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RECORD OF AMENDMENTS

The table below is to record Section IV Notice to Mariners corrections 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)

2004	2005	2006	2007

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 7A

SOUTH AMERICA PILOT VOLUME IV

North coast of South America
Cabo Orange to Punta Tirbi including Río Orinoco,
Trinidad and Tobago, Nederlandse Antillen,
and the Panama Canal

THIRD EDITION
2004

PUBLISHED BY THE UNITED KINGDOM HYDROGRAPHIC OFFICE

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Home Contents Index

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Previous editions covering this area:

West Indies Pilot Volume I (Cabo Orange to Cape Florida)
First published 1829
2nd Edition 1861
3rd Edition 1872
4th Edition 1883
5th Edition 1893
6th Edition 1903

West Indies Pilot Volume I (Punta Peñas to Cape Florida)
7th Edition 1912
8th Edition 1923
9th Edition 1929
10th Edition 1941
11th Edition 1956

South America Pilot Volume IV
First published 1969
2nd Edition 1983

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PREFACE

The Third Edition of South America Pilot Volume IV has been prepared by P. C. McManaway, Master Mariner, and contains the latest information received in the United Kingdom Hydrographic Office to the date given below.

This edition supersedes the Second Edition (1983) and Supplement No 8 (2003), which is cancelled.

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

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

British
Lloyds Register Fairplay Ports and Terminals Guide 2003–2004
Ports of the World 2004
The Statesman's Yearbook 2004
Whitaker's Almanack 2004

French
Instructions Nautiques H5, Antilles Orientales Amérique du Sud 1999
French charts

Suriname
Local Port Authorities

Venezuela
Maritime Port and Naval Industry Guide of Venezuela with General Tourist Information 11th Edition 2002

Nederlandse Antillens
Local Port Authorities
Port Handbooks produced by Port Authorities

Colombia
Sailing Directions of the Colombian Caribbean Coast and Island Areas 2001 Edition
Colombian charts

Panama
Maritime Regulations for the Operation of the Panama Canal 1999

United States
2003 Maritime Regulations for Transiting the Panama Canal
US charts

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EXPLANATORY NOTES

Admiralty Sailing Directions are intended for use by vessels of 12 m or more in length. 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 in the last weekly edition for each month. 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.

Disclaimer. Whilst the UKHO has made all reasonable efforts to ensure that the data on the CD was accurate at the time of production, it has not verified the data for navigational purposes and the CD is not suitable, and is not to be relied upon, for navigation. The use of the CD for this purpose is at the user's own risk. The UKHO accepts no liability (except in the case of death or personal injury caused by the negligence of the UKHO) whether in contract, tort, under any statute or otherwise and whether or not arising out of any negligence on the part of the UKHO in respect of any inadequacy of any kind whatsoever in the data on the CD or in the means of distribution.

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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 navigational aids, 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.

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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.

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. Except for submarine exercise areas, details of firing, practice and exercise areas are not mentioned in Sailing Directions, but signals and buoys used in connection with these areas are sometimes 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 structure 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.

Directions

N	north (northerly, northward, northern, northernmost)
NNE	north-north-east
NE	north-east
ENE	east-north-east
E	east
ESE	east-south-east
SE	south-east
SSE	south-south-east
S	south
SSW	south-south-west
SW	south-west
WSW	west-south-west
W	west
WNW	west-north-west
NW	north-west
NNW	north-north-west

Navigation

AIS	Automatic Indentification System
CVTS	Co–operative Vessel Traffic System
DGPS	Differential Global Positioning System
GPS	Global Positioning System
Lanby	Large automatic navigation buoy
MCTS	Marine Communications and Traffic Services Centres
ODAS	Ocean Data Acquisition System
Satnav	Satellite navigation
TSS	Traffic Separation Scheme
VMRS	Vessel Movement Reporting System
VTC	Vessel Traffic Centre
VTS	Vessel Traffic Services
VTMS	Vessel Traffic Management System

Offshore operations

ALC	Articulated loading column
ALP	Articulated loading platform
CALM	Catenary anchor leg mooring
CBM	Conventional buoy mooring
ELSBM	Exposed location single buoy mooring
FPSO	Floating production storage and offloading vessel
FSO	Floating storage and offloading vessel
PLEM	Pipe line end manifold
SALM	Single anchor leg mooring system
SALS	Single anchored leg storage system
SBM	Single buoy mooring
SPM	Single point mooring

Organizations

EU	European Union
IALA	International Association of Lighthouse Authorities
IHO	International Hydrographic Organization
IMO	International Maritime Organization
NATO	North Atlantic Treaty Organization
RN	Royal Navy
UKHO	United Kingdom Hydrographic Office

Radio

DF	direction finding
HF	high frequency
LF	low frequency
MF	medium frequency
Navtex	Navigational Telex System
RT	radio telephony
UHF	ultra high frequency
VHF	very high frequency
WT	radio (wireless) telegraphy

Rescue and distress

AMVER	Automated Mutual Assistance Vessel Rescue System
EPIRB	Emergency Position Indicating Radio Beacon
GMDSS	Global Maritime Distress and Safety System
JRCC	Joint Rescue Cooperation Centre
MRCC	Maritime Rescue Co-ordination Centre
MRSC	Maritime Rescue Sub-Centre
SAR	Search and Rescue

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Tides

HAT	Highest Astronomical Tide	MHWS	Mean High Water Springs
HW	High Water	MLHW	Mean Lower High Water
LAT	Lowest Astronomical Tide	MLLW	Mean Lower Low Water
LW	Low Water	MLW	Mean Low Water
MHHW	Mean Higher High Water	MLWN	Mean Low Water Neaps
MHLW	Mean Higher Low Water	MLWS	Mean Low Water Springs
MHW	Mean High Water	MSL	Mean Sea Level
MHWN	Mean High Water Neaps		

Times

ETA	estimated time of arrival	UT	Universal Time
ETD	estimated time of departure	UTC	Co-ordinated Universal Time

Units and miscellaneous

°C	degrees Celsius	kHz	kilohertz
DG	degaussing	km	kilometre(s)
dwt	deadweight tonnage	kn	knot(s)
DZ	danger zone	kW	kilowatt(s)
feu	forty foot equivalent unit	m	metre(s)
fm	fathom(s)	mb	millibar(s)
ft	foot (feet)	MHz	megahertz
g/cm^3	gram per cubic centimetre	mm	millimetre(s)
GRP	glass reinforced plastic	MW	megawatt(s)
grt	gross register tonnage	No	number
gt	gross tonnage	nrt	nett register tonnage
hp	horse power	teu	twenty foot equivalent unit
hPa	hectopascal		

Vessels and cargo

CDC	Certain Dangerous Cargo	MV	Motor Vessel
HMS	Her (His) Majesty's Ship	MY	Motor Yacht
HSC	High Speed Craft	POL	Petrol, Oil & Lubricants
LASH	Lighter Aboard Ship	RMS	Royal Mail Ship
LHG	Liquefied Hazardous Gas	Ro-Ro	Roll-on, Roll-off
LNG	Liquefied Natural Gas	SS	Steamship
LOA	Length overall	ULCC	Ultra Large Crude Carrier
LPG	Liquefied Petroleum Gas	VLCC	Very Large Crude Carrier

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GLOSSARY

Dutch (D), French (F) and Spanish (S) terms and words found on charts and in the Sailing Directions

