changes to a NOA;
(d) Methods and times for submission of a NOA and changes to a NOA;
(e) How to obtain a waiver; and
(f) Requirements for submission of the Notice of Hazardous Conditions.

§160.202 Applicability.

(a) This subpart applies to US and foreign vessels bound for and departing from ports or places in the United States.
(b) This subpart does not apply to recreational vessels under 46 U.S.C. *4301 et seq.*
(c) Unless otherwise specified in this subpart, the owner, agent, master, operator, or person in charge of a vessel regulated by this subpart is responsible for compliance with the requirements in this subpart.
(d) Towing vessels controlling a barge or barges required to submit a NOA under this subpart must submit only one NOA containing the information required for the towing vessel and each barge under its control.

§160.203 Exemptions.

(a) Except for reporting notice of hazardous conditions, the following vessels are exempt from requirements in this subpart:

(1) Passenger and supply vessels when they are employed in the exploration for or in the removal of oil, gas, or mineral resources on the continental shelf.
(2) Oil Spill Recovery Vessels (OSRVs) when engaged in actual spill response operations or during spill response exercises.
(3) Vessels operating upon the following waters:
  (i) Mississippi River between its sources and mile 235, Above Head of Passes;
  (ii) Tributaries emptying into the Mississippi River above mile 235;
  (iii) Atchafalaya River above its junction with the Plaquemine–Morgan City alternate waterway and the Red River; and
  (iv) The Tennessee River from its confluence with the Ohio River to mile zero on the Mobile River and all other tributaries between those two points.

(b) If not carrying certain dangerous cargo or controlling another vessel carrying certain dangerous cargo, the following vessels are exempt from NOA requirements in this subpart:

(1) Vessels 300 gross tons or less, except for foreign vessels entering any port or place in the Seventh Coast Guard District as described in 33 CFR 3.35–1(b).
(2) Vessels operating exclusively within a Captain of the Port Zone.
(3) Vessels arriving at a port or place under force majeure.
(4) Towing vessels and barges operating solely between ports or places in the continental United States.
(5) Public vessels.
(6) Except for tank vessels, US vessels operating solely between ports or places in the United States on the Great Lakes.

(c) Vessels less than 500 gross tons need not submit the International Safety Management (ISM) Code Notice (Entry (7) in Table 160.206).
(d) [Suspended]
(e) [Suspended]
(f) US vessels need not submit the International Ship and Port Facility Code (ISPS) Notice Information (Entry (9) in Table 160.206)

§160.204 Definitions

As used in this subpart:

Agent means any person, partnership, firm, company or corporation engaged by the owner or charterer of a vessel to act in their behalf in matters concerning the vessel.

Barge means a non–self propelled vessel engaged in commerce.

Carried in bulk means a commodity that is loaded or carried on board a vessel without containers or labels and received and handled without mark or count.

Certain dangerous cargo (CDC) includes any of the following:

(1) Division 1.1 or 1.2 explosives as defined in 49 CFR 173.50.
(2) Division 1.5D blasting agents for which a permit is required under 49 CFR 176.415, or for which a permit is required as a condition of a Research and Special Programs Administration exemption.
(3) Division 2.3 "poisonous gas", as listed in 49 CFR 172.101 that is also a "material poisonous by inhalation" as defined in 49 CFR 171.8, and that is in a quantity in excess of 1 metric ton per vessel.
(4) Division 5.1 oxidizing materials for which a permit is required under 49 CFR 176.415 or for which a permit is required as a condition of a Research and Special Programs Administration exemption.

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(5) A liquid material that has a primary or subsidiary classification of Division 6.1 "poisonous material" as listed in 49 CFR 172.101 that is also a "material poisonous by inhalation" as defined in 49 CFR 171.8 and that is in a bulk packaging, or that is in a quantity in excess of 20 metric tons per vessel when not in a bulk packaging.
(6) Class 7, "highway route controlled quantity" radioactive material, or "fissile material, controlled shipment," as defined in 49 CFR 173.403.
(7) Bulk liquefied chlorine gas and bulk liquefied gas cargo that is flammable and/or toxic and carried under 46 CFR 154.7.
(8) The following bulk liquids:
(i) Acetone cyanohydrin,
(ii) Allyl alcohol,
(iii) Chlorosulfonic acid,
(iv) Crotonaldehyde,
(v) Ethylene chlorohydrin,
(vi) Ethylene dibromide,
(vii) Methacrylonitrile, and
(viii) Oleum (fuming sulphuric acid).
(9) Ammonium nitrate and ammonium nitrate based fertilizers, in bulk, listed as a Division 5.1 material in 49 CFR 172.101.
(10) Propylene oxide, alone or mixed with ethylene oxide, in bulk.

Charterer means the person or organisation that contracts for the majority of the carrying capacity of a ship for the transportation of cargo to a stated port for a specified period. This includes "time charterers" and voyage charterers".
Crewmember means all persons carried on board the vessel to provide navigation and maintenance of the vessel, its machinery, systems, and arrangements essential for propulsion and safe navigation or to provide services for other persons on board.
Great Lakes means Lakes Superior, Michigan, Huron, Erie, and Ontario, their connecting and tributary waters, the Saint Lawrence River as far Saint Regis, and adjacent port areas.
Gross tons means the tonnage determined by the tonnage authorities of a vessel's flag state in accordance with the national tonnage rules in force before the entry into force of the International Convention on Tonnage Measurement of Ships, 1969 ("Convention"). For a vessel measured only under Annex 1 of the Convention, gross tons means that tonnage. For a vessel measured under both systems, the higher gross tonnage is the tonnage used for the purposes of the 300 gross–ton threshold.
Hazardous condition means any condition that may adversely affect the safety of any vessel, bridge, structure, or shore area or the environmental quality of any port, harbor, or navigable waterway of the United States. It may, but need not, involve collision, fire, explosion, grounding, leaking, damage, injury or illness of a person on board, or manning shortage.
Nationality means the state (nation) in which a person is a citizen or to which a person owes permanent allegiance.
Operator means any person including, but not limited to, an owner, a charterer, or another contractor who conducts, or is responsible for, the operation of a vessel.
Persons in addition to crewmembers means any person onboard the vessel, including passengers, who are not included on the list of crewmembers.
Port or place of departure means any port or place in which a vessel is anchored or moored.
Port or place of destination means any port or place to which a vessel is bound to anchor or moor.
Public vessel means a vessel that is owned or demise (bareboat) chartered by the government of the United States, by a State or local government, or by the government of a foreign country and that is not engaged in commercial service.
Time charterer means the party who hires a vessel for a specific amount of time. The owner and his crew manage the vessel but the charterer selects the port of destination.
Voyage charterer means the party who hires a vessel for a single voyage. The owner and his crew manage the vessel but the charterer selects the port of destination.

§160.206 Information required in a NOA.

(a) Each NOA must contain all of the information items specified in Table 160.206.

TABLE 160.206. — NOA INFORMATION ITEMS

Required information	Vessels not carrying CDC	Vessels	Towing vessels controlling vessels carrying CDC
(1) *Vessel information:*			
(i) Name;	x	x	x
(ii) Name of the registered owner;	x	x	x
(iii) Country of registry;	x	x	x
(iv) Call sign;	x	x	x
(v) International Maritime Organisation (IMO) international number or, if the vessel does not have an assigned IMO international number, substitute with official number;	x	x	x
(vi) Name of the operator;	x	x	x
(vii) Name of the charterer; and	x	x	x
(viii) Name of classification society.	x	x	x

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APPENDIX II

Required information	Vessels not carrying CDC	Vessels	Towing vessels controlling vessels carrying CDC
(2) *Voyage information:*			
(i) Names of last five ports or places visited;	x	x	x
(ii) Dates of arrival and departure for last five ports or places visited;	x	x	x
(iii) For each port or place in the United States to be visited, list the names of the receiving facility, the port or place, the city, and the state;	x	x	x
(iv) For each port or place in the United States to be visited, the estimated date and time of arrival;	x	x	x
(v) For each port or place in the United States to be visited, the estimated date and time of departure;	x	x	x
(vi) The location (port or place and country) or position (latitude and longitude or waterway and mile marker) of the vessel at the time of reporting; and	x	x	x
(vii) The name and telephone number of a 24 hour point of contact.	x	x	x
(3) *Cargo information:*			
(i) A general description of cargo, other than CDC, onboard the vessel (e.g.: grain, container, oil, etc.);	x	x	x
(ii) Name of each certain dangerous cargo carried, including cargo UN number, if applicable; and		x	x
(iii) Amount of each certain dangerous cargo carried.		x	x
(4) *Information for each Crewmember Onboard:*			
(i) Full name;	x	x	x
(ii) Date of birth;	x	x	x
(iii) Nationality;	x	x	x
(iv) Passport or mariners document number (type of identification and number);	x	x	x
(v) Position or duties on the vessel; and	x	x	x
(vi) Where the crewmember embarked (list port or place and country)	x	x	x
(5) *Information for each Person Onboard in Addition to Crew:*			
(i) Full name;	x	x	x
(ii) Date of birth;	x	x	x
(iii) Nationality;	x	x	x
(iv) Passport number; and	x	x	x
(v) Where the person embarked (list port or place and country)	x	x	x
(6) *Operational condition of equipment required by §164.35.*	x	x	x
(7) *International Safety Management (ISM) Code Notice:*			
(i) The date of issuance for the company's Document of Compliance certificate that covers the vessel;	x	x	x
(ii) The date of issuance for the vessel's Safety Management Certificate; and	x	x	x
(iii) The name of the Flag Administration, or the recognized organization(s) representing the vessel flag administration, that issued those certificates.	x	x	x
(8) [Suspended]			
(9) *International Ship and Port Facility Code (ISPS) Notice:*			
(i) The date of issuance for the vessel's International Ship Security Certificate (ISSC), if any;	x	x	x
(ii) Whether the ISSC, if any, is an initial Interim ISSC, subsequent and consecutive Interim ISSC, or final ISSC;	x	x	x
(iii) Declaration that the approved ship security plan, if any, is being implemented;	x	x	x
(iv) If a subsequent and consecutive Interim ISSC, the reasons therefor;	x	x	x
(v) The name and 24 hour contact information for the Company Security Officer; and;	x	x	x
(vi) The name of the Flag Administration, or the recognised security organisation(s) representing the vessel flag Administration that issued the ISSC	x	x	x

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(b) Vessels operating solely between ports or places in the continental United States need submit only the name of and date of arrival and departure for the last port or places visited to meet the requirements in entries (2)(i) and (ii) in Table 160.206 of this section.
(c) You may submit a copy of INS Form 1–418 to meet the requirements of entries (4) and (5) in Table 160.206.
(d) Any vessel planning to enter two or more consecutive ports or places in the United States during a single voyage may submit one consolidated Notification of Arrival at least 96 hours before entering the first port or place of destination. The consolidated notice must include the name of the port or place and estimated arrival and departure date for each destination of the voyage. Any vessel submitting a consolidated notice under this section must still meet the requirements of §160.208 of this part concerning requirements for changes to a NOA.

§160.208 Changes to a submitted NOA.

(a) Unless otherwise specified in this section, when submitted NOA information changes, vessels must submit a notice of change within the times required in §160.212.
(b) Changes in the following information need not be reported:
  (1) Changes in arrival or departure times that are less than six (6) hours;
  (2) Changes in vessel location or position of the vessel at the time of reporting (entry (2)(vi) in Table 160.206);
  (3) Changes to crewmembers' positions or duties on the vessel (entry (5)(v) in Table 160.206).
(c) When reporting changes, submit only the name of the vessel, original NOA submission date, the port of arrival, the specific items to be corrected, and the new location or position of the vessel at the time of reporting. Only changes to NOA information need to be submitted.

§160.210 Methods for submitting a NOA.

(a) [Suspended]

Note to paragraph (a): Information about the National Vessel Movement Center is available on its website at http:/www.nvmc.uscg.gov/. You may submit the notice using any electronic format available on the NVMC website.

(b) *Saint Lawrence Seaway transits.* Those vessels transiting the Saint Lawrence Seaway inbound, bound for a port or place in the United States, may meet the submission requirements of paragraph (a) of this section by submitting the required information to the Saint Lawrence Seaway Development Corporation and the Saint Lawrence Seaway Management Corporation of Canada by fax at 315–764–3235 or at 315–764–3200.
(c) *Seventh Coast Guard District*. Those foreign vessels 300 or less gross tons operating in the Seventh Coast Guard District must submit a NOA to the cognizant Captain of the Port (COTP).
(d) [Suspended]
(e) *Submission to the National Vessel Movement Center (NVMC).* Except as provided in paragraphs (b) and (c) of this section, vessels must submit NOA information required by §160.206 (entries 1–9 in Table 160.206) to the NVMC, United States Coast Guard, 408 Coast Guard Drive, Kearneysville, W.V., 25430, by:
  (1) Electronic submission via the electronic NOA (e–NOA) available on the NVMC web site at http://www.nvmc.uscg.gov.
  (2) Electronic submission via web service of formatted XML (eXtensible Markup Language) documents. E–mail sans@nvmc.uscg.gov to ask for the XML scheme details.
  (3) E–mail at sans@nvmc.uscg.gov. Workbook available at http://www.nvmc.uscg.gov;
  (4) Fax at 1–800–547–8724 or 304–264–2684. Workbook available at http://www.nvmc.uscg.gov; or,
  (5) Telephone at 1–800–708–9823 or 304–264–2502.

§160.212 When to submit a NOA.

(a) *Submission of NOA.*
  (1) Except as set out in paragraph (a)(2) of this section, all vessels must submit NOAs within the times required in paragraph (a)(3) of this section.
  (2) Towing vessels, when in control of a vessel carrying CDC and operating solely between ports or places in the continental United States, must submit a NOA before departure but at least 12 hours before departure but at least 12 hours before entering the port or place of destination.
  (3) Times for submitting NOAs are as follows:

If your voyage time is :–	You must submit a NOA :–
(i) 96 hours or more; or	At least 96 hours before entering the port or place of destination; or
(ii) Less than 96 hours	Before departure but at least 24 hours before entering the port or place of destination.

(b) *Submission of changes to NOA.*
  (1) Except as set out in paragraph (b)(2) of this section, vessels must submit changes in NOA information within the times required in paragraph (b)(3) of this section.
  (2) Towing vessels, when in control of a vessel carrying CDC and operating solely between ports or places in the continental United States, must submit changes to a NOA as soon as practicable but at least 6 hours before entering the port or place of destination.
  (3) Times for submitting changes to NOAs are as follows:

If your remaining voyage time is :–	Then you must submit changes to a NOA :–
(i) 96 hours or more;	As soon as practicable but at least 24 hours before entering the port or place of destination;
(ii) Less than 96 hours but not less than 24 hours; or	As soon as practicable but at least 24 hours before entering the port or place of destination; or
(iii) Less than 24 hours	As soon as practicable but at least 24 hours before entering the port or place of destination;

(c) [Suspended]

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§160.214 Waivers.

The Captain of the Port may waive, within that Captain of the Port's designated zone, any of the requirements of this subpart for any vessel or class of vessels upon finding that the vessel, route, area of operations, conditions of the voyage, or other circumstances are such that application of this subpart is unnecessary or impractical for purposes of safety, environmental protection, or national security.

§160.215 Notice of hazardous conditions.

Whenever there is a hazardous condition either aboard a vessel or caused by a vessel or its operation, the owner, agent, master, operator, or person in charge shall immediately notify the nearest Coast Guard Marine Safety Office or Group Office. (Compliance with this section does not relieve responsibility for the written report required by 46 CFR 4.05–10).

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APPENDIX III

CODE OF FEDERAL REGULATIONS TITLE 33 — NAVIGATION AND NAVIGABLE WATERS

PART 161 — VESSEL TRAFFIC MANAGEMENT

Appendix III contains extracts from the above regulations issued by the United States Department of Commerce. For a complete description of this part see 33 CFR 161.

Subpart A — Vessel Traffic Services

General Rules

§161.1 Purpose and Intent.

(a) The purpose of this part is to promulgate regulations implementing and enforcing certain sections of the Ports and Waterways Safety Act (PWSA) setting–up a national system of Vessel Traffic Services that will enhance navigation, vessel safety, and marine environmental protection, and promote safe vessel movement by reducing the potential for collisions, rammings and groundings, and the loss of lives and property associated with these incidents within VTS areas established hereunder.

(b) Vessel Traffic Services provide the mariner with information related to the safe navigation of a waterway. This information, coupled with the mariner's compliance with the provisions set forth in this part, enhances the safe routing of vessels through congested waterways or waterways of particular hazard. Under certain circumstances, a VTS may issue directions to control the movement of vessels in order to minimize the risk of collision between vessels, or damage to property or the environment.

(c) The owner, operator, charterer, master or person directing the movement of a vessel remains at all times responsible for the manner in which the vessel is operated and maneuvered, and is responsible for the safe navigation of the vessel under all circumstances. Compliance with these rules or with a direction from the VTS is at all times contingent upon the exigencies of safe navigation.

(d) Nothing in this part is intended to relieve any vessel, owner, operator, charterer, master, or person directing the movement of a vessel from the consequences of any neglect to comply with this part or any other applicable law or regulations (e.g. the International Regulations for Prevention of Collisions at Sea, 1972 (72 COLREGS) or the Inland Navigation Rules) or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.

§161.2 Definitions.

For the purposes of this part:

Cooperative Vessel Traffic Services (CVTS) means the system of vessel traffic management established and jointly operated by the United States and Canada within adjoining waters. In addition, CVTS facilitates traffic movement and anchorages, avoids jurisdictional disputes, and renders assistance in emergencies in adjoining United States and Canadian waters.

Hazardous Vessel Operating Condition means any condition related to a vessel's ability to safely navigate or maneuver, and includes, but is not limited to:

(1) The absence or malfunction of vessel operating equipment, such as propulsion machinery, steering gear, radar system, gyrocompass, depth sounding device, automatic radar plotting aid (ARPA), radiotelephone, Automatic Identification System equipment, navigation lighting, sound signalling devices or similar equipment.

(2) Any condition on board the vessel likely to impair navigation, such as lack of current nautical charts and publications, personnel shortage, or similar condition.

(3) Vessel characteristics that affect or restrict maneuverability, such as cargo arrangement, trim, loaded condition, underkeel clearance, speed, or similar characteristics.

Navigable waters means all navigable waters of the United States including the territorial sea of the United States, extending to 12 nautical miles from the United States baselines, as described in Presidential Proclamation No. 5928 of December 27, 1988.

Precautionary Area means a routing measure comprising an area within defined limits where vessels must navigate with particular caution and within which the direction of traffic may be recommended.

Navigable waters means all navigable waters of the United States, including the territorial sea of the United States, extending to 12 nautical miles from United States baselines, as described in Presidential Proclamation No 5928 of December 27, 1988.

Towing Vessel means any commercial vessel engaged in towing another vessel astern, alongside, or by pushing ahead.

Vessel Movement Center (VMC) means the shore–based facility that operates the vessel tracking system for a Vessel Movement Reporting System (VMRS) area or sector within such an area. The VMC does not necessarily have the capability or qualified personnel to interact with marine traffic, nor does it necessarily respond to traffic situations developing in the area, as does a Vessel Traffic Service (VTS).

Vessel Movement Reporting System (VMRS) means a mandatory reporting system used to monitor and track vessel movements. This is accomplished by a vessel providing information under established procedures as set forth in this part in the areas defined in Table 161.12 (c) (VTS and VMRS Centers, Call Signs/MMSI, Designated Frequencies, and Monitoring Areas).

Vessel Movement Reporting System (VMRS) User means a vessel, or an owner, operator, charterer, master, or person directing the movement of a vessel, that is required to participate in a VMRS.

Vessel Traffic Center (VTC) means the shore–based facility that operates the vessel traffic service for the Vessel Traffic Service area or sector within such an area.

Vessel Traffic Service (VTS) means a service implemented by the United States Coast Guard designed to improve the safety and efficiency of vessel traffic and to protect the environment. The VTS has the capability to interact with

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marine traffic and respond to traffic situations developing in the VTS area.

Vessel Traffic Service Area or VTS Area means the geographical area encompassing a specific VTS area of service. This area of service may be subdivided into sectors for the purpose of allocating responsibility to individual Vessel Traffic Centers or to identify different operating requirements.

Note: Although regulatory jurisdiction is limited to the navigable waters of the United States, certain vessels will be encouraged or may be required, as a condition of port entry, to report beyond this area to facilitate traffic management within the VTS area.

VTS Special Area means a waterway within a VTS area in which special operating requirements apply.

VTS User means a vessel, or an owner, operator, charterer, master, or person directing the movement of a vessel, that is:

(a) Subject to the Bridge–to–Bridge Radiotelephone Act; or

(b) Required to participate in a VMRS within a VTS area (VMRS User).

VTS Users Manual means the manual established and distributed by the VTS to provide the mariner with a description of the services offered and rules in force for that VTS. Additionally, the manual may include chartlets showing the area and sector boundaries, general navigational information about the area, and procedures, radio frequencies, reporting provisions and other information which may assist the mariner while in the VTS area.

§161.3 Applicability.

The provisions of this subpart shall apply to each VTS User and may also apply to any vessel while underway or at anchor on the navigable waters of the United States within a VTS area, to the extent the VTS considers necessary.

§161.4 Requirement to carry the rules.

Each VTS User shall carry on board and maintain for ready reference a copy of these rules.

Note: These rules are contained in the applicable U.S. Coast Pilot, the VTS User's Manual which may be obtained by contacting the appropriate VTS, and periodically published in the Local Notice to Mariners. The VTS User's Manual and the World VTS Guide, an International Maritime Organisation (IMO) recognised publication, contain additional information which may assist the prudent mariner while in the appropriate VTS area.

§161.5 Deviations from the rules.

(a) Requests to deviate from any provision in this part, either for an extended period of time or if anticipated before the start of a transit, must be submitted in writing to the appropriate District Commander. Upon receipt of the written request, the District Commander may authorize a deviation if it is determined that such a deviation provides a level of safety equivalent to that provided by the required measure or is a maneuver considered necessary for safe navigation under the circumstances. An application for an authorized deviation must state the need and fully describe the proposed alternative to the required measure.

(b) Requests to deviate from any provision in this part due to circumstances that develop during a transit or immediately preceding a transit, may be made verbally to the appropriate VTS Commanding Officer. Requests to deviate shall be made as far in advance as practicable. Upon receipt of the request, the VTS Commanding Officer may authorize a deviation if it is determined that, based on vessel handling characteristics, traffic density, radar contacts, environmental conditions and other relevant information, such a deviation provides a level of safety equivalent to that provided by the required measure or is a maneuver considered necessary for safe navigation under the circumstances.

Services, VTS measures, and Operating Requirements

§161.10 Services.

To enhance navigation and vessel safety, and to protect the marine environment, a VTS may issue advisories, or respond to vessel requests for information, on reported conditions within the VTS area, such as:

(a) Hazardous conditions or circumstances;
(b) Vessel congestion;
(c) Traffic density;
(d) Environmental conditions;
(e) Aids to navigation status;
(f) Anticipated vessel encounters;
(g) Another vessel's name, type, position, hazardous vessel operating conditions, if applicable, and intended navigational movements, as reported;
(h) Temporary measures in effect;
(i) A description of local harbor operations and conditions, such as ferry routes, dredging, and so forth;
(j) Anchorage availability; or
(k) Other information or special circumstances.