Foreign word	*Language*	*English meaning*
aanlegplaats	D	berth
abra	S	bay, cove, creek, haven, opening
abrigo	S	shelter
acantilado	S	cliff
accore	F	steep–to
acht	D	eight
achter	D	astern
adentro	S	inner, inside *adj*
aduana	S	custom house
afuera	S	outer, inside *adj*
agua	S	water
albufera	S	lagoon, pond
aldea	S	village
altos	S	heights
amarillo, –a	S	yellow
amarra	S	reef
amarrage	F	mooring
anaranjado, –a	S	orange
ancladero	S	anchorage
aclaje	S	anchorage, anchoring
ancón	S	open bay, roadstead, cove
angostura	S	narrows
ankerplaats	D	anchorage
anse	F	bay, creek
appointment	F	landing stage
arena	S	sand
arenal	S	extensive area of sand
arrecife	S	reef
arrière–port	F	outer harbour
arroyo	S	small stream, (river)
astillero	S	shipyard
atraque	S	alongside berth
avant–port	F	outer harbour
azul	S	blue
baai	D	bay
bahía	S	bay
babor	S	port (side)
babord	F	port hand
bac	F	ferry
baie	F	bay
bajamar (BM)	S	low water
bajo	S	shoal
bakboord	D	port hand
baken	D	beacon
balise	F	beacon
baliza	S	beacon
barlovento	S	windward
banc	F	bank
banc de sable	F	sandbank
banco	S	bank
bank	D	bank, shoal
barra	S	bar (of a river)
barranco	S	precipice, ravine
barre	F	bar
basse	F	shoal
berg	D	mountain
beton	D	concrete
betonning	D	buoyage
blanc, –he	F	white
blanco, –a	S	white
bleu, –e	F	blue
boca	S	mouth, entrance
bocht	D	bay, bight
boei	D	buoy
boquerón	S	wide mouth, wide opening
bouche	F	mouth of a river or bay
boue	F	mud
bouée	F	buoy
boya	S	buoy
bras	F	arm
bravezas	S	heavy rollers or ground swell
brazo	S	arm (of the sea)
brisant, brisants	F	shoal, breakers
brug	D	bridge
buque	S	ship
cabeza	S	shoal head
cabezo	S	summit of a hill, hillock, reef
cabo	S	cape
cadena	S	chain (of mountains)
caillo	F	stones, pebbles
cala	S	bight, cove
cale	F	ramp, slip
caleta	S	cove
caletita	S	small cove
caletón	S	large cove
canal	F, S	channel
caño	S	creek, channel, tidal river
canto	S	bluff, cliff
cap	F	cape headland
carrera	S	narrow channel, usually with rugged sides and swift current
castillo	S	castle
cayo	S	cay
cerro	S	hill
chantiér	F	dockyard
château	F	castle
chauffage	F	fuel
chenal	F	channel
cienaga	S	marsh
cime	F	peak
cinco	S	five
ciudad	S	city
colorado, –a	S	reddish
colina	S	hill
colline	F	hill
corail	F	coral
cordillera	S	mountain chain, range
costa	S	coast
côte	F	coast, side
crique	F	creek, cove
cueva	S	cave
cumbre	S	summit
cuña	S	quoin, wedge
darse	F	basin
darsena	S	basin
débarcadère	F	wharf, landing place
desembarcadero	S	landing
desembocadura	S	mouth of river
détroit	F	strait, narrows
diep	D	deep
dique	F, S	mole, dock, jetty, embankment
dood tij	D	neap tide
doorvaart	D	passage
dos	S	two
drie	D	three
droogte	D	shoal
duc d'albe	F	dolphin
duinen	D	sandhill, dunes
dukdalf	D	dolphin
duna	S	dune
duque de alba	S	dolphin

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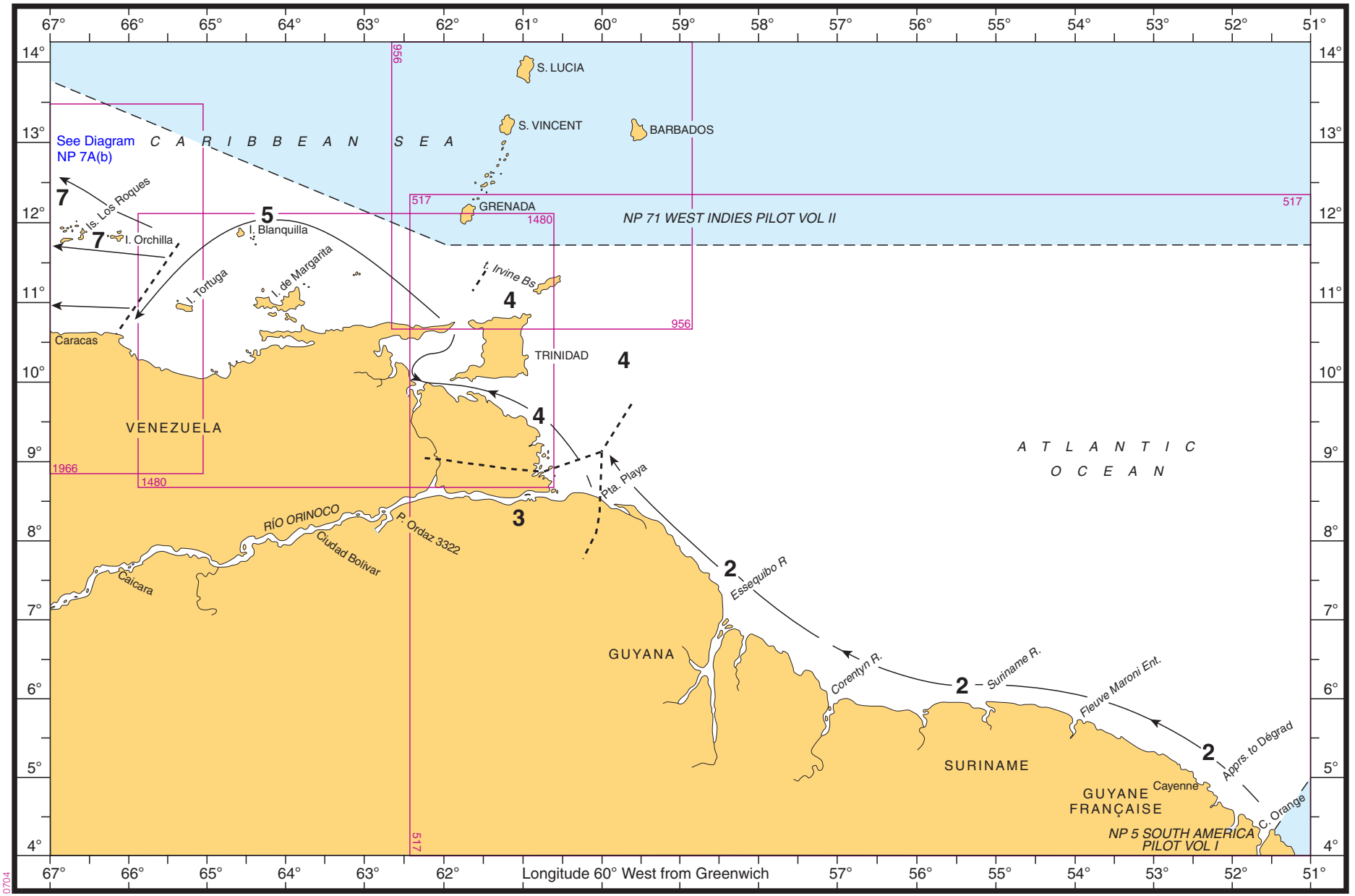
Foreign word	*Language*	*English meaning*
eau	F	water
écueil	F	rock, reef
eiland	D	island, islet
embarcadero	S	landing
embocadura	S	river mouth
enfilación	S	transit
ensenada	S	bay
épave	F	wreck
escollera	S	breakwater
escollo	S	shelf, reef, rock
espigón	S	spur, arm of mole
est	F	east
este	S	east
estero	S	creek, inlet estuary
estrecho	S	straits, narrows
estribor	S	starboard
estuario	S	estuary
exterior	S	outer
falaise	F	cliff
fango	S	mud
farallón	S	rocky islet
faro	S	lighthouse
feu	F	light
feux d'alignment	F	leading lights
fleuve	F	river
flot	F	flood
flujo	S	flood tide
fondeadero	S	anchorage
freo	S	strait
frontón	S	wall–like cliff
galets	F	shingle
gat	D	channel
geul	D	channel
golfbreker	D	breakwater, mole
golfe	F	gulf
golfo	S	gulf
goulet	F	inlet, narrow entrance
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
huile	F	oil
iglesia	S	church
ingang	D	entrance
interdit	F	prohibited
iinterior	S	inner
île	F	island
îlot	F	islet
isla	S	island
isleta	S	islet
istmo	S	isthmus
jaune	F	yellow
jetée	F	jetty
jusant	F	ebb
kaap	D	cape
kade	D	quay, wharf
klein, –e	D	little, small *adj*
klip	D	rock, crag, cliff
kreek	D	creek
kust	D	coast
kustwacht	D	coastguard
laagwater	D	low water
lac	F	lake
lago	S	lake
laguna	S	lagoon
laja	S	flat rock
langue	F	tongue
largo, –a	S	long
levante	S	eastern
lodo	S	mud
loma, lomada	S	hillock, knoll
lomo	S	ridge
malecón	S	quay. mole
mar	S	sea
marea	S	tide
maison	F	house
marais	F	swamp, marsh
marée	F	tide
medio	S	middle
meer	D	lake
meerpaal	D	dolphin, mooring post
mond, monding	D	mouth
mont	F	mountain
monte	S	mountain
modder	D	mud
morena, –a	S	brown
morne	F	hill
morro	S	headland, bluff, head of breakwater
mouillage	F	anchorage
muelle	S	pier, quay, wharf, mole
nauw	D	narrows, straits
navire	F	vessel
negro, –a	S	black
nieuw	D	new
noire	F	black
noord	D	north
nord	F	north
norte	S	north
nuevo, –a	S	new
occidental	F	western
oriental	F	eastern
oeste	S	west
ondiep, ondiepte	D	shoal
oost	D	east
oranje	D	orange
ouest	F	west
oud	D	old
paal	D	pile, pillar
pantano	S	marsh
pardo, –a	S	brown, dark grey
pasaje	S	passage
paso	S	pass
passe	F	channel, pass
peña	S	rock
pertuis	F	opening or strait
phare	F	lighthouse
pico	S	peak
piedra	S	stone, rock
plaats	D	place, locality
playa	S	beach
pleamar (PM)	S	high water (HW)
presqu'île	F	peninsula
profond, –e	F	deep, *adj*
pueblo	S	town
puerto	S	port, harbour
punt	D	point
puta	S	point, headland