§161.11 VTS measures.

(a) A VTS may issue measures or directions to enhance navigation and vessel safety and to protect the marine environment, such as, but not limited to:
(1) Designating temporary reporting points and procedures;
(2) Imposing vessel operating requirements; or
(3) Establishing vessel traffic routing schemes.

(b) During conditions of vessel congestion, restricted visibility, adverse weather, or other hazardous circumstances, a VTS may control, supervise, or otherwise manage traffic, by specifying times of entry, movement, or departure to, from or within a VTS area.

§161.12 Vessel operating requirements.

(a) Subject to the exigencies of safe navigation, a VTS User shall comply with all measures established or directions issued by by a VTS.

(b) If, in a specific circumstance, a VTS User is unable to safely comply with a measure or direction issued by the VTS, the VTS User may deviate only to the extent necessary to avoid endangering persons, property or the environment. The deviation shall be reported to the VTS as soon as is practicable.

(c) When not exchanging voice communications, a VTS User must maintain a listening watch as required by §26.04(e) of this chapter on the VTS frequency designated in Table 161.12(c) (VTS and VMRS Centers, Call Signs/MMSI, Designated Frequencies, and Monitoring Areas). In addition, the VTS User must respond promptly when hailed and communicate in the English language.

Note to §161.12(c): As stated in 47 CFR 80.148(b), a very high frequency watch on Channel 16 (156.800 Mhz) is not required on vessels subject to the Vessel

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Bridge–to–Bridge Radiotelephone Act and participating in a Vessel Traffic Service (VTS) system when the watch is maintained on both the vessel bridge–to–bridge frequency and a designated VTS frequency.

(d) As soon as practicable, a VTS User shall notify the VTS of any of the following:
  (1) A marine casualty as defined in 46 CFR 4.05–1;
  (2) Involvement in the ramming of a fixed or floating object;
  (3) A pollution incident as defined in §151.15 of this chapter;
  (4) A defect or discrepancy in an aid to navigation;
  (5) A hazardous condition as defined in §160.203 of this chapter;
  (6) Improper operation of vessel equipment required by Part 164 of this chapter;
  (7) A situation involving hazardous materials for which a report is required by 49 CFR 176.48; and
  (8) A hazardous vessel operating condition as defined in §161.2.

§161.13 VTS Special Area Operating Requirements.

The following operating requirements apply within a VTS Special Area:

(a) A VTS User shall, if towing astern, do so with as short a hawser as safety and good seamanship permits.

(b) A VMRS User shall:
  (1) Not enter or get underway in the area without prior approval of the VTS;
  (2) Not enter a VTS Special Area if a hazardous vessel operating condition or circumstance exists;
  (3) Not meet, cross or overtake any other VMRS User in the area without prior approval of the VTS; and
  (4) Before meeting, crossing or overtaking any other VMRS User in the area, communicate on the designated vessel bridge–to–bridge radiotelephone frequency, intended navigation movements, and any other information necessary in order to make safe passing arrangements. This requirement does not relieve a vessel of any duty prescribed by the International Regulations for Prevention of Collisions at Sea, 1972 (72 COLREGS) or the Inland Navigation Rules.

Subpart B — Vessel Movement Reporting System

§161.15 Purpose and intent.

(a) A Vessel Movement Reporting System (VMRS) is a system used to monitor and track vessel movements within a VTS or VMRS area. This is accomplished by requiring that vessels provide information under established procedures as set forth in this part, or as directed by the Center.

(b) To avoid imposing an undue reporting burden or unduly congesting radiotelephone frequencies, reports shall be limited to information which is essential to achieve the objectives of the VMRS. These reports are consolidated into three reports (sailing plan, position, and final).

§161.16 Applicability.

Unless otherwise stated, the provisions of this subpart shall apply to the following vessels and VMRS Users:

(a) Every power–driven vessel of 40 meters (approximately 131 feet) or more in length, while navigating;

(b) Every towing vessel of 8 meters (approximately 26 feet) or more in length, while navigating; or

(c) Every vessel certificated to carry 50 or more passengers for hire, when engaged in trade.

§161.17 Definitions.

As used in this subpart:

Center means a Vessel Traffic Center or Vessel Movement Center.

Published means available in a widely distributed and publicly available medium (e.g., VTS User's Manual, ferry schedule, Notice to Mariners).

§161.18 Reporting requirements.

(a) A Center may:
  (1) Direct a vessel to provide any of the information set forth in Table 161.18(a) (IMO Standard Ship Reporting System);
  (2) Establish other means of reporting for those vessels unable to report on the designated frequency; or
  (3) Require reports from a vessel in sufficient time to allow advance vessel traffic planning.

(b) All reports required by this part shall be made as soon as is practicable on the frequency designated in Table 161.12(c) (VTS and VMRS Centers, Call Signs/MMSI, Designated Frequencies, and Monitoring Areas).

(c) When not exchanging communications, a VMRS User must maintain a listening watch as described in § 26.04(e) of this chapter on the frequency designated in Table 161.12(c) (VTS and VMRS Centers, Call Signs/MMSI, Designated Frequencies, and Monitoring Areas). In addition, the VMRS User must respond promptly when hailed and communicate in the English language.

  Note: As stated in 47 CFR 80.148(b), a VHF watch on Channel 16 (156.800 Mhz) is not required on vessels subject to the Vessels Bridge–to–Bridge Radiotelephone Act and participating in a Vessel Traffic Service (VTS) system when the watch is maintained on both the vessel bridge–to–bridge frequency and a designated VTS frequency.

(d) A vessel must report:
  (1) Any significant deviation from its Sailing Plan, as defined in §161.19, or from previously reported information; or
  (2) Any intention to deviate from a VTS issued measure or vessel traffic routeing system.

(e) When reports required by this part include time information, such information shall be given using the local time zone in effect and the 24 hour military clock system.

§161.19 Sailing Plan (SP).

Unless otherwise stated, at least 15 minutes before navigating a VTS area, a vessel must report the:
  (a) Vessel name and type;
  (b) Position;
  (c) Destination and ETA;
  (d) Intended route;
  (e) Time and point of entry; and
  (f) Dangerous cargo on board, or in its tow, as defined in §161.203 of this chapter, and other required information as set out in §161.211 and §161.213 of this chapter, if applicable.

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§161.20 Position Report (PR).

A vessel must report its name and position:

(a) Upon point of entry into a VMRS area;
(b) At designated points as set forth in Subpart C; or
(c) When directed by the Center.

§161.21 Automated reporting.

(a) Unless otherwise directed, vessels equipped with an Automatic Identification System (AIS) are required to make continuous, all stations, AIS broadcasts, in lieu of voice position reports, to those Centers denoted in Table 161.12(c) of this part.
(b) Should an AIS become non–operational, while or prior to navigating a VMRS area, it should be restored to operating condition as soon as possible, and, until restored a vessel must:
  (1) Notify the Center;
  (2) Make voice radio position reports at designated reporting points as required by §161.20(b) of this part; and
  (3) Make any other reports as directed by the Center.

§161.22 Final Report (FR).

A vessel must report its name and position:

(a) On arrival at its destination; or
(b) When leaving a VTS area.

§161.23 Reporting exemptions.

(a) Unless otherwise directed, the following vessels are exempted from providing Position and Final Reports due to the nature of their operation:
  (1) Vessels on a published schedule and route;
  (2) Vessels operating within an area of a radius of three nautical miles or less; or
  (3) Vessels escorting another vessel or assisting another vessel in maneuvering procedures.
(b) A vessel described in paragraph (a) of this section must:
  (1) Provide a Sailing Plan at least 5 minutes but not more than 15 minutes before navigating within the VMRS area; and
  (2) If it departs from its promulgated schedule by more than 15 minutes or changes its limited operating area, make the established VMRS reports, or report as directed.

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APPENDIX IV

CODE OF FEDERAL REGULATIONS TITLE 33 — NAVIGATION AND NAVIGABLE WATERS

PART 164 — NAVIGATION SAFETY REGULATIONS

Appendix IV contains extracts from the above regulations issued by the United States Department of Commerce. For a complete description of this part see 33 CFR 164.

§164.01 Applicability.

(a) This part (except as specifically limited by this section) applies to each self–propelled vessel of 1600 or more gross tons (except as provided in paragraphs (c) and (d) of this section or for foreign vessels described in §164.02) when it is operating in the navigable waters of the United States except the St. Lawrence Seaway.

(c) Provisions of §164.11(a)2 and (c), §164.30, §164.33 and §164.46 do not apply to warships or other vessels owned, leased, or operated by the United States Government and used only in government non–commercial service when these vessels are equipped with electronic navigation systems that have met the applicable agency regulations regarding navigation safety.

(d) Provisions of §164.46 apply to some self–propelled vessels of less than 1600 gross tonnage.

§164.02 Applicability exception for foreign vessels.

(a) Except as provided in §164.46(a)(2), §§164.38 and 164.39 this part does not apply to vessels that:

(1) Are not destined for, or departing from, a port or place subject to the jurisdiction of the United States; and

(2) Are in:

(i) Innocent passage through the territorial sea of the United States; or

(ii) Transit through navigable waters of the United States which form a part of an international strait.

§164.03 Incorporation by reference. (See 33 CFR 164.)

§164.11 Navigation underway: General.

The owner, master, or person in charge of each vessel underway shall ensure that:

(a) The wheelhouse is constantly manned by persons who:

(1) Direct and control the movement of the vessel; and

(2) Fix the vessel's position;

(b) Each person performing a duty described in paragraph (a) of this section is competent to perform that duty;

(c) The position of the vessel at each fix is plotted on a chart of the area and the person directing the movement of the vessel is informed of the vessel's position;

(d) Electronic and other navigational equipment, external fixed aids to navigation, geographic reference points, and hydrographic contours are used when fixing the vessel's position;

(e) Buoys alone are not used to fix the vessel's position;

Note: Buoys are aids to navigation placed in approximate positions to alert the mariner to hazards to navigation or to indicate the orientation of a channel. Buoys may not maintain an exact position because strong or varying currents, heavy seas, ice, and collisions with vessels can move or sink them or set them adrift. Although buoys may corroborate a position fixed by other means, buoys cannot be used to fix a position: however, if no other aids are available, buoys alone may he used to establish an estimated position.

(f) The danger of each closing visual or each closing radar contact is evaluated and the person directing the movement of the vessel knows the evaluation;

(g) Rudder orders are executed as given;

(h) Engine speed and direction orders are executed as given;

(i) Magnetic variation and deviation and gyrocompass errors are known and correctly applied by the person directing the movement of the vessel;

(j) A person whom he has determined is competent to steer the vessel is in the wheelhouse at all times (See also 46 U.S.C. 8702 (d), which requires an able seaman at the wheel on US vessels of 100 gross tons or more in narrow or crowded waters or during low visibility);

(k) If a pilot other than a member of the vessel's crew is employed, the pilot is informed of the draft, maneuvering characteristics, and peculiarities of the vessel and of any abnormal circumstances on the vessel that may affect its safe navigation.

(l) Current velocity and direction for the area to be transited are known by the person directing the movement of the vessel;

(m) Predicted set and drift are known by the person directing the movement of the vessel;

(n) Tidal state for the area to be transited is known by the person directing the movement of the vessel;

(o) The vessel's anchors are ready for letting go;

(p) The person directing the movement of the vessel sets the vessel's speed with consideration for:

(1) The prevailing visibility and weather conditions;

(2) The proximity of the vessel to fixed shore and marine structures;

(3) The tendency of the vessel underway to squat and suffer impairment of maneuverability when there is small underkeel clearance;

(4) The comparative proportions of the vessel and the channel;

(5) The density of marine traffic;

(6) The damage that might be caused by the vessel's wake;

(7) The strength and direction of the current; and

(8) Any local vessel speed limit;

(q) The tests required by §164.25 are made and recorded in the vessel's log; and

(r) The equipment required by this part is maintained in operable condition.

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(s) Upon entering US waters, the steering wheel or lever on the navigating bridge is operated to determine if the steering equipment is operating properly under manual control, unless the vessel has been steered under manual control from the navigating bridge within the preceding 2 hours, except when operating on the Great Lakes and their connecting and tributary waters.

(t) At least two of the steering gear power units on the vessel are in operation when such units are capable of simultaneous operation, except when operating on the Great Lakes and their connecting and tributary waters.

(u) On each passenger vessel meeting the requirements of the International Convention for the Safety of Life at Sea, 1960 (SOLAS 60) and on each cargo vessel meeting the requirements of SOLAS 74 as amended in 1981, the number of steering gear power units necessary to move the rudder from 35° on either side to 30° on the other in not more than 28 seconds must be in simultaneous operation.

§164.13 Navigation underway: tankers.

(b) Each tanker must have an engineering watch capable of monitoring the propulsion system, communicating with the bridge, and implementing manual control measures immediately when necessary. The watch must be physically present in the machinery spaces or in the main control space and must consist of at least a licensed engineer.

(c) Each tanker must navigate with at least two licensed deck officers on watch on the bridge, one of whom may be a pilot. In waters where a pilot is required, the second officer must be an individual licensed and assigned to the vessel as master, mate, or officer in charge of a navigational watch, who is separate and distinct from the pilot.

(d) Except as specified in paragraph (e) of this section a tanker may operate with an auto pilot engaged only if all of the following conditions exist:

(1) The operation and performance of the automatic pilot conforms with the standards recommended by the International Maritime Organisation in IMO Resolution A.342(IX).

(2) A qualified helmsman is present at the helm and prepared at all times to assume manual control.

(3) The tanker is not operating in any of the following areas:

(i) The areas of the traffic separation schemes specified in subchapter P of this chapter.

(ii) The portions of a shipping safety fairway specified in part 166 of this chapter.

(iii) An anchorage ground specified in part 110 of this chapter.

(iv) An area within one–half nautical mile of any US shore.

(e) A tanker equipped with an integrated navigation system, and complying with paragraph (d)(2) of this section, may use the system with the auto pilot engaged while in the areas described in paragraphs (d)(3)(i) and (ii) of this section.

§164.15 Navigation bridge visibility. (See 33 CFR 164.)

§164.19 Requirements for vessels at anchor.

The master or person in charge of each vessel that is anchored shall ensure that:

(a) A proper anchor watch is maintained;

(b) Procedures are followed to detect a dragging anchor; and

(c) Whenever weather, tide, or current conditions are likely to cause the vessel's anchor to drag, action is taken to ensure the safety of the vessel, structures, and other vessels, such as being ready to veer chain, let go a second anchor, or get underway using the vessel's own propulsion or tug assistance.

§164.25 Tests before entering or getting underway.

(a) Except as provided in paragraphs (b) and (c) of this section no person may cause a vessel to enter into or get underway on the navigable waters of the United States unless no more than 12 hours before entering or getting underway, the following equipment has been tested:

(1) Primary and secondary steering gear. The test procedure includes a visual inspection of the steering gear and its connecting linkage, and, where applicable, the operation of the following:

(i) Each remote steering gear control system.

(ii) Each steering position located on the navigating bridge.

(iii) The main steering gear from the alternative power supply, if installed.

(iv) Each rudder angle indicator in relation to the actual position of the rudder.

(v) Each remote steering gear control system power failure alarm.

(vi) Each remote steering gear power unit failure alarm.

(vii) The full movement of the rudder to the required capabilities of the steering gear.

(2) All internal vessel control communications and vessel control alarms.

(3) Standby or emergency generator, for as long as necessary to show proper functioning, including steady state temperature and pressure readings.

(4) Storage batteries for emergency lighting and other systems in vessel control and propulsion machinery spaces.

(5) Main propulsion machinery, ahead and astern.

(b) Vessels navigating on the Great Lakes and their connecting and tributary waters, having once completed the test requirements of this sub–part, are considered to remain in compliance until arriving at the next port call on the Great Lakes.

(c) Vessels entering the Great Lakes from the St. Lawrence Seaway are considered to be in compliance with this sub–part if the required tests are conducted preparatory to or during the passage of the St. Lawrence Seaway or within one hour of passing Wolfe Island.

(d) No vessel may enter, or be operated on the navigable waters of the United States unless the emergency steering drill described below has been conducted within 48 hours prior to entry and logged in the vessel's logbook, unless the drill is conducted and logged on a regular basis at least once every three months. This drill must include at a minimum the following:

(1) Operation of the main steering gear from within the steering gear compartment.

(2) Operation of the means of communication between the navigating bridge and the steering compartment.

(3) Operation of the alternative power supply for the steering gear if the vessel is so equipped.

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§164.30 Charts, publications and equipment: General.

No person may operate or cause the operation of a vessel unless the vessel has the marine charts, publications, and equipment as required by §§164.33 through 164.41 of this part.

§164.33 Charts and publications.

(a) Each vessel must have the following:
  (1) Marine charts of the area to be transited, published by the National Ocean Service, US Army Corps of Engineers, or a river authority that:
    (i) Are of a large enough scale and have enough detail to make safe navigation of the area possible; and
    (ii) Are currently corrected.
  (2) For the area to be transited, a currently corrected copy of, or applicable currently corrected extract from, each of the following publications:
    (i) US Coast Pilot.
    (ii) Coast Guard Light List.
  (3) For the area to be transited, the current edition of, or applicable current extract from:
    (i) Tide tables published by private entities using data provided by the National Ocean Service.
    (ii) Tidal current tables published private entities using data provided by the National Ocean Service, or river current publication issued by the US Army Corps of Engineers, or a river authority.

(b) As an alternative to the requirements for paragraph (a) of this section, a marine chart or publication, or applicable extract, published by a foreign government may be substituted for a US chart and publication required by this section. The chart must be of large enough scale and have enough detail to make safe navigation of the area possible, and must be currently corrected. The publication, or applicable extract, must singly or in combination contain similar information to the US Government publication to make safe navigation of the area possible. The publication or applicable extract must be currently corrected, with the exception of tide and tidal current tables, which must be the current editions.

(c) As used in this section, "currently corrected" means corrected with changes contained in all Notices to Mariners published by National Imagery and Mapping Agency, or an equivalent foreign government publication, reasonably available to the vessel, and that is applicable to the vessel's transit.

§164.35 Equipment: All vessels.

Each vessel must have the following:
  (a) A marine radar system for surface navigation.
  (b) An illuminated magnetic steering compass, mounted in a binnacle, that can be read at the vessel's main steering stand.
  (c) A current magnetic compass deviation table or graph or compass comparison record for the steering compass, in the wheelhouse.
  (d) A gyrocompass.
  (e) An illuminated repeater for the gyrocompass required by paragraph (d) of this section that is at the main steering stand, unless that gyrocompass is illuminated and is at the main steering stand.
  (f) An illuminated rudder angle indicator in the wheelhouse.
  (g) The following maneuvering information prominently displayed on a fact sheet in the wheelhouse:
    (1) A turning circle diagram to port and starboard that shows the time and distance and advance and transfer required to alter course 90 degrees with maximum rudder angle and constant power settings, for either full and half speeds, or for full and slow speeds. For vessels whose turning circles are essentially the same for both directions, a diagram showing a turning circle in one direction, with a note on the diagram stating that turns to port and starboard are essentially the same, may be substituted.
    (2) The time and distance to stop the vessel from either full and half speeds, or from full and slow speeds, while maintaining approximately the initial heading with minimum application of rudder.
    (3) For each vessel with a fixed propeller, a table of shaft revolutions per minute for a representative range of speeds.
    (4) For each vessel with a controllable pitch propeller, a table of control settings for a representative range of speeds.
    (5) For each vessel that is fitted with an auxiliary device to assist in maneuvering, such as a bow thruster, a table of vessel speeds at which the auxiliary device is effective in maneuvering the vessel.
    (6) The maneuvering information for the normal load and normal ballast condition for:
      (i) Calm weather—wind 10 knots or less, calm sea;
      (ii) No current;
      (iii) Deep water conditions–water depth twice the vessel's draft or greater; and
      (iv) Clean hull.
    (7) At the bottom of the fact sheet, the following statement:

Warning.

The response of the (name of the vessel) may be different from that listed above if any of the following conditions, upon which the maneuvering information is based, are varied:

  (1) Calm weather–wind 10 knots or less, calm sea;
  (2) No current;
  (3) Water depth twice the vessel's draft or greater;
  (4) Clean hull; and
  (5) Intermediate drafts or unusual trim.

  (h) An echo depth sounding device.
  (i) A device that can continuously record the depth readings of the vessel's echo depth sounding device except when operating on the Great Lakes and their connecting and tributary waters.
  (j) Equipment on the bridge for plotting relative motion.
  (k) Simple operating instructions with a block diagram, showing the changeover procedures for remote steering gear control systems and steering gear power units, permanently displayed on the navigating bridge and in the steering gear compartment.
  (l) An indicator readable from the centerline conning position showing the rate of revolution of each propeller, except when operating on the Great Lakes and their connecting and tributary waters.
  (m) If fitted with controllable pitch propellers, an indicator readable from the centerline conning position showing the pitch and operational mode of

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such propellers, except when operating on the Great Lakes and their connecting and tributary waters.

(n) If fitted with lateral thrust propellers, an indicator readable from the centerline conning position showing the direction and amount of thrust of such propellers, except when operating on the Great Lakes and their connecting and tributary waters.

(o) A telephone or other means of communication for relaying headings to the emergency steering station. Also, each vessel of 500 gross tons and over and constructed on or after June 9th 1995 must be provided with arrangements for supplying visual compass readings to the emergency steering station.

§164.37 Equipment: Vessels of 10,000 gross tons or more.

(a) Each vessel of 10,000 gross tons or more must have, in addition to the radar system under §164.35(a), a second marine radar system that operates independently of the first.

Note: Independent operation means two completely separate systems, from separate branch power supply circuits or distribution panels to antennas, so that failure of any component of one system will not render the other system inoperative.

(b) On each tanker of 10,000 gross tons or more that is subject to 46 U.S.C. 3708, the dual radar system required by this part must have a short range capability and a long range capability; and each radar must have true north features consisting of a display that is stabilized in azimuth.

§164.38 Automatic radar plotting aids (ARPA). (See 33 CFR 164.)

§164.39 Steering Gear: Foreign Tankers. (See 33 CFR 164).

§164.40 Devices to indicate speed and distance.

(a) Each vessel required to be fitted with an Automatic Radar Plotting Aid (ARPA) under §164.38 must be fitted with a device to indicate speed and distance of the vessel either through the water, or over the ground.

§164.41 Electronic position fixing devices.

(a) Each vessel calling at a port in the continental United States, including Alaska south of Cape Prince of Wales, except each vessel owned or bareboat chartered and operated by the United States, or by a state or its political subdivision, or by a foreign nation, and not engaged in commerce, must have one of the following:

(1) A type I or II LORAN C receiver as defined in Section 1.2(e), meeting Part 2 (Minimum Performance Standards) of the Radio Technical Commission for Marine Services (RTCM) Paper 12–78/DO–100 dated December 20, 1977, entitled "Minimum Performance Standards (MPS) Marine Loran–C Receiving Equipment". Each receiver installed must be labeled with the information required under paragraph (b) of this section.