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Foreign word	*Language*	*English meaning*
quai	F	quay, wharf
quatre	F	four
quebrada	S	ravine, gully, cut, gap
rada	S	roadstead
rade	F	roadstead
rak	D	channel, straits
redoute	F	fort
reede	D	roadstead
récif	F	reef
remarquable	F	conspicuous
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
rompientes	S	breakers
rood	D	red
roquerio	S	rocky shoal
rots	D	rock
rouge	F	red
rug	D	ridge
sable	F	sand
sablon	F	fine sand
alinas	S	salt pans
scheepswerf	D	shipyard
seno	S	gulf, sound
sierra	S	mountain range
sint	D	saint
sleephelling	D	patent slip
sluis	D	lock
sonda	S	sound
stad	D	town
steiger	D	pier
stenen	D	stones
stuurboord	D	starboard
sud	F	south
sud, sur,	S	south
surgidero	S	anchorage
temps	F	weather
tête	F	head
tien	D	ten
tierra	S	land
tirant d'eau	F	draught
ton	D	buoy
traverse	F	shallow ridge across channel or river
tres	S	three
triboard	F	starboard
trois	F	three
twee	D	two
un, –a	S	one
un, une	F	one
valle	S	valley
varadero	S	slip
vasière	F	mudbank, mudflat
vent	F	wind
verde	S	green
vert, –e	F	green
villa	S	town
ville	F	town
vuelta	S	bend in river or channel
wad	D	coastal drying flat
waterweg	D	waterway
werf, werven	D	wharf, wharves
wijd	D	wide
wit, witte	D	white
wrak	D	wreck
zandplaat	D	sandbank, sand cay
zeegat	D	sea–channel, inlet
zes	D	six
zeven	D	seven
zuid	D	south
zwart	D	black

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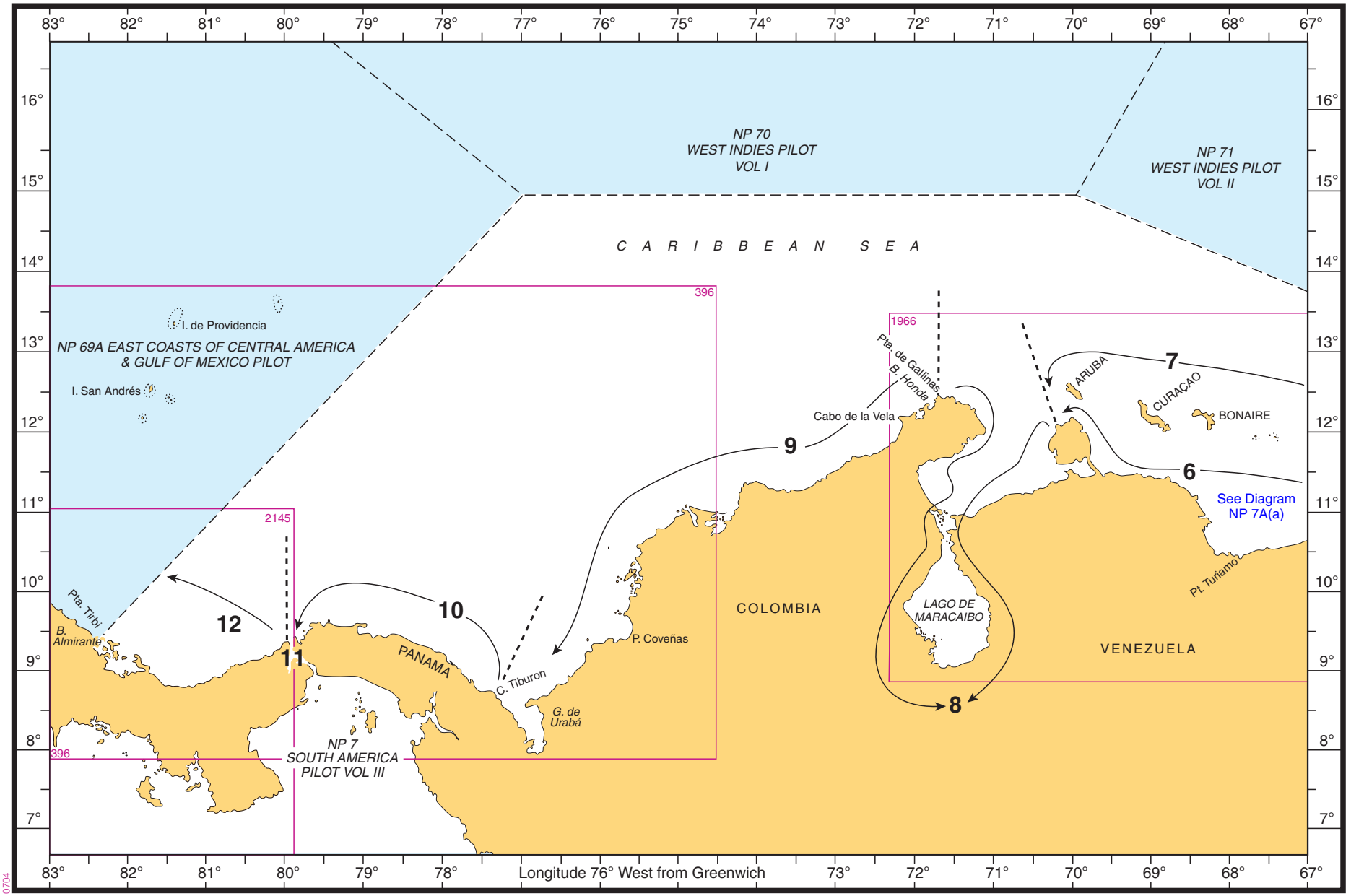
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South America Pilot Vol IV

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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 whatever will 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.

SOUTH AMERICA PILOT VOLUME IV

CHAPTER 1

NAVIGATION AND REGULATIONS
COUNTRIES AND PORTS
NATURAL CONDITIONS

NAVIGATION AND REGULATIONS

LIMITS OF THE BOOK

Charts 4107, 4402

Area covered

1.1

1 This volume contains Sailing Directions for the coastal waters of Guyane Française, Suriname, Guyana, Venezuela, Trinidad and Tobago, Nederlandse Antillen, Colombia and Panama from Cabo Orange to Punta Tirbi (Terraba) in the W and for the sea area contained within the limits defined as follows:

	Lat N	*Long W*
2 From Cabo Orange	4°26′	51°32′
NE to position	5°00′	50°00′
Thence N to position	11°45′	50°00′
Thence W to position	11°45′	62°00′
Thence WNW to position	15°00′	70°00′
Thence W to position	15°00′	77°00′
Thence SW to position	9°26′	82°21′

NAVIGATIONAL DANGERS AND HAZARDS

Coastal conditions

1.2

1 The coasts of Guyane Française, Suriname and Guyane, and of Venezuela in the vicinity of Río Orinoco, are mostly very low and almost devoid of landmarks. These coasts are fronted by extensive shallow mudbanks, with off-lying shoals. Vessels should keep well offshore, out of sight of land, unless approaching one of the river ports when great care is required due to the changing nature of the bars.

2 The Guiana Current sets WNW, sometimes strongly off the coasts covered by this volume, except off the N coast of Panama where the E-going Caribbean Counter-current should be allowed for when approaching the Panama Canal. For further information on currents see 1.142.

Fog is rare over the open sea and usually occurs only in river estuaries and off low-lying coasts at about dawn. See 1.164.

Navigation amongst coral

1.3

1 Coral reefs will be found principally in the three groups of Isla La Orchila (7.13), Archipielago Los Roques (7.16) and Archipielago Las Aves (7.19), and also in the approaches to Golfo de San Blas (10.31). For information on navigating in coral waters see *The Mariner's Handbook.*

Navigation amongst kelp

1.4

1 Kelp, or sargasso weed, grows on most of the dangers having a rocky or stony bottom. Many dangers, however, are not marked by kelp; a heavy sea sometimes tears the weed from a rock, or a moderate tidal stream or current draws it under water and out of sight.

2 Growing kelp should invariably be considered a sign of danger; it forms long streamers, level with or just beneath the surface of the sea, and shows an occasional leaf. A good lookout should be kept from aloft. A vessels should never pass through growing kelp it it can be avoided, and should give it a wide berth when passing on the up-tide side. A clear patch of water in the middle of a thick growth of weed often indicates the position of least depth over the danger.

3 Dead kelp, which has broken away from the bottom, floats in curled masses, with leaves showing above the surface; it sometimes drifts in long lines.

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Cables

Overhead cables

1.5

1 Overhead cables are mentioned in the text where the clearance beneath them may be a hazard to navigation. Some of these cables carry high voltages and sufficient clearance must be allowed when passing underneath them. Mariners are advised that the actual clearance of an overhead cable may differ from its charted value due to changes in atmospheric conditions and water levels.

2 For information on safety clearances and the radar responses to be expected see *The Mariner's Handbook*.

Submarine cables

1.6

1 Certain submarine cables have been omitted from some of the small scale charts that cover the area of this volume; for details of the cables concerned large scale charts should be consulted. Mariners should not anchor or trawl in the vicinity of submarine cables; for further information see 1.42.

Piracy and armed robbery

1.7

1 In 2002 incidents of piracy and armed robbery were reported to have increased. Vessels most at risk are those anchored close inshore or in port. When underway vessels are advised where possible to keep at least 15 miles offshore. Attacks usually occur under the cover of darkness but vessels should be alert at all times. In the area covered by this volume, in 2002, attacks have taken place in Georgetown, Guyana, and in Barranquilla, Colombia.

2 Guidance and further information may be found in *Admiralty Notices to Mariners,* the Department of Transport (Environment Transport Regions) *Marine Guidance Note MGN 241 (M) (2002)* and *Admiralty List of Radio Signals Volume 1 (2).*

TRAFFIC AND OPERATIONS

General information

Traffic

1.8

1 The principal concentration of traffic within the area is met in the approach to the Panama Canal (11.1). There is much traffic also, mostly confined to tankers in the approaches to Gulf of Paria (10°20′N, 62°00′W) (4.68), Nederlandse Antillen (7.23) and Lago de Maracaibo (9°50′N, 71°30′W).

Fishing

1.9

1 Sea fisheries off the coasts are of a minor nature to meet local requirements, but shrimp fishing is carried out on a large scale, mostly for export, off Guyana and Suriname. Turtle nets and buoys may be encountered near the coast in the NE approach to the Panama Canal; for further information see 10.50.

Firing practise and exercise areas

1.10

1 Firing and bombing practices and defence exercises may take place in the area covered by this pilot. Notices of exercises and firing practise areas are promulgated by local *Notices to Mariners* and radio navigational warnings as given at 1.34. For further information see *The Mariner's Handbook* and *Annual Summary of Admiralty Notices to Mariners No 5*.

Submarine exercise areas

1.11

1 Mariners may encounter submarines exercising in the area covered by this pilot. The *Mariner's Handbook* and *Annual Summary of Admiralty Notices to Mariners No 8* give general information on the characteristics of submarines and visual signals used to denote their presence.

Wire drag sweeping operations

1.12

1 Wire drag sweeps, used by United States surveying launches in searching for dangers to navigation, are sometimes more than 2 miles long. These may be crossed by vessels without danger of fouling at any point, except between the towing launches and the large buoys near them, where the wire approaches the surface of the water. Vessels passing over the sweep are requested to alter course so as to cross it approximately at right angles, as a diagonal course may cause the propeller to foul the supporting buoys and attached wires.

2 No attempt should be made to pass between the towing launches while the sweep is being streamed or hove in, unless it would endanger the vessel to do otherwise, as the bottom wire is then slack and the floats at each 30·5 m section may lift it nearly to the surface; at this time, the launches are usually heading directly towards, or away from, each other and the operation may be clearly seen.

Marine exploitation

Oil and gasfields

1.13

1 Many drilling platforms, wellheads and pipelines exist of the coasts of Trinidad; they also occupy the greater part of Lago de Maracaibo. Other drilling platforms or rigs are found N of Península de Paria (10°40′N, 62°20′W) and off the coast of Colombia. Production platforms and associated structures including tanker moorings, storage tankers and platforms on pipelines, generally exhibit morse (U) lights, aircraft obstruction lights and sound fog signals.

2 Vessels must navigate with caution when passing close to offshore installations and structures. These installations are usually protected by Safety Zones which may extend up to 500 m from their outer edges. For further information see *The Mariner's Handbook* and *Annual Summary of Admiralty Notices to Mariners No 20*.

Pipelines

1.14

1 Gas from a damaged oil or gas pipeline could cause an explosion or some other serious hazard. Pipelines are not always buried and their presence may effectively reduce the charted depth by as much as 2 m. Where pipelines are close together, only one may be charted. Mariners should not anchor or trawl in the vicinity of a pipeline; they may risk prosecution if damage is caused. For further information see *The Mariner's Handbook*.

CHARTS

Admiralty charts

1.15

1 Admiralty charts covering the coastal waters of the area described in this volume are adequate for use on passage and entry into the principal ports and harbours. However, where the Admiralty chart is considered to be of too small

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a scale for safe passage, mariners are advised to use the larger scale charts published by the appropriate foreign Hydrographic Office (1.17); this applies in particular to the rivers of Guyane Française, Suriname, Venezuela, and Colombia, and to certain parts of the Panama Caribbean coast such as Archipiélago de San Blas.

Foreign charts

General information

1.16

1 Where British Admiralty charts show insufficient detail for navigation close inshore these Sailing Directions have been written using foreign charts. The text 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.

2 For Guyane Française appropriate charts are as follows:

Chart No	*Area*
French 5883	Fleuve Mana and Fleuve Maroni
French 5884	Rivière de Sinnamary
French 6058	Fleuve Maroni
French 7337	Fleuve Oyapock
3 French 7480 and 7481	Fleuve Kourou
French 7481	Îles du Salut

Publishing authorities

1.17

1 The Hydrographic Offices of Colombia, France, Netherlands, United States of America and Venezuela publish charts covering areas within this volume. Address's are as follows:

Colombia. Ministerio de Defensa Nacional, Armada Nacional, Direccion General Maritima, Transversal 41 No 27, 50 – CAN BOGATA.

2 France. Etablissement Principal de Service, Hydrographique et Océanographique de la Marine, 13 rue de Chatellier, BP 30316–29603 BREST CEDEX.

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

3 United States of America. National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, SSMC Building 3, 1315 East West Highway, SILVER SPRING, Maryland 20910–3282, USA.

Venezuela. Commandancia General de la Armada, Direccion de Hydrografia y Navegacion, Observatorio "Cagical", Apartado Postal No. 6745 – Carmelitas CARACAS.

Datums

Vertical

1.18

1 **Depths** on most modern Admiralty charts are reduced to Chart Datum, which is approximately the level of Lowest Astronomical Tide. Older charts use a number of different datums, which are normally shown on the chart.

2 **Drying heights** on most modern Admiralty charts are shown as being above chart datum. Older charts use a number of different datums, which are normally shown on the chart.

3 **Elevations** on most modern Admiralty charts are shown as being above MHWS or MHHW. On many older Admiralty charts elevations are shown as being against MHW.

Horizontal

1.19

1 Differences in latitude and longitude, in some cases by as much as 20 seconds, exist between Admiralty charts based on 19th century surveys and more modern British and American charts. The more modern British charts are referred to World Geodetic System 1984 Datum.

2 For older charts it has proved to be impossible to provide such details because of internal inconsistencies and when transferring positions between charts, it is advisable to do so by bearing and distance from a common reference object, and not by latitude and longitude.

AIDS TO NAVIGATION

Lights

1.20

1 Major lights are those with a nominal range of 15 miles or more. Light-structures only are described in this volume; for further details see *Admiralty List of Lights and Fog Signals Volume J*.

In Venezuela and Panama, from time to time, a number of lights have been reported to be irregular, unreliable, or to have a reduced range.

2 Along the coasts of Guyana and Suriname exposed light-structures, marking the approaches to river ports, are liable to be destroyed.

Beacons and daymarks

1.21

1 A beacon is a fixed artificial navigation mark which can be recognised by means of its shape, colour, pattern or topmark; it may carry a light, radar reflector or other navigational aid. Details, where known, are given in the body of the book.

The term *daymark* refers to a large unlit beacon but the term is also used to denote a topmark or other distinguishing mark or shape incorporated into a beacon, light–buoy or buoy. The lateral system for fixed artificial aids is based on that used for buoyage.

Landmarks

1.22

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

Buoyage

General

1.23

1 Mariners should not rely on buoys being in their charted positions at all times. Buoys should be regarded as warning markers and not as infallible navigation marks. The position of any buoy may not be as charted due to storm, collision, current, or undersea features such as shoals, reefs, or ledges which tend to render the buoy being easily displaced. Mariners should always navigate their vessels by

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visual bearings and radar distances of fixed shore objects, by soundings, or by the use of satellite or radio navigation systems whenever possible, rather than relying on buoys.

2 Due to their widespread use the term radar reflector is not included in the description of buoys mentioned in the text.

IALA Maritime Buoyage System

1.24

1 The IALA Maritime Buoyage System B (red to starboard) is generally in use for all the coastal waters described in this pilot. However, in some places, obsolescent systems such as the Colombian (1.25) and United States (1.26) buoyage system, may still be encountered.

2 For a full description of the IALA Maritime Buoyage System B system see either the publication *IALA Maritime Buoyage System* or *The Mariner's Handbook.*

Colombian buoyage

1.25

1 **Starboard hand buoys** are conical and usually painted red, but the upper part may be white; if numbered, they have even numbers and, if lighted, they exhibit red lights.

Port hand buoys are can-shaped and painted black, but may have a white top; they have odd numbers and, if lighted, exhibit white lights.

2 **Quick flashing** lights are usually exhibited in positions where special attention is called for, such as at bends in a channel.