(2) A satellite navigation receiver with:

(i) Automatic acquisition of satellite signals after initial operator settings have been entered; and

(ii) Position updates derived from satellite information during each usable satellite pass.

(3) A system that is found by the Commandant to meet the intent of the statements of availability, coverage, and accuracy for the US Coastal Confluence Zone (CCZ) contained in the US "Federal Radionavigation Plan" (Report No. DOD–NO 4650.4–P, I or No. DOT–TSC–RSPA–80–16, I). A person desiring a finding by the Commandant under this subparagraph must submit a written application describing the device to the Assistant Commandant for Operations, 2100 Second Street, SW, Washington, DC 20593–0001. After reviewing the application, the Commandant may request additional information to establish whether or not the device meets the intent of the Federal Radionavigation Plan.

Note.—The Federal Radionavigation Plan is available from the National Technical Information Service, Springfield, Va. 22161, with the following Government Accession Numbers:

Vol 1, ADA 116468
Vol 2, ADA 116469
Vol 3, ADA 116470
Vol 4, ADA 116471

(b) Each label required under paragraph (a)(1) of this section must show the following:

(1) The name and address of the manufacturer.

(2) The following statement by the manufacturer: This receiver was designed and manufactured to meet Part 2 (Minimum Performance Standards) of the RTCM MPS for Marine Loran–C Receiving Equipment.

§164.42 Rate of turn indicator.

Each vessel of 100,000 gross tons or more shall be fitted with a rate of turn indicator.

§164.43 Automatic Identification System Shipborne Equipment (See 33 CFR 164.)

Each vessel required to provide automated position reports to a Vessel Traffic Service (VTS) must do so by an installed Automatic Identification System Shipborne Equipment (AISSE).

§164.46 Automatic Identification System (AIS) (See 33 CFR 164.)

§164.51 Deviations from rules: Emergency.

Except for the requirements of §164.53(b), in an emergency, any person may deviate from any rule in this part to the extent necessary to avoid endangering persons, property, or the environment.

§164.53 Deviations from rules and reporting: Non–operating equipment.

(a) If during a voyage any equipment required by this part stops operating properly, the person directing the movement of the vessel may continue to the next port of call, subject to the directions of the District Commander or the Captain of the Port, as provided by 33 CFR 160.

(b) If the vessel's radar, radio navigation receivers, gyrocompass, echo depth sounding device, or primary steering gear stops operating properly, the person directing the movement of the vessel must report or cause to be reported that it is not operating properly to the nearest Captain of the Port, District Commander, or, if participating in a Vessel Traffic Service, to the Vessel Traffic Center, as soon as possible.

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§164.55 Deviations from rules: Continuing operation or period of time.

The Captain of the Port, upon written application, may authorize a deviation from any rule in this part if he determines that the deviation does not impair the safe navigation of the vessel under anticipated conditions and will not result in a violation of the rules for preventing collisions at sea. The authorization may be issued for vessels operating in the waters under the jurisdiction of the Captain of the Port for any continuing operation or period of time the Captain of the Port specifies.

§164.61 Marine casualty reporting and record retention.

When a vessel is involved in a marine casualty as defined in 46 CFR 4.03–1, the master or person in charge of the vessel shall:

(a) Ensure compliance with 46 CFR 4.05, "Notice of Marine Casualty and Voyage Records," and

(b) Ensure that the voyage records required by 46 CFR 4.05–15 are retained for:

(1) 30 days after the casualty if the vessel remains in the navigable waters of the United States; or

(2) 30 days after the return of the vessel to a United States port if the vessel departs the navigable waters of the United States within 30 days after the marine casualty.

§164.70 Definitions. (See 33 CFR 164.)

§164.72 Navigational safety equipment, charts or maps, and publications required on towing vessels. (See 33 CFR 164.)

§164.74 Towline and terminal gear for towing astern. (See 33 CFR 164.)

§164.76 Towline and terminal gear for towing alongside and pushing ahead. (See 33 CFR 164.)

§164.78 Navigation underway: Towing vessels. (See 33 CFR 164.)

§164.80 Tests, inspections and voyage planning. (See 33 CFR 164.)

§164.82 Maintenance, failure and reporting. (See 33 CFR 164.)

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APPENDIX V

CODE OF FEDERAL REGULATIONS TITLE 33 — NAVIGATION AND NAVIGABLE WATERS

PART 165 — REGULATED NAVIGATION AREAS AND LIMITED ACCESS AREAS — EXTRACTS

Appendix V contains extracts from the above regulations issued by the United States Department of Commerce. Regulations specific to this volume are given by title only where the area concerned falls wholly within pilotage waters; where the regulation affects an area outside pilotage waters, a summary of the regulation is given.
For a complete description of this part see 33 CFR 165.

Subpart A — General

§165.5 Establishment procedures

(a) A safety zone, security zone, or regulated navigation area may be established on the initiative of any authorised Coast Guard official.
(b) Any person may request that a safety zone, security zone, or regulated navigation area may be established. Except as provided in paragraph (c) of this section, each request must be submitted in writing to either the Captain of the Port or District Commander.
(c) Safety Zones and Security Zones. If, for good cause, the request for a safety zone or security zone is made less than 5 working days before the zone is to be established, the request may be made orally, but it must be followed by a written request within 24 hours.

§165.7 Notification

(a) The establishment of these limited access areas and regulated navigation areas is considered rule making. The procedures used to notify persons of the establishment of these areas vary depending upon the circumstances and emergency conditions. Notification may be made by marine broadcasts, local notice to mariners, local news media, distribution in leaflet form, and on-scene oral notice, as well as publication in the Federal Register.
(b) Notification normally contains the physical boundaries of the area, the reasons for the rule, its estimated duration, and the method of obtaining authorization to enter the area, if applicable, and special navigational rules, if applicable.

§165.8 Geographic coordinates

Geographic coordinates expressed in terms of latitude or longitude, or both, are not intended for plotting on maps or charts whose referenced horizontal datum is the North American Datum of 1983 (NAD 83), unless such geographic coordinates are expressly labelled NAD 83. Geographic coordinates without the NAD 83 reference may be plotted on maps or charts referenced to NAD 83 only after application of the appropriate corrections that are published on the particular map or chart being used.

§165.9 Geographic application of limited and controlled access areas and regulated navigation areas.

(a) *General.* The geographic application of the limited and controlled access areas and regulated navigation areas in this part are determined based on the statutory authority under which each is created.
(b) *Safety zones and regulated navigation areas.* These zones and areas are created under the authority of the Ports and Waterways Safety Act, 33 U.S.C. 1221–1232.
(c) *Security zones.* These zones have two sources of authority — the Ports and Waterways Safety Act, 33 U.S.C. 1221–1232, and the Act of June 15, 1917, as amended by both the Magnuson Act of August 9, 1950 ("Magnuson Act"), 50 U.S.C. 191–195, and sec. 104 of the Maritime Transportation Security Act of 2002.
(d) *Naval vessel protection zones.* These zones are issued under the authority of 14 U.S.C. 91 and 633 and may be established in waters subject to the jurisdiction of the United States as defined in §2.38 of this chapter, including the territorial sea to a seaward limit of 3 nautical miles from the baseline.

Subpart B — Regulated Navigation Areas

§165.10 Regulated navigation area.

A regulated navigation area is a water area within a defined boundary for which regulations for vessels navigating within the area have been established under this part.

§165.11 Vessel operating requirements (regulations).

Each District Commander may control vessel traffic in an area which is determined to have hazardous conditions, by issuing regulations:
(a) Specifying times of vessel entry, movement, or departure to, from, within, or through ports, harbors, or other waters;
(b) Establishing vessel size, speed, draft limitations, and operating conditions; and
(c) Restricting vessel operation, in a hazardous area or under hazardous conditions, to vessels which have particular operating characteristics or capabilities which are considered necessary for safe operation under the circumstances.

§165.13 General Regulations.

(a) The master of a vessel in a regulated navigation area shall operate the vessel in accordance with the regulations contained in Subpart F.
(b) No person may cause or authorize the operation of a vessel in a regulated navigation area contrary to the regulations in this Part.

Subpart C — Safety Zones

§165.20 Safety zones.

A safety zone is a water area, shore area, or water and shore area, to which, for safety or environmental purposes, access is limited to authorised persons, vehicles, or vessels. It may be stationary and described by fixed limits or it may be described as a zone around a vessel in motion.

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§165.23 General regulations.

Unless otherwise provided for in this part:

(a) No person may enter a safety zone unless authorised by the Captain of the Port or the District Commander;

(b) No person may bring or cause to be brought into a safety zone any vehicle, vessel or object unless authorised by the Captain of the Port or the District Commander;

(c) No person may remain in a safety zone or allow any vehicle, vessel or object to remain in a safety zone unless authorised by the Captain of the Port or the District Commander; and

(d) Each person in a safety zone who has notice of a lawful order or direction shall obey the order or direction of the Captain of the Port or District Commander issued to carry out the purposes of this subpart.

Subpart D — Security Zones

§165.30 Security zones.

(a) A security zone is an area of land, water, or land and water which is so designated by the Captain of the Port or District Commander for such time as is necessary to prevent damage or injury to any vessel or waterfront facility, to safeguard ports, harbors, territories, or waters of the United States or to secure the observance of the rights and obligations of the United States.

(b) The purpose of a security zone is to safeguard from destruction, loss or injury from sabotage or other subversive acts, accidents, or other causes of a similar nature:

(1) Vessels,

(2) Harbors,

(3) Ports and

(4) Waterfront facilities in the United States and all territory, continental or insular, that is subject to the jurisdiction of the United States.

§165.33 General regulations.

Unless otherwise provided in the special regulations in Subpart F of this part:

(a) No person or vessel may enter or remain in a security zone without the permission of the Captain of the Port;

(b) Each person and vessel in a security zone shall obey any direction or order of the Captain of the Port;

(c) The Captain of the Port may take possession and control of any vessel in the security zone;

(d) The Captain of the Port may remove any person, vessel, article, or thing from a security zone;

(e) No person may board, or take or place any article or thing on board, any vessel in a security zone without the permission of the Captain of the Port; and

(f) No person may take or place any article or thing upon any waterfront facility in a security zone without the permission of the Captain of the Port.

Subpart E — Restricted Waterfront Areas

§165.40 Restricted Waterfront Areas.

The Commandant, may direct the COTP to prevent access to waterfront facilities, and port and harbor areas, including vessels and harbor craft therein. This section may apply to persons who do not possess the credentials outlined in 33 CFR 125.09 when certain shipping activities are conducted that are outlined in 33 CFR 125.15.

Subpart F — Specific Regulated Navigation Areas and Limited Access Areas

§165.754 Safety Zone: San Juan Harbor, San Juan, PR.

(a) *Regulated Area.* A moving safety zone is established in the following area:

(1) The waters around Liquified Petroleum Gas ships entering San Juan Harbor in an area one half mile around each vessel, beginning one mile north of the San Juan Harbour No 1 Sea buoy, in approximate position 18°29·3′N 66° 07·6′W and continuing until the vessel is safely moored at either the Gulf Refinery Oil dock or Catano Oil dock in approximate position 18°25·8′N 66 06·5′W. All coordinates referenced use datum NAD83.

(2) The waters around Liquified Petroleum Gas ships departing San Juan Harbor in an area one half mile around each vessel, beginning at either the Gulf Refinery Oil dock or Catano Oil dock in approximate position18°25·8′N 66 06·5′W when the vessel gets underway and continuing until the stern passes the San Juan Harbour No 1 Sea Buoy, in approximate position 18°29·3′N 66° 07·6′W. All coordinates referenced use datum NAD83.