Mid-channel buoys may be either conical or can-shaped, painted black and white in stripes; if lighted, they exhibit green lights.

3 **Middle ground buoys** may be either conical or can-shaped, painted black and red in bands. If a red band is uppermost, a vessel will continue in the main channel by passing the buoy on the starboard hand; if a black band is uppermost, the vessel will keep in the main channel by leaving the buoy to port. When lighted, middle ground buoys exhibit interrupted quick flashing green lights.

4 **Anchorage buoys** are painted white.

Dredged area buoys are painted white, with the upper part green.

Fishing ground buoys are painted black and white in bands.

United States buoyage and daymarks

1.26

1 **Terms.** The term "starboard hand" denotes that side which would be on the right of the mariner when approaching or entering a harbour, river, or estuary from seaward. The term "port hand" denotes the left hand of the mariner in the same circumstances.

Starboard hand. Buoys and daymarks are numbered from seaward and have even numbers. Lights may be red or white, and fixed, flashing, occulting, or quick flashing. Quick flashing lights mark important turns, and wrecks, for example, where special care is required.

2 **Port hand.** Buoys and daymarks are numbered from seaward and have odd numbers. Lights may be green or white, and fixed, flashing, occulting, or quick flashing. Quick flashing lights mark places where special care is required.

Mid-channel. Buoys and daymarks are not numbered, but may be distinguished by letters; the shape of the buoys has no significance. Lights are white and group flashing Mo (A). These marks are placed in good water in mid-channel or the approaches thereto.

3 **Middle ground or junction.** Buoys and daymarks marking middle grounds, the junctions or bifurcations of channels, wrecks or other obstructions, with a channel on either side of them, are not numbered but may be distinguished by letters; they may be left on either hand, with due care as to their positions in relation to the obstructions which they mark, and the buoys generally have no distinctive shape.

4 When indicating a main or preferred branch of a channel, seen from seaward, and if lighted. the following rules are observed:

Preferred channel to starboard. Light interrupted quick flashing green or white.

Preferred channel to port. Light interrupted quick flashing red or white.

5 **Buoys with no lateral significance.** These buoys are not numbered, but may be distinguished by letters. If lighted, they may exhibit nay colour light except green or red; only fixed, occulting, or flashing lights are used.

Wreck-marking buoys. These are generally placed on the seaward or channel side of the wreck and as near to the wreck as conditions will permit.

6 **Station-buoys** are sometimes moored close to a major aid to mark the station in case the regular aid is accidently shifted from its station; they are coloured and numbered in the same manner as the regular aid which they mark. Light-vessel station buoys have the letters "LS" above the name of the station.

7 **Seaplane/flying-boat operating areas** are marked by buoys painted black and yellow in stripes; these buoys have no marine significance.

Reflectors. These are placed on some unlighted buoys; there colours have the same significance as those of the lights. Radar reflectors may be fitted to some aids.

PILOTAGE

General information

1.27

1 Pilotage is compulsory for all foreign vessels entering the ports described in this volume. Information on pilotage procedures, including notice required when requesting pilots, boarding positions, and radio frequencies is given in *Admiralty List of Radio Signals Volume 6 (5).*

RADIO FACILITIES

Satellite navigation systems

Global positioning system

1.28

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

2 For further information see *Admiralty List of Radio Signals Volume 2.*

Differential Global Positioning System

1.29

1 DGPS 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.

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2 For further information see *Admiralty List of Radio Signals Volume 2.*

Global Navigation Satellite System

1.30

1 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 (SGS–90) and as for GPS positions must be adjusted, if necessary, to the datum of the chart being used.

2 For further information see *Admiralty List of Radio Signals Volume 2.*

Caution

1.31

1 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.

Other radio aids to navigation

Racons

1.32

1 There are several racons in the area covered by this volume to aid both offshore navigation and entry into harbours. Those aids which are pertinent to coastal and inshore navigation are included within the navigational text. For further information see *Admiralty List of Radio Signals Volume 2.*

Radio stations

1.33

1 For full details on all radio stations which transmit in the area covered by this volume see *Admiralty List of Radio Signals Volume 1 (2).*

Radio navigational warnings

Long range warnings

1.34

1 The area covered by this volume lies within the limits of NAVAREA IV long range warning services. NAVAREA IV warnings are issued by National Geospatial-Intelligence Agency, (Atn: PTMN (Mail Stop D–44)), 4600 Sangamore Rd, Bethesda, MD 20816–5003, USA.

For full details of the service and broadcast details see *Admiralty List of Radio Signals Volume 3 (2).*

Radio weather reports

METAREA IV warnings/bulletins

1.35

1 The World Meteorological Organization (WMO) has established a global service for the broadcast of high seas weather warnings and routine weather bulletins, through the Enhanced Group Calling International SafetyNET Service. METeorological service AREAS (METAREAS) are identical to the 16 NAVAREAS within the World-Wide Navigational Warning Service (WWNWS).

2 Each METAREA has a designated National Meteorological Service responsible for issuing high seas weather warnings and bulletins. The designated authorities are not necessarily in the same country as the NAVAREA co-ordinators. Weather Warnings and routine bulletins are broadcast through:

3 a) National coast radio stations.
b) SafetyNET (Enhanced Group Calling International SafetyNET).

For broadcast details see *Admiralty List of Radio Signals Volume 3 (2).*

Meteorological broadcasts by radio-facsimile

1.36

1 The area covered by this volume lies within the radio-facsimile broadcast coverage area of the United States Coast Guard radio-facsimile stations. For broadcast details see *Admiralty List of Radio 3 (2).*

National weather services

1.37

1 For broadcast details see *Admiralty List of Radio Signals Volume 3 (2).*

Internet weather services

1.38

1 Weather information for the area covered by this volume is available through the Internet.

Automatic Identification Systems

1.39

1 Details of Automatic Identification Systems (AIS) are given in *The Mariner's Handbook* and *Admiralty List of Radio Signals Volume 6 (5).* The carriage of AIS equipment in the Panama Canal is mandatory.

Radio medical advice

1.40

1 Mariners may obtain medical advice by radio from the International Radio-Medical Centre (CIRM) in Rome. For further information, and for details of the coast radio stations see *Admiralty List of Radio Signals Volume 1 (2).*

Distress and rescue

1.41

1 See 1.56.

REGULATIONS

International regulations

Submarine cables and pipelines

1.42

1 Mariners are warned that every care should be taken to avoid anchoring or trawling in the vicinity of submarine cables or pipelines on account of the serious consequences which would result from fouling them. See *The Mariner's Handbook* for information on the *International Convention for the Protection of Submarine Cables*, together with advise on the action to be taken in the event of fouling a cable or pipeline.

Pollution

1.43

1 The International Convention for the Prevention of Pollution from Ships 1973 was adopted by the International Conference on Marine Pollution convened by IMO in 1973. It was modified by the Protocol of 1978 relating thereto and adopted by the International Conference on Tanker Safety and Pollution Prevention convened by IMO in 1978. The convention, as modified by the protocol, is known as *MARPOL 73/78.*

2 The Convention consists of 6 annexes. Annex I (Oil), Annex II (Noxious Liquid Substances in Bulk), Annex III

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(Harmful Substances carried at Sea in Packaged Form) and Annex V (Garbage from Ships) are mandatory; Annex IV (Sewage from Ships) and Annex VI (Air Pollution) are optional.

MARPOL 73/78 and Annexes are described in detail in *The Mariner's Handbook*.

National regulations

Guyane Française

1.44

1 **Pratique** must be requested with ETA messages to Cayenne; it will be granted by radio.

Dangerous cargoes. Advance notice of 24 hours must be given; a written acceptance of the cargo by the consignee is required. Handling is permitted in daylight only.

2 **Pollution.** Oil pollution laws are enforced.

Suriname

1.45

1 **Pratique.** Vessels are normally cleared when berthed alongside or at an inner anchorage; a doctor will board only if contact with disease has been reported in the ETA message.

Port entry. Vessels in ballast must carry sufficient clean ballast to allow safe handling over bars and up rivers.

2 **Dangerous cargoes** should have their method of packing and stowage indicated on manifests.

Pollution. Dirty ballast must not be pumped overboard within 50 miles of the coast.

Readiness to leave. In all ports, vessels must keep a state of readiness to leave under full power at short notice.

Guyana

1.46

1 **Pratique** is given at Georgetown (6°49′N, 58°10′W) when the pilot boards and includes vessels bound for ports in Essequibo and Berbice Rivers. Radio pratique does not exist; a vessel with contagion on board must advise by radio and await instructions at the quarantine anchorage (2.196).

2 **Dangerous cargoes** are only handled by day.

Venezuela

1.47

1 **Pratique.** Health reports should be given with ETA messages, but there is no radio pratique; health inspection is made at the first Venezuelan port only.

National flag. When in Venezuelan territorial waters, the national flag must be displayed continuously at the fore; at night, on demand, the name of the vessel must be signalled by Morse lamp.

2 **Anchoring.** Vessels are not permitted to anchor within Venezuelan territorial waters except in ports and places usually used for commerce, or under stress of weather.

Dangerous cargoes. The Port Captain must be notified in advance of explosive or inflammable cargo carried by a vessel for discharge at the port or in transit.

3 **Navigation in channels.** No vessel may overtake another in channels, such as Canal de Maracaibo, Río Orinoco or Río San Juan, except in emergency, by regulation signals, and provided there is no other vessel approaching from ahead. When crossing, each must keep as far to starboard as possible. Vessels proceeding in the same direction should keep at least 1 mile apart.

4 Vessels in channels have priority over those about to enter them; a vessel in the main channel has preference over one entering from a secondary channel. When crossing or overtaking, speed must be reduced to avoid heavy wash or the effects of suction.

Stranding. Should a stranding, collision or other accident occur, a written statement must be presented to the Port Captain as soon as possible.

5 **Radio.** Use of a vessel's radio in port is not permitted.

Pollution. Heavy fines are imposed for oil spillages or other contamination of territorial waters.

Dress. There are strict dress regulations in force for Venezuelan ports.

Accommodation is to be provided to the same standard as ship's officers for customs guards onboard vessels.

Trinidad and Tobago

1.48

1 **Pratique.** The Port Health Officer will board vessels at an anchorage only if they have arrived from an infected port, otherwise the Immigration Officer grants pratique when boarding with customs officials at a berth alongside.

Pollution. Heavy fines have been established for any discharge or escape of oil into territorial waters.

Nederlandse Antillen

1.49

1 **Pratique** is granted when a vessel is boarded by the Immigration Officer who can act as Health Officer; if contact with infectious or contagious disease has been reported in the ETA message, the Port Doctor will board.

Dangerous cargoes. Vessels carrying such cargoes must obtain special permission before entering any port; cargo in transit must be in a sealed hold whilst in port. See also 7.113.

2 **Pollution.** No dumping of oily wastes is allowed within 50 miles of the coasts of Nederlandse Antillen.

Colombia

1.50

1 **Pratique.** There is no radio pratique. No direct radio advise from a vessel to the port authority is required; this advice should be passed to the agents with the ETA message.

Dangerous cargoes. Agents must give 48 hours advance notice whether the cargo is in transit or for the port, giving details of packing and stowage.

2 **Pollution.** The standard requirements for the prevention of oil pollution must be adhered to within the continental shelf of Colombia. Oil tankers are not permitted to clean tanks within 60 miles of the Colombian coast. A vessel arriving at a port with dirty ballast will be ordered to proceed to sea beyond the 60 mile limit and take on clean ballast.

3 For further information see *The Mariner's Handbook*.

Fines. Masters of vessels within the territorial waters of Colombia are liable to heavy fines, seizure of the vessel, or cancellation of licences if they:

a) Fail to obey the orders of the competent authorities regarding departure and arrival at ports.

4 b) Moor at piers, off beaches or river banks where this is not permitted by the authorities.

c) Alter their port of destination without permission.

d) Unjustifiably delay on passage between two ports.

e) Carry out unauthorised embarking or disembarking of persons and loading or unloading cargo.

f) Disobey instructions from military, naval, police, customs or port authorities.

5 g) Do not comply with the regulations of the competent authorities in force for maritime and river traffic.

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Panama

1.51

1 For Panama Canal regulations see 11.56.

SIGNALS

Traffic

1.52

1 In Guyane Française, in addition to the existing traffic signals, the following French special signals may be shown at certain ports:

Port closed	
By day	Three red balls, disposed vertically
By night	Three red lights, disposed vertically
Port open	
By day	The appropriate signal from the *International Code of Signals*
By night	Three green lights, disposed vertically

The use of these signals may signify that obstructions exist in the fairway; vessels must therefore proceed with care and obey any signals made by lookout men and the port authorities.

Dredgers

1.53

1 In Venezuela dredgers use the *International Code of Signals*, with additional signals peculiar to Río Orinoco (3.5) and Canal de Maracaibo (8.128).

Storm and strong winds

1.54

1 **Trinidad and Tobago.** All officially designated ports use the following hurricane warnings (wind speed 64 kn and more):

Time	*Signal*
By day	Black cross
By night	Red light over white light

2 **Nederlandse Antillen.** Day signal for a gale warning (wind speed 34 kn and more) is a red square flag with a black square centre.

Fire

1.55

1 Certain ports of the United States of America have adopted the five blast whistle or siren signal to be sounded by ships on fire in port and not underway. The signal consists of five long blasts, each from 4 to 6 seconds duration, and may be repeated at intervals to attract attention. The signal is not a substitution for, and is additional to, other means of indicating fire aboard a vessel.

2 These signals may be used at ports in Venezuela and the Panama Canal area.

DISTRESS AND RESCUE

General information

Radio monitoring

1.56

1 The radio watch monitoring international distress frequencies, which certain classes of ship are required to maintain when at sea, is one of the most important factors in the arrangements for the rescue of mariners and other people in distress at sea.

For general information concerning distress and safety, including helicopter assistance, see *Annual Summary of Admiralty Notices to Mariners* and *The Mariner's Handbook*.

Global Maritime Distress and Safety Systems

1.57

1 The Global Maritime Distress System (GMDSS) enables Search and Rescue authorities on shore, in addition to shipping in the immediate vicinity of a vessel in distress, to be rapidly alerted to an incident so that assistance can be provided with the minimum of delay. The sea area covered by this volume lies within the Search and Rescue regions of Canada.

Details of the GMDSS and the associated coast radio stations are given in *Admiralty List of Radio Signals Volume 5.*

Ship reporting systems

Automated Mutual-assistance VEssel Rescue System

1.58

1 The Automated Mutual-assistance VEssel Rescue (Amver) system, operated by the United States Coast Guard, is a maritime mutual assistance organization which provides important aid to the development and co-ordination of Search and Rescue (SAR) efforts in many offshore areas of the world. Participation in the system is voluntary.

Details are given in *Admiralty List of Radio Signals Volume 1 (2).*

Rescue services

Guyana Française

1.59

1 For search and rescue in Guyana Française waters there is a Maritime Rescue co-ordination Sub-Centre at Cayenne (4°56′N, 52°20′W). For details see *Admiralty List of Radio Signals Volume 5*.

Suriname

1.60

1 The national search and rescue agency for Suriname can be contacted through Paramaribo Coast Radio Station which maintains a continuous listening watch on 2182 kHz and VHF Ch 16. There is a Maritime Rescue Co-ordination Centre at Paramaribo (5°50′N, 55°10′W). For further details see *Admiralty List of Radio Signals Volume 1 (2)* and *Volume 5*.

Guyana

1.61

1 For search and rescue in Guyana waters there is a Maritime Rescue Co-ordination Centre at Georgetown (6°49′N, 58°10′W). For details see *Admiralty List of Radio Signals Volume 5*.

Venezuela

1.62

1 For Venezuelan waters there is a Maritime Rescue Co-ordination Centre at Puerto La Guaira (10°36′N, 66°56′W) For details see *Admiralty List of Radio Signals Volume 5*.

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Trinidad and Tobago

1.63

1 Search and rescue operations for the waters surrounding Trinidad and Tobago are controlled by a Maritime Rescue Co-ordination Centre situated at Port of Spain. For details see *Admiralty List of Radio Signals Volume 5*.

Nederlandse Antillen

1.64

1 There is a major Joint Rescue Co-ordination Centre in Curaçao for the S part of the Caribbean Sea. The centre is operated by the Royal Netherlands Naval Air Service, which provides fixed wing aircraft, but not helicopters for search purposes. There is a communication link with the United States Coast Guard Rescue Centre in San Juan (*West Indies Pilot Volume II*).

2 For details see *Admiralty List of Radio Signals Volume 5*.

Colombia

1.65

1 For Colombian Caribbean coastal waters there is a Maritime Rescue Co-ordination Centre at Cartagena (10°25′N, 75°31′W). For details see *Admiralty List of Radio Signals Volume 5*.

Panama

1.66

1 For Panama Caribbean coastal waters, Panama Intelmar Radio Station (HPP) maintains a continuous listening watch on 500 and 2182 kHz and VHF Channel 16 for distress calls. For details see *Admiralty List of Radio Signals Volumes 1 (2)* and *5*.

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COUNTRIES AND PORTS

GUYANA FRANÇAISE

General description

1.67

1 Guyane Française, situated on the NE coast of Latin America, is bounded on the W by Suriname and on the S and E by Brazil; it has an area of 85 534 square kilometres and includes Îles du Salut (5°17′N, 52°36′W).

National limits

1.68

1 Guyane Française claims a 12 mile territorial sea (TS) and an Exclusive Economic Zone (EEZ) of 200 miles. For further information see *The Mariner's Handbook.*

History

1.69

1 A French settlement was established at Cayenne in 1604 and the territory between Fleuve Maroni and Fleuve Oyapock finally became a French possession in 1817. Convict settlements were established at Îles du Salut from 1852, but were closed by 1945. The colony became an Overseas Department of France in 1946.