§165.755 Safety Zone: Guayanilla, Puerto Rico.

(a) The following area is established as a safety zone during specific conditions:

(1) A 100 yard radius surrounding a vessel carrying Liquified Natural Gas (LNG) while transiting north of Latitude 17°56′·0N in the waters of the Caribbean Sea on approach to or departure from the Eco–Electrica waterfront facility in Guayanilla Bay, Puerto rico. The safety zone remains in effect until the LNG vessel is docked at the Eco–Electrica waterfront facility of south of latitude 17°56·0′N.

(2) the waters within 150 feet of an LNG vessel when the vessel is alongside the Eco– Electrica waterfront facility in Guayanilla Bay at position 17°58·55′N 066°45·3′W. This safety zone remains in effect while the LNG vessel is docked with product aboard or in transferring liquified natural gas.

§165.757 Safety Zones: Ports of Ponce, Tallaboa and Guayanilla, Puerto Rico and Limetree Bay, St. Croix, U.S.V.I.

(a) *Location.* The following areas are established as a safety zones during the specific conditions:

(1) *Port of Ponce, Puerto Rico.* A 100 yard radius surrounding all Liquified Hazardous Gas (LHG) vessels with product aboard while transiting north of Latitude 17°57·0′N in the waters of the Caribbean Sea on approach to or departing from the Port of Ponce, Puerto Rico (NAD 83). The safety zone remains in effect until the LHG vessel is docked.

(2) *Port of Tallaboa, Puerto Rico.* A 100 yard radius surrounding all Liquified Hazardous Gas (LHG) vessels with product aboard while transiting north of Latitude 17°56·0′N in the waters of the Caribbean Sea on approach to or departing from the Port of Tallaboa, Puerto Rico (NAD 83). The safety zone remains in effect until the LHG vessel is docked.

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(3) *Port of Guayanilla, Puerto Rico.* A 100 yard radius surrounding all Liquified Hazardous Gas (LHG) vessels with product aboard while transiting north of Latitude 17°57·0′N in the waters of the Caribbean Sea on approach to or departing from the Port of Guayanilla, Puerto Rico (NAD 83). The safety zone remains in effect until the LHG vessel is docked.

(1) *Port of Limetree Bay, St. Croix, U.S.V.I.* A 100 yard radius surrounding all Liquified Hazardous Gas (LHG) vessels with product aboard while transiting north of Latitude 17°39·0′N in the waters of the Caribbean Sea on approach to or departing from the Port of Limetree Bay (NAD 83). The safety zone remains in effect until the LHG vessel is docked.

(b) *Regulations.* In accordance with the general regulations in **§165.23** of this part, anchoring, mooring or transiting in these zones is prohibited unless authorised by the Coast Guard Captain of the Port. The Marine Safety Office, San Juan will notify the maritime community of periods during which these safety zones will be in effect by providing advance notice of scheduled arrivals and departures on LHG carriers via a broadcast notice to mariners on VHF Marine Band Radio, Channel 16 (156.8 MHz).

§165.755 Safety Zone: San Juan, Puerto Rico.

(a) *Location.* Moving and fixed security zones are established 50 yards around all cruise ships entering, departing, moored or anchored in the Port of San Juan, Puerto Rico. The security zone for a cruise ship entering port is activated when the vessel is 1 mile north of Buoy 3 at approximate position 18°28′17″N 66°37′05″W. The security zone for a vessel is deactivated when the vessel passes this buoy on its departure from the port.

(b) *Regulations.* (1) Under general regulations in **§165.33** of this part, entering, anchoring, mooring or transiting in these zones is prohibited unless authorised by the Coast Guard Captain of the Port of San Juan.

(2) Persons desiring to transit the area of the security zone may contact the Captain of the Port at the Greater Antilles Section Operations Centre at 787–289–2041 or via VHF radio on Channel 16 to seek permission to transit the area. If permission is granted all persons and vessels must comply with the instructions of the Captain of the Port or his designated representative.

(3) The Marine Safety Office, San Juan will attempt to notify the maritime community of periods during which these security zones will be in effect by providing advance notice of scheduled arrivals and departures of cruise ships via a broadcast notice to mariners.

(c) *Definition.* As used in this section cruise ships means a passenger vessel greater than 100 feet in length that is authorised to carry more than 150 passengers for hire, except a ferry.

(d) *Authority.* In addition to 33 U.S.C. 1231 and 50 U.S.C. 191, the authority for this section includes 33 U.S.C. 1226.

§165.762 Security Zone: St Thomas, U.S Virgin Islands.

(a) *Location.* Moving and fixed security zones are established 50 yards around all cruise ships entering, departing, moored or anchored in the Port of St. Thomas, U.S. Virgin Islands. The security zone for a cruise ship entering port is activated when the vessel passes St. Thomas Harbor green lighted Buoy 3 at approximate position 18°19′19″N 64°55′40″W when entering the port using St. Thomas Channel; red Buoy 2 in approximate position 18°19′15″N 64°57′30″W when entering the port using East Gregorie Channel; and red lighted Buoy 4 in approximate position 18°18′16″N 64°57′30″W when entering the port using West Gregorie Channel. These zones are deactivated when the vessel passes any of these buoys on its departure from the port.

(b) *Regulations.* (1) Under general regulations in **§165.33** of this part, entering, anchoring, mooring or transiting in these zones is prohibited unless authorised by the Coast Guard Captain of the Port of San Juan.

(2) Persons desiring to transit the area of the security zone may contact the Captain of the Port at the Greater Antilles Section Operations Centre at 787–289–2041 or via VHF radio on Channel 16 to seek permission to transit the area. If permission is granted all persons and vessels must comply with the instructions of the Captain of the Port or his designated representative.

(3) The Marine Safety Office, San Juan will attempt to notify the maritime community of periods during which these security zones will be in effect by providing advance notice of scheduled arrivals and departures of cruise ships via a broadcast notice to mariners.

(c) *Definition.* As used in this section cruise ships means a passenger vessel greater than 100 feet in length that is authorised to carry more than 150 passengers for hire, except a ferry.

(d) *Authority.* In addition to 33 U.S.C. 1231 and 50 U.S.C. 191, the authority for this section includes 33 U.S.C. 1226.

Subpart G — Protection of Naval Vessels

§165.2010 Purpose.

This subpart establishes the geographic parameters of naval vessel protection zones surrounding US naval vessels in the navigable waters of the United States.

§165.2015 Definitions.

The following definitions apply to this subpart:

Large US naval vessel means any US naval vessel greater than 100 feet in length overall.

Naval vessel protection zone is a 500 yard regulated area of water surrounding large US naval vessels that is necessary to provide for the safety or security of these US naval vessels.

Official patrol means those personnel designated and supervised by a senior naval officer present in command.

Senior naval officer present in command is, unless otherwise designated by competent authority, the senior line officer of the US Navy on active duty, eligible for command at sea, who is present and in command of any part of the Department of Navy in the area.

US naval vessel means any vessel owned, operated, chartered, or leased by the US Navy; and any vessel under the operational control of the US Navy or a Combatant Command.

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§165.2020 Enforcement authority.

(a) Coast Guard.
(b) Senior naval officer present in command.

§165.2025 Atlantic Area.

(a) This section applies to any vessel or person in the navigable waters of the United States within the boundaries of the US Coast Guard Atlantic Area which includes the First, Fifth, Seventh, Eighth, and Ninth US Coast Guard Districts.

Note to paragraph (a): The boundaries of the US Coast Guard Atlantic Area and the First, Fifth, Seventh, Eighth, and Ninth US Coast Guard Districts are set out in 33 CFR part 3.

(b) A naval vessel protection zone exists around US naval vessels greater than 100 feet in length overall at all times in the navigable waters of the United States, whether the large US naval vessel is underway, anchored, moored, or within a floating drydock, except when the large naval vessel is moored or anchored within a restricted area or within a naval defensive sea area.

(c) The Navigation Rules shall apply at all times within a naval vessel protection zone.

(d) When within a naval vessel protection zone, all vessels shall operate at the minimum speed necessary to maintain a safe course, unless required to maintain speed by the Navigation Rules, and shall proceed as directed by the Coast Guard, the senior naval officer present in command, or the official patrol. When within a naval vessel protection zone, no vessel or person is allowed within 100 yards of a large US naval vessel unless authorized by the Coast Guard, the senior naval officer present in command, or official patrol.

(e) To request authorization to operate within 100 yards of a large US naval vessel, contact the Coast Guard, the senior naval officer present in command, or official patrol on VHF–FM channel 16.

(f) When conditions permit, the Coast Guard, senior naval officer present in command, or the official patrol should:

(1) Give advance notice on VHF-FM channel 16 of all large US naval vessel movements;

(2) Permit vessels constrained by their navigational draft or restricted in their ability to maneuver to pass within 100 yards of a large US naval vessel in order to ensure a safe passage in accordance with the Navigation Rules; and:

(3) Permit commercial vessels anchored in a designated anchorage area to remain at anchor when within 100 yards of passing large US naval vessels; and:

(4) Permit vessels that must transit via a navigable channel or waterway to pass within 100 yards of a moored or anchored large US naval vessel with minimal delay consistent with security.

Note to paragraph (f): The listed actions are discretionary and do not create any additional right to appeal or otherwise dispute a decision of the Coast Guard, the senior naval officer present in command, or the official patrol.

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APPENDIX VI

CODE OF FEDERAL REGULATIONS TITLE 33 — NAVIGATION AND NAVIGABLE WATERS

PART 334 — DANGER ZONES AND RESTRICTED AREA REGULATIONS — EXTRACTS

Appendix VI contains extracts from the above regulations issued by the United States Department of Commerce. Regulations specific to this volume are given by title only where the area concerned falls wholly within pilotage waters; where the regulation affects an area outside pilotage waters, a summary of the regulation is given.
For a complete description of this part see 33 CFR 334.

§334.1 Purpose.

The purpose of this part is to:

(a) Prescribe procedures for establishing, amending and disestablishing danger zones and restricted areas.
(b) List the specific danger zones and restricted areas and their boundaries; and
(c) Prescribe specific requirements, access limitations and controlled activities within the danger zones and restricted areas.

§334.2 Definitions.

(a) **Danger zone.** A defined water area (or areas) used for target practice, bombing, rocket firing or other especially hazardous operations, normally for the armed forces. The danger zones may be closed to the public on a full time or intermittent basis, as stated in the regulations.
(b) **Restricted area.** A defined water area for the purpose of prohibiting or limiting public access to the area. Restricted areas generally provide security for Government property and/or protection to the public from the risks of damage or injury arising from the Government's use of that area.

There are danger zones and/or restricted areas in the following areas:

§334.1450 Atlantic Ocean off north coast of Puerto Rico; practice firing areas, United States Army Forces Antilles.

§334.1460 Atlantic Ocean and Vieques Sound, in vicinity of Culebra Island, bombing and gunnery target area.

§334.1470 Caribbean Sea and Vieques Sound, in vicinity of Eastern Vieques, bombing and gunnery target area.

§334.1480 Vieques Passage and Atlantic Ocean, off the east coast of Puerto Rico and coast of Vieques Island; naval restricted area.

§334.1490 Caribbean Sea, at St. Croix, V.I.; restricted areas.

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APPENDIX VII

NAVIGATION RULES FOR UNITED STATES INLAND WATERS

Inland Navigational Rules Act of 1980 modifies the International Regulations for Preventing Collisions at Sea, 1972 for use in US Inland Waters, inshore of established lines of demarcation. These lines are shown, where appropriate, on Admiralty charts and described in this volume.