Government

1.70

1 Guyane Française is administered by a General Council of 19 members, elected for five year terms, and by a Regional Council of 31 members. It is represented in the National Assembly by two deputies and in the Senate by one senator. The French Government is represented by a Prefect.

2 The country, for administrative purposes, is divided into two districts, Cayenne and Saint-Laurent du Maroni, which are further sub-divided into 22 communes and 19 cantons.

Population

1.71

1 The population of Guyane Française was 157 213 at the 1999 census, with 76·4% living in urban centres. The principal towns are Cayenne, the capital, with 50 594 inhabitants, Saint-Laurent du Maroni, with 19 210, and Kourou, with 19 107.

Language

1.72

1 French is the official and commercial language, but many people also speak some English.

Physical features

1.73

1 The land rises gradually from the coastal regions to higher slopes and plains about 50 miles inland. The granite mountains extend E and W, but are not very high. The country is well watered, having an equatorial type climate, and there are more than 20 rivers.

Industry and trade

1.74

1 **Minerals.** There are bauxite deposits in the mountains and placer gold mining is carried out. In 1993 2795 kg of gold were produced.

Timber for export is the largest industry, with roundwood production reaching 120 000 cubic metres in 1999; the trees also provide oils, essences and gum products.

2 **Crops** produced include rice, cassava, sugarcane, bananas and a wide variety of other fruits.

Fishing. The most important fish caught are shrimp, forming 21% of the country's exports.

SURINAME

General description

1.75

1 Suriname, formerly the colony of Dutch Guiana, is bounded on the W by the Corentyn River which separates it from Guyana, on the E by Fleuve Maroni separating it from Guyane Française, and on the S by Brazil. The country has a total area of 163 820 square kilometres.

National limits

1.76

1 Suriname claims a 12 mile territorial sea (TS) and an Exclusive Economic Zone (EEZ) of 200 miles. For further information see *Annual Summary of Admiralty Notices to Mariners* and *The Mariner's Handbook.*

History

1.77

1 Suriname was explored by Alonso de Ojeda and Amerigo Vespucci in 1499. Many Spanish and English expeditions visited the coast, in search of gold, in the sixteenth century. By 1613, a Dutch factory had been established on the site of Paramaribo. In 1650, England assumed authority over the country, but this was transferred to the Netherlands at the Peace of Breda in 1667; since then it has been two short periods in British possession, but was returned to the Kingdom of the Netherlands at the Peace of Paris in 1815.

2 Suriname gained full independence and was admitted to the United Nations in 1975.

Government

1.78

1 Since 1991 there has been a democratic government consisting of a 51 member National Assembly directly elected for a five year term. A President is elected as head of state for five years by a two-thirds majority of the National Assembly, or failing that, by a specially convened United Peoples' Conference, including district and local councillors, by a simple majority.

2 The country is divided into 10 administrative districts headed by district commissioners appointed by the President. The Judiciary is headed by the Court of Justice which supervise the magistrates courts.

Population

1.79

1 The population of Suriname was 407 000 at the 1995 census. The population is made up of 35% Creole, 33% Indian, 16% Javanese, 10% Bushnegroes, 3% Amerindian and 3% others, with 73·5% living in urban centres.

Language

1.80

1 Dutch is the official language. English is widely spoken next to Hindi, Javanese and Chinese. A vernacular, called "Sranan Tongo" or "Suranamese", is used as a lingua franca.

Physical features

1.81

1 Physical features are generally similar to those described for Guyana at 1.89.

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Industry and trade

1.82

1 **Alumina** exports accounted for 72% of Suriname's export earnings in 2000. Suriname's bauxite deposits have been among the world's richest, but in 1999 the aluminium smelting plants were closed. The major mining sites at Moengo and Paranam are maturing, and it is now estimated that their reserves will be depleted by 2006. Other proven reserves exist in the E, W and N of the country, sufficient to last until 2025.

2 **Gold** mining, which is unregulated by the government, accounts for an estimated 20% of the gross domestic product.

Oil. In 1996 crude petroleum production reached 3 million barrels.

Agriculture, restricted to the alluvial coastal belt, produces rice, sugar-cane, bananas, molasses, rum, cocoa, coffee, maize, citrus fruits and coconuts.

3 **Timber** resources are extensive.

Trade. In 1995 the principal imports were raw materials, fuels and lubricants, cars, textiles and foodstuffs; principal exports were alumina, shrimps, rice, bananas, plantains and wood and wood products.

GUYANA

General description

1.83

1 Guyana, formerly the colony of British Guiana, is bordered on the W by Venezuela, on the E by Suriname, and on the S and W by Brazil; it covers an area of 214 969 square kilometres.

National limits

1.84

1 Guyana claims a 12 mile territorial sea (TS) and an Exclusive Economic Zone (EEZ) of 200 miles. For further information see *Annual Summary of Admiralty Notices to Mariners* and *The Mariner's Handbook.*

History

1.85

1 The country was first partially settled by the Dutch West India Company in about 1620; the Dutch remained until 1796 when it was captured by the British, and it was finally ceded to Great Britain in 1814 and named British Guiana.

2 On 26th May 166, British Guiana became an independent member of the Commonwealth, with the name Guyana, under a Governor-General; on 23rd February, 1970, it became the world's first Co-operative Republic under an Executive President.

Government

1.86

1 A new constitution was promulgated in October 1980. A Cabinet, appointed by the President, includes a Prime Minister and is responsible to the National Assembly consisting of 53 members, elected for 5 years unless the legislature is dissolved earlier.

2 A National Congress of Local Democratic Organs, with 12 members, is responsible for local government. The Supreme Congress of the People consists of all members of these two assemblies.

Population

1.87

1 The population of Guyana was estimated at 700 000 in 2000; it comprised 49% Indian, 36% African origin, 7% mixed race, 7% Amerindian and 1% others. Georgetown, the capital, had an estimated population of 250 500 in 2000.

Language

1.88

1 English is both the official and the commercial language.

Physical features

1.89

1 Guyana is divided roughly into three regions. The first region consists of a low alluvial coastal belt extending from 10 to 40 miles inland, the E part of which is intensively cultivated, containing some 90% of the population. The second region is a mountainous area of dense rain forest, rising from low sand plateaux and hillocks behind the coastal belt to a 2743 m high summit at the junction of the Guyana-Brazil-Venezuela borders. The third region is that of open savannah country with cattle ranches in the SW part of Guyana.

2 Large rivers, of limited navigational use due to rapids and waterfalls, intersect almost the entire country. The only ports are located within the mouths of the rivers, although there is little risk in anchoring anywhere off the coast as no hurricanes occur.

Industry and trade

1.90

1 **Minerals** exploited are bauxite, of which there are large deposits up Demerara River, gold, diamonds, copper, tungsten, iron, nickel and manganese. Alumina is produced.

Agricultural products are principally sugar-cane and rice; others of importance are cassava, plantains, bananas, coconuts, coffee, cocoa, citrus fruits and livestock.

2 **Timber** can be extracted economically from only 20% of forest area, which covers about 87% per cent of the country.

Trade. Exports in 1996 were chiefly sugar, gold, rice and bauxite; other commodities included timber, shrimps and rum. Imports include wheat, textiles and manufactured products.

VENEZUELA

General description

1.91

1 Venezuela is bounded on the N by the Caribbean Sea, on the S by Brazil, and on the W by Colombia; it has an area of 916 490 square kilometres, and a coastline of some 1700 miles.

Venezuela includes more than 70 islands, the largest being Isla de Margarita (11°00′N, 64°00′W) which combines with Los Frailes (11°14′N, 63°45′W), Isla Coche (10°47′N, 63°57′W), Isla Cubagua (10°49′N, 64°11′W), and Isla la Tortuga (10°56′N, 65°19′W) to form Estado Nueva Esparta.

2 Outlying islands belonging to Venezuela include Isla La Blanquilla (11°48′N, 65°36′W), Isla La Orchila (11°48′N, 66°09′W), Archipielago Los Roques (11°50′N, 66°44′W) and Archipielago Las Aves (12°00′N, 67°33′W).

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National limits

1.92

1 Venezuela claims a 12 mile territorial sea (TS), a contiguous zone (CZ) of 15 miles, and an Exclusive Economic Zone (EEZ) of 200 miles. For further information see *Annual Summary of Admiralty Notices to Mariners* and *The Mariner's Handbook.*

History

1.93

1 In 1498, the territory was visited by Columbus, who gave the name Venezuela (Little Venice) to an Indian village built on piles on the shore of Lago de Maracaibo; it was again visited in the following year by Amerigo Vespucci.

2 In 1550, the territory was formed into the captaincy-general of Caracas and the country remained under Spanish rule, as the colony of New Granada, until the revolt under Simon Bolívar who secured its independence by defeating the Spanish forces at the battle of Carabobo in 1821.

3 Venezuela formed part of the Federal Republic of Colombia until 1830, when it seceded. In 1864, the country was divided into states and formed into a Federal Republic.