The Navigation Rules for US Inland Waters follow closely the *International Regulations for Preventing Collisions at Sea, 1972*, the Rules having corresponding numbers and usually corresponding paragraph numbers as well. This Appendix shows only those Rules for US Inland Waters or parts of those Rules, which differ from the *International Regulations*, except where the modifications are of no navigational significance. The modifications are shown in italic type; where matter has been omitted, this is indicated by the use of '. . .'.

PART A – GENERAL

Rule 1

Application

The complete Rule has been rewritten:

(a) These Rules apply to all vessels upon the *inland waters of the United States, and to vessels of the United States on the Canadian waters of the Great Lakes to the extent that there is no conflict with Canadian law.*

(b) (i) *These Rules constitute special rules made by an appropriate authority within the meaning of Rule 1(b) of the International Regulations.*

(ii) *All vessels complying with the construction and equipment requirements of the International Regulations are considered to be in compliance with these Rules.*

(c) Nothing in these Rules shall interfere with the operation of any special rules made by the *Secretary of the Navy* with respect to additional station or signal lights and shapes or whistle signals for ships of war and vessels proceeding under convoy, or by *the Secretary* with respect to additional station or signal lights and shapes for fishing vessels engaged in fishing as a fleet. These additional station or signal lights and shapes or whistle signals shall, so far as possible, be such that they cannot be mistaken for any light, shape, or signal authorized elsewhere under these Rules. *Notice of such special rules shall be published in the Federal Register and, after the effective date specified in such notice, they shall have effect as if they were a part of these Rules.*[1]

(d) Traffic separation schemes may be *established* for the purposes of these Rules. *Vessel traffic service regulations may be in effect in certain areas.*

(e) Whenever the *Secretary determines* that a vessel or class of vessels of special construction or purpose cannot comply fully with the provisions of any of these Rules with respect to the number, position, range, or arc of visibility of lights or shapes, as well as to the disposition and characteristics of sound–signalling appliances, without interfering with the special function of the vessel, *the* vessel shall comply with such other provisions in regard to the number, position, range, or arc of visibility of lights or shapes, as well as to the disposition and characteristics of sound–signalling appliances, as *the Secretary* shall have determined to be the closest possible compliance with these Rules. *The Secretary may issue a certificate of alternative compliance for a vessel or class of vessels specifying the closest possible compliance with these Rules. The Secretary of the Navy shall make these determinations and issue certificates of alternative compliance for vessels of the Navy.*

(f) *The Secretary may accept a certificate of alternative compliance issued by a contracting party to the International Regulations if he determines that the alternative compliance standards of the contracting party are substantially the same as those of the United States.*

Submarines may display, as a distinctive means of identification, an intermittent flashing amber (yellow) beacon with a sequence of operation of one flash per second for three (3) seconds followed by a three (3) second off–period. Other special rules made by the Secretary of the Navy with respect to additional station and signal lights are found in Part 706 of Title 32, Code of Federal Regulations (32 CFR 706).

Rule 3

General Definitions

Paragraph (h) of the International Regulations is omitted, paragraphs (i), (j), (k) and (l) become (h), (i), (j) and (k) and new paragraphs (l) to (q) have been added:

(l) *"Western Rivers" means the Mississippi River, its tributaries, South Pass, and Southwest Pass, to the navigational demarcation lines dividing the high seas from harbors, rivers and other inland waters of the United States, and the Port Allen–Morgan City Alternate Route, and that part of the Atchafalaya River above its junction with the Port Allen–Morgan City Alternate Route including the Old River and the Red River;*

(m) *"Great Lakes" means the Great Lakes and their connecting tributary waters including the Calumet River as far as the Thomas J. O'Brien Lock and Controlling Waters (between mile 326 and 327), the Chicago River as far as the east side of the Ashland Avenue Bridge (between mile 321 and 322), and the Saint Lawrence River as far east as the lower exit of Saint Lambert Lock;*

(n) *"Secretary" means the Secretary of the Department in which the Coast Guard is operating;*

(o) *"Inland Waters" means the navigable waters of the United States shoreward of the navigational demarcation lines dividing the high seas from harbors, rivers, and other inland waters of the United States and the waters of the Great Lakes on the United States side of the International Boundary;*

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(p) *"Inland Rules" or "Rules" mean the Inland Navigational Rules and the annexes thereto, which govern the conduct of vessels and specify the lights, shapes, and sound signals that apply on inland waters; and*

(q) *"International Regulations" means the International Regulations for Preventing Collisions at Sea, 1972, including annexes currently in force for the United States.*

PART B. STEERING AND SAILING RULES

Rule 9

Narrow Channels

Paragraphs (a)(i) and (ii) and (e)(i) have been rewritten:

(a) *(i)* A vessel proceeding along the course of a narrow channel or fairway shall keep as near to the outer limit of the channel or fairway which lies on her starboard side as is safe and practicable.

(ii) Notwithstanding paragraph (a)(i) and Rule 14(a), a power–driven vessel operating in narrow channels or fairways on the Great Lakes, Western Rivers, or waters specified by the Secretary, and proceeding downbound with a following current shall have the right–of–way over an upbound vessel, shall propose the manner and place of passage, and shall initiate the maneuvering signals prescribed by Rule 34(a)(i), as appropriate. The vessel proceeding upbound against the current shall hold as necessary to permit safe passing.

(e) (i) *In a narrow channel or fairway when overtaking, the power–driven vessel vessel intending to overtake another power–driven vessel shall indicate her intention by sounding the appropriate signal prescribed in Rule 34(c) and take steps to permit safe passing. The power–driven vessel being overtaken, if in agreement, shall sound the same signal and may, if specifically agreed to take steps to permit safe passing. If in doubt she shall sound the danger signal prescribed in Rule 34(d).*

Rule 10

Traffic separation schemes

Paragraph (a) has been rewritten:

(a) This Rule applies to traffic separation schemes ... and does not relieve any vessel of her obligation under any other Rule.

Rule 14

Head–on Situation

Paragraph (a) has been rewritten and new paragraph (d) added:

(a) *Unless otherwise agreed,* when two power–driven vessels are meeting on reciprocal or nearly reciprocal courses so as to involve risk of collision each shall alter her course to starboard so that each shall pass on the port side of the other.

(d) Notwithstanding paragraph (a) of this Rule, a power–driven vessel operating on the Great Lakes, Western Rivers, or waters specified by the Secretary, and proceeding downbound with a following current shall have the right–of–way over an upbound vessel, shall propose the manner of passage, and shall initiate the maneuvering signals prescribed by Rule 34(a)(i), as appropriate.

Rule 15

Crossing Situation

Existing Rule of the International Regulations becomes paragraph (a) and new paragraph (b) added:

(b) Notwithstanding paragraph (a), on the Great Lakes, Western Rivers, or water specified by the Secretary, a power–driven vessel crossing a river shall keep out of the way of a power–driven vessel ascending or descending the river.

Rule 18

Responsibilities Between Vessels

Paragraphs (d)(i) and (d)(ii) of the International Regulations have been omitted, paragraph (e) becomes paragraph (d).

PART C. LIGHTS AND SHAPES

Rule 21

Definitions

Paragraphs (a) and (b) have been rewritten and new paragraph (g) has been added:

(a) "Masthead light" means a white light placed over the fore and aft centerline of the vessel showing an unbroken light over an arc of the horizon of 225 degrees and so fixed as to show the light from right ahead to 22·5 degrees abaft the beam on either side of the vessel, *except that on a vessel of less than 12 meters in length the masthead light shall be placed as nearly as practicable to the fore and aft centerline of the vessel.*

(b) "Sidelights" mean a green light on the starboard side and a red light on the port side each showing an unbroken light over an arc of the horizon of 112·5 degrees and so fixed as to show the light from right ahead to 22·5 degrees abaft the beam on its respective side. In a vessel of less than 20 meters in length the sidelights may be combined in one lantern carried on the fore and aft centerline of the vessel, *except that on a vessel of less than 12 meters in length the sidelights when combined in one lantern shall be placed as nearly as practicable to the fore and aft centerline of the vessel.*

(g) *"Special flashing light" means a yellow light flashing at regular intervals at a frequency of 50 to 70 flashes per minute, placed as far forward and as nearly as practicable on the fore and aft centerline of the tow and showing an unbroken light over an arc of the horizon of not less than 180 degrees nor more than 225 degrees and so fixed as to show the light from right ahead to abeam and no more than 22·5 degrees abaft the beam on either side of the vessel.*

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Rule 22

Visibility of Lights

Add at the end of paragraphs (a), (b) and (c) of the International Regulations:

...a special flashing light, 2 miles.

Rule 23

Power–driven Vessels Underway

Paragraphs (c)(ii) and (c)(iii) of the International Regulations have been omitted, paragraph (b) has been rewritten and new paragraph (d) has been added:

(b) An air–cushion vessel when operating in non–displacement mode shall, in addition to the lights prescribed in paragraph (a) of this Rule, exhibit an all–round flashing yellow light, *where it can best be seen.*

(d) A power–driven vessel when operating on the Great Lakes may carry an all–round white light in lieu of the second masthead light and sternlight prescribed in paragraph (a) of this Rule. The light shall be carried in the position of the second masthead light and be visible at the same minimum range.

Rule 24

Towing and Pushing

Paragraphs (a), (c), (d), (f), (g), and (h) have been rewritten, paragraph (i) becomes paragraph (j), and new paragraph (i) has been added:

(*a*) A power–driven vessel when towing *astern* shall exhibit:
- (i) Instead of the light prescribed in Rule 23(a)(i) or (a)(ii), two masthead lights in a vertical line. When the length of the tow, measuring from the stern of the towing vessel to the after end of the tow exceeds 200 meters, three such lights in a vertical line;
- (ii) sidelights;
- (iii) a sternlight;
- (iv) a towing light in a vertical line above the sternlight;
- (v) when the length of the tow exceeds 200 meters, a diamond shape where it can best be seen.

(c) A power–driven vessel when pushing ahead or towing alongside, except *as required by paragraphs (b) and (i) of this Rule,* shall exhibit:
- (i) instead of the light prescribed either in Rule 23(a)(i) or *23*(a)(ii), two mastheads lights in a vertical line.
- (ii) sidelights; and
- (iii) *two towing lights in a vertical line.*

(d) A power–driven vessel to which paragraphs (a) or (c) of this Rule apply shall also comply with Rule 23(a)(i) and 23(a)(ii).

(f) Provided that any number of vessels being towed alongside or pushed in a group shall be lighted as one vessel, *except as provided in paragraph (iii):*
- (i) a vessel being pushed ahead, not being part of a composite unit, shall exhibit at the forward end, sidelights, *and a special flashing light;*
- (ii) a vessel being towed alongside shall exhibit a sternlight and at the forward end, sidelights, *and a special flashing light;*
- *(iii) when vessels are towed alongside on both sides of the towing vessels a sternlight shall be exhibited on the stern of the outboard vessel on each side of the towing vessel, and a single set of sidelights as far forward and as far outboard as is practicable,* and *a single special flashing light;*

(g) An inconspicuous, partly submerged vessel or object, *or combination of such vessels or objects being towed,* shall exhibit:
- (i) *if it is less than 25 meters in breadth, one all round white light at or near each end*;
- (ii) *if it is 25 meters or more in breadth, four all–round white lights to mark its length and breadth;*
- (iii) if it exceeds 100 meters in length, additional all round white lights between the lights prescribed in subparagraphs (i) and (ii) so that the distance between the lights shall not exceed 100 meters: *Provided, that any vessels or objects being towed alongside each other shall be lighted as one vessel or object;*
- (iv) a diamond shape at or near the aftermost extremity of the last vessel or object being towed...
- (v) *the towing vessel may direct a searchlight in the direction of the tow to indicate its presence to an approaching vessel.*

(h) Where from any sufficient cause it is impracticable for a vessel or object being towed to exhibit the lights...prescribed in paragraph (e) or (g) of this Rule, all possible measures shall be taken to light the vessel or object towed or at least to indicate the presence of the unlighted vessel or object.

(i) Notwithstanding paragraph (c), on the Western Rivers (except below the Huey P. Long Bridge on the Mississippi River) and on waters specified by the Secretary, a power–driven vessel when pushing ahead or towing alongside, except as paragraph (b) applies, shall exhibit:
- (i) *sidelights; and*
- (ii) *two towing lights in a vertical line.*

(j) Where from any sufficient cause it is impracticable for a vessel not normally engaged in towing operations to display the lights prescribed by paragraph (a),(c) or *(i)* of this Rule, such vessel shall not be required to exhibit those lights when engaged in towing another vessel in distress or otherwise in need of assistance. All possible measures shall be taken to indicate the nature of the relationship between the towing vessel and the vessel being towed as authorized by Rule 36, in particular by illuminating the *tow.*

Rule 25

Sailing Vessels Underway and Vessels under Oars

Paragraph (e) has been rewritten:

(e) A vessel proceeding under sail when also being propelled by machinery shall exhibit forward where it can best be seen a conical shape, apex downwards. *A vessel of less than 12 meters in length is not required to exhibit this shape, but may do so.*

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Rule 27

Vessels Not Under Command or Restricted in Their Ability to Maneuver

Paragraphs (b)(iii), (c) and (d)(iii) have been rewritten:

(b) (iii) when making way through the water, *masthead lights*, sidelights and a sternlight and a sternlight in addition to the lights prescribed in sub-paragraph (b)(i);

(c) A power–driven vessel engaged in a towing operation such as severely restricts the towing vessel and her tow in their ability to deviate from their course shall, in addition to the lights or shapes prescribed in *subparagraphs (b)(i) and (ii) of this Rule,* exhibit the lights or shape *prescribed in Rule 24.*

(d) (iii) when at anchor, the lights or shapes prescribed in this paragraph instead of the lights or shape prescribed in Rule 30, *for anchored vessels.*

Rule 28

Vessels Constrained by their Draught

Rule 28 of the International Regulations has been omitted from the Inland Rules.

Rule 30

Anchored Vessels and Vessels Aground

Paragraph (d) has been rewritten and paragraph (g) has been added:

(*d*) A vessel aground shall exhibit the lights prescribed in paragraph (a) or (b) of this Rule and in addition, *if practicable,* where they can best be seen:
(i) two all–round red lights in a vertical line;
(ii) three balls in a vertical line.

(g) A vessel of less than 20 meters in length, when at anchor in a special anchorage area designated by the Secretary, shall not be required to exhibit the anchor lights and shapes required by this Rule.

PART D. SOUND AND LIGHT SIGNALS

Rule 34

Maneuvering and Warning Signals.

Paragraphs (a), (b) and (c) have been rewritten and new paragraphs (g) and (h) have been added:

(a) When power–driven vessels are in sight of one another and meeting or crossing at a distance within half a mile of each other, each vessel underway, when maneuvering as authorized or required by these Rules:
(i) shall indicate that maneuver by the following signals on her whistle: one short blast to mean "I intend to leave you on my port side"; two short blasts to mean "I intend to leave you on my starboard side"; and three short blasts to mean "I am operating astern propulsion".
(ii) upon hearing the one or two blast signal of the other shall, if in agreement, sound the same whistle signal and take the steps necessary to effect a safe passing. If, however, from any cause, the vessel doubts the safety of the proposed maneuver, she shall sound the danger signal specified in paragraph (d) of this Rule and each vessel shall take appropriate precautionary action until a safe passing agreement is made.

(b) Any vessel may supplement the whistle signals prescribed in paragraph (a) of this Rule by light signals:
(i) these signals shall have the following significance:
- *one flash to mean "I intend to leave you on my port side";*
- *two flashes to mean "I intend to leave you on my starboard side";*
- *three flashes to mean "I am operating astern propulsion";*

(ii) the duration of each flash shall be about 1 second; and
(iii) the light used for this signal shall, if fitted, be an all–round white or yellow light, visible at a minimum range of 2 miles, synchronized with the whistle, and shall comply with the provisions of Annex I to these Rules.

(c) When in sight of one another:
(i) a power–driven vessel intending to overtake another power–driven vessel shall indicate her intention by the following signals on her whistle:
- *one short blast to mean "I intend to overtake you on your starboard side";*
- *two short blasts to mean "I intend to overtake you on your port side", and*

(ii) the power–driven vessel about to be overtaken shall, if in agreement, sound a similar signal. If in doubt she shall sound the danger signal prescribed in paragraph (d).

(g) When a power–driven vessel is leaving a dock or berth, she shall sound one prolonged blast.

(h) A vessel that reaches agreement with another vessel in a head–on, crossing, or overtaking situation, as for example, by using the radiotelephone as prescribed by the Bridge–to–Bridge Radiotelephone Act (85 Stat. 164; 33 U.S.C 1201 et seq.), is not obliged to sound the whistle signals prescribed by this Rule, but may do so. If agreement is not reached, then whistle signals shall be exchanged in a timely manner and shall prevail.

Rule 35

Sound Signals in Restricted Visibility

Paragraph (c) has been rewritten and paragraph (d) of the International Regulations has been omitted. Paragraphs (e), (f), (g), (h), (i) and (j) become (d), (e), (f), (g), (h) and (i); and new paragraph (j) has been added:

(c) A vessel not under command; a vessel restricted in her ability to maneuver *whether underway or at anchor; ...,* a sailing vessel; a vessel engaged in fishing, *whether underway or at anchor;* and a vessel engaged in towing or pushing another vessel shall, instead of the signals prescribed in paragraphs (a) or (b) of this Rule, sound at intervals of not more than 2 minutes, three blasts in succession; namely one prolonged followed by two short blasts.

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(j) *The following vessels shall not be required to sound signals as prescribed in paragraph (f) of this Rule when anchored in a special anchorage area designated by the Secretary:*
(i) *a vessel of less than 20 meters in length; and*
(ii) *a barge, canal boat, scow or other nondescript craft.*

Rule 36

The complete Rule has been rewritten:

Signals to Attract Attention

If necessary to attract the attention of another vessel, any vessel may make light or sound signals that cannot be mistaken for any signal authorized elsewhere in these Rules, or may direct the beam of her searchlight in the direction of the danger, in such a way as not to embarrass any vessel.

Rule 37

Distress Signals

While this Rule remains unaltered an additional signal is given in Annexe IV to the Inland Rules, namely:

(o) *A high intensity white light flashing at regular intervals from 50 to 70 times per minute.*

Rule 38

Exemptions

This rule has been completely rewritten in full:

Any vessel or class of vessels, the keel of which is laid or which is at a corresponding stage of construction before December 24, 1980, provided that she complies with the requirements of:
(a) The Act of June 7, 1897 (30 Stat. 96), as amended (33 U.S.C. 154–232) for vessels navigating the waters subject to that statute;
(b) Section 4233 of the Revised Statutes (33 U.S.C. 301–356) for vessels navigating the waters subject to that statute;
(c) The Act of February 8, 1895 (28 Stat. 645), as amended (33 U.S.C. 241–295) for vessels navigating the waters subject to that statute; or
(d) Sections 3, 4, and 5 of the Act of April 25, 1940 (54 Stat. 163), as amended (46 U.S.C. 526 b, c, and d) for motorboats navigating the waters subject to that statute; shall be exempted from compliance with the technical Annexes to these Rules as follows:

(i) The installation of lights with ranges prescribed in Rule 22, until 4 years after the effective date of these Rules, except that vessels of less than 20 meters in length are permanently exempt;.
(ii) The installation of lights with color specifications as prescribed in Section 7 of Annex 1 to these Rules, until 4 years after the effective date of these Rules, except that vessels of less than 20 meters in length are permanently exempt;
(iii) The repositioning of lights as a result of a conversion to metric units and rounding off measurement figures, are permanently exempt, and:
(iv) The horizontal repositioning of masthead lights prescribed by Annex I to these Rules:
1. on vessels of less than 150 metres in length, permanent exemption.
2. on vessels of 150 metres or more in length, until 9 years after the effective date of these Rules.
(v) The restructuring or repositioning of all lights to meet the prescriptions of Annex I to these Rules, until 9 years after the effective date of these Rules.
(vi) Power–driven vessels of 12 meters or more but less than 20 meters in length are permanently exempt from the provisions of Rule 23 (a)(i) and Rule 23 (a)(iv) provided that, in place of these lights, the vessel exhibits a white light aft visible all round the horizon; and:
(vii) The requirements for sound signal appliances prescribed in Annex III to these Rules, until 9 years after the effective date of these Rules.

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APPENDIX VIII

CODE OF FEDERAL REGULATIONS TITLE 50 — WILDLIFE AND FISHERIES

PARTS 226 AND 622 — DESIGNATED CRITICAL HABITAT AND FISHERIES OF THE CARIBBEAN, GULF AND SOUTH ATLANTIC

Appendix VIII contains extracts from the above regulations issued by the United States Department of Commerce. For a complete description of these parts see 50 CFR 226 and 622.

Part 226 Designated Critical Habitat

§226.101 Purpose and scope.
The regulations contained in this part identify those habitats designated by the Secretary of Commerce as critical under section 4 of the Act, for endangered and threatened species under the jurisdiction of the Secretary of Commerce. Those species are enumerated at **§223.102** of this chapter, if threatened and at **§224.101** of this chapter if endangered. For regulations pertaining to the designation of critical habitat, see part 424 of this title and for regulations pertaining to prohibitions against the adverse modification or destruction of critical habitat, see part 402 of this title. Maps and charts identifying designated critical habitat that are not provided in this section may be obtained upon request to the Office of Protected Resources (see **§222.102,** definition of "Office of Protected Resources").

§226.208 Critical habitat for green turtle.
Culebra Island, Puerto Rico — Waters surrounding the island of Culebra from the mean high water line seaward to 3 nautical miles (5·6 km). These waters include Culebra's outlying Keys including Cayo Norte, Cayo Ballena, Cayos Geniqui, Isla Culebrita, Arrecife Culebrita, Cayo de Luis Peña, Las Hermanas, El Mono, Cayo Lobo, Cayo Lobito, Cayo Botijeula, Alcarraza, Los Gamelos and Piedra Steven.

§226.209 Critical habitat hawksbill turtle.
Mona and Monito Islands, Puerto Rico — Waters surrounding the islands of Mona and Monito, from the mean high water line seaward to 3 nautical miles (5·6 km).

Part 622 Fisheries of the Caribbean, Gulf and South Atlantic

§622.1 Purpose and scope.
(a) The purpose of this part is to implement the FMPs prepared under the Magnuson Act by the CFMC, GMFMC and/or SAFMC listed in Table 1 of this section.
(b) This part governs conservation and management of species included in the FMPs in or from the Caribbean, Gulf, Mid–Atlantic, South Atlantic, or Atlantic EEZ, as indicated in Table 1 of this section. For the FMPs noted in the following table, conservation and management extends to adjoining state waters for the purpose of data collection and monitoring.

FMP titles
(a) Corals and Reef Associated Plants and Invertibrates of Puerto Rico and the US Virgin Islands.
(b) Queen Conch Resources of Puerto Rico and the US Virgin Islands.
(c) Reef Fish Fishery of Puerto Rico and the US Virgin Islands
(d) Spiny Lobster Fishery of Puerto Rico and the US Virgin Islands.

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