Government

1.94

1 The Republic consists of 23 states, one federal district (Caracas) and one federal dependency (72 islands). The constitution was rewritten in 1999 and the President is elected by a plurality vote with direct and universal suffrage. The term of office is for six years, and a President may be re-elected to a single consecutive term. The National Assembly is unicameral consisting solely of a Chamber of Deputies.

2 Deputies serve five year terms and may be re-elected for a maximum of two additional terms. The constitution designates three additional branches of the Federal government, the judicial, citizen and electoral branches.

Population

1.95

1 The total population of Venezuela in 2001 was estimated to be 24 632 000; it is made up of 67% Mestizo, 21% white, 10% black, and 2% Amerindian. The population of Caracas, the capital, was estimated in 2002 to be 3 435 795.

Language

1.96

1 Spanish is the official language. English is taught as a mandatory second language in high schools.

Physical features

1.97

1 The Maritime Andes of Venezuela back the coast W from the Gulf of Paria (10°20′N, 62°00′W) as far as Puerto Cabello (10°29′N, 68°00′W) and then turn SW; Pico Naiguatá, the highest and most prominent peak on this range, stands 5 miles ENE of Caracas and is 2740 m high. Sierra Nevada de Merida continues the range S of Lago de Maracaibo and joins the Eastern Andes in Colombia.

2 Dense forests cover the mountain slopes and foothills. Level stretches of open prairie, with occasional forest, occupy the basin of Río Orinoco. Lagoons and lakes, of which Lago de Maracaibo is the largest in South America, are contained within many parts of the coast.

3 Río Orinoco, the principle river of Venezuela, is about 1500 miles long and has many tributaries; it rises in approximate position 2°18′N, 63°15′W, and enters the Atlantic Ocean through a large delta. Ocean-going vessels can ascend the river for 157 miles to Puerto Ordaz (8°21′N, 62°43′W) (3.44) and vessels of light to moderate draught can reach Ciudad Bolívar (8°08′N, 63°33′W), 55 miles farther up river; small craft can reach Atures Rapids 845 miles from the river mouth.

4 Principal tributaries (3.64) of Río Orinoco are Ríos Caroní, Caura, Apure, Arauca, Meta and Guaviare.

Industry and trade

1.98

1 **Oil** is the chief industry of Venezuela, and it has the highest reserves of oil of any country outside the Middle East. Most of the oil comes from Lago de Maracaibo; the remainder is from many widely scattered fields in the Río Orinoco basin. Natural gas is distributed from the fields by pipelines to the refineries.

2 **Minerals.** Bauxite and iron ore are exploited in the Río Orinoco basin. Other minerals worked are gold, diamonds, manganese, phosphate-rock, sulphur, coal, nickel, salt, asbestos and copper-pyrite.

Manufacturing industries include aluminium, steel, petrochemicals, cement, textiles, shipbuilding and motor vehicles.

3 **Agricultural** products are coffee, cocoa, maize, rice, sugar, tobacco, cotton, sisal and livestock; from the forest zone, timber, wild rubber, orchids, balatá gum, tonca beans and wheat are obtained.

Trade. The main exports, apart from oil, are iron ore, bauxite, agricultural products and some manufactured goods. The main imports are machinery, vehicles, chemicals and foodstuffs.

TRINIDAD AND TOBAGO

General description

1.99

1 **Trinidad**, the second largest and S-most of the West Indian Islands, is situated with Icacos Point (10°03′N, 61°56′W), its SW point, 8 miles off the NE coast of Venezuela; it extends about 75 miles NE and has an area of 4828 square kilometres.

2 **Tobago**, lying 19 miles NE of Trinidad, is about 20 miles in length with an area of 303 square kilometres; it was amalgamated administratively with Trinidad in 1889.

National limits

1.100

1 Trinidad and Tobago claims a 12 mile territorial sea (TS), a contiguous zone (CZ) of 24 miles, and an Exclusive Economic Zone (EEZ) of 200 miles. For further information see *Annual Summary of Admiralty Notices to Mariners* and *The Mariner's Handbook.*

History

1.101

1 Trinidad and Tobago were discovered by Columbus in 1498, during his third voyage. The English flag was first planted on Tobago in 1580, but the island was not settled until 1632; the Dutch settlers, after about 2 years, were all destroyed or expelled by the Caribs and Spaniards from

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Trinidad. The island then passed successively into the hands of the Courlanders, Dutch, and French, and was finally transferred to Great Britain by France in 1814.

2 Trinidad was first colonised in 1588 by the Spaniards but it was taken by the British in 1797 and ceded to Great Britain by the Treaty of Amiens in 1802. In 1962 Trinidad and Tobago became an independent member of the Commonwealth

Government
1.102

1 Trinidad and Tobago adopted a republican constitution on 26th October, 1976. The constitution provides for a Senate and a House of Representatives. The Senate has 31 appointed members; the House of Representatives consists of 36 elected members and a Speaker elected from within or outside the house. The Cabinet consists of a Prime Minister, appointed by the President, and 15 other members.

2 Trinidad's seven counties and four largest cities are administered by elected councils. Tobago was given a measure of self government in 1980 and this was enhanced in 1996; it is governed by the Tobago House of Assembly.

Population
1.103

1 In 1999 the estimated population of Trinidad and Tobago was 1 285 700; it is made up of 39·6% African descent, 40·3% East Indian, 18·4% mixed races, and 1·6% Europeans, Chinese and others. Port of Spain, the capital has an estimated population of 53 000.

Language
1.104

1 English is spoken generally.

Physical features
1.105

1 Mountains and hills on Trinidad consist of the Northern and Southern Ranges, stretching almost across the island, and the Central Range standing partly across the centre; otherwise the island is nearly flat. The most lofty peaks are in the Northern Range, the highest of which is El Cerro del Aripo (10°43′N, 61°15′W) rising to 940 m.

2 The rivers in Trinidad are not navigable.

Industry and trade
1.106

1 **Industry.** Oil and natural gas production is the chief industry of Trinidad, with significant reserves of natural gas having been discovered in 2000 and 2002. Asphalt, cement, iron and steel, chemicals and fertilisers are also produced. Trinidad is one of the world's largest producer of ammonia and methanol.

Agriculture. Both Trinidad and Tobago produce timber, sugar, livestock, cocoa, coconuts and citrus fruit.

2 **Trade.** Exports consist chiefly of petroleum products, ammonia, methanol, fertilizers, iron and steel and sugar; imports include industrial and electrical machinery, vehicles, paper products and food stuffs. Tourism is a major contributor to the economy of both islands.

NEDERLANDSE ANTILLEN

General description
1.107

1 Nederlandse Antillen, an integral part of the Kingdom of the Netherlands, comprises two groups each of three main islands in the Caribbean Sea, and about 440 miles apart. Boven Windse, the windward and NE group, is described in *West Indies Volume II*.

2 The Benedenwindse Eilanden or leeward group of Nederlandse Antillen consist of Bonaire (12°10′N, 68°17′W) with Klein Bonaire, Curaçao (12°12′N, 69°00′W) with Klein Curaçao, and Aruba (12°31′N, 69°58′W), lying between 15 and 45 miles off the coast of Venezuela.

3 Bonaire has an area of 288 square kilometres, Curaçao 444 square kilometres, and Aruba 193 square kilometres.

National limits
1.108

1 Nederlandse Antillen claims a 12 mile territorial sea (TS). For further information see *Annual Summary of Admiralty Notices to Mariners* and *The Mariner's Handbook.*

History
1.109

1 Curaçao was discovered by Spaniards about the year 1500. The islands were occupied by Spanish adventurers until they were formally acquired by the Dutch in 1634. Peter Stuyvesant was the first governor of the group. As many nationals traded to and from the islands, there was much admixture of blood; these racial differences are still apparent between the islands of Bonaire, Curaçao and Aruba.

2 The islands came under British rule for a short period at the beginning of the nineteenth century, but Dutch rule was continued in 1802 at the Treaty of Amiens.

Government
1.110

1 In 1954, Nederlandse Antillen became fully autonomous in internal affairs and constitutionally equal with The Netherlands. Under a separate constitution inaugurated on 1st January 1986 Aruba became an autonomous part of The Netherlands, and independent from Bonaire and Curaçao, with the attention of becoming fully independent from The Netherlands after 10 years; however, at Aruba's request in June 1990, references to eventual independence from The Netherlands were deleted.

2 For Bonaire and Curaçao the executive power in internal affairs rests with a Governor, representing The Netherlands, and a Council of Ministers consisting of 22 members, elected by general suffrage for a four year term. Aruba is governed in a similar way; the Netherlands is represented by a Governor and it's unicameral legislature consists of 21 members elected for a four year term.

Population
1.111

1 In 2000 the estimated population of Bonaire and Curaçao was 215 000; in 1999 Willemstad, the capital, had a population of 123 000.

Aruba in December 2000 had a population of 91 065. Oranjestad, the capital, in 1998 had a population of 29 000.

Language
1.112

1 Dutch is the official language, but Spanish and English are widely spoken. In addition Papiamento, a language evolved out of a mixture of Spanish, Portuguese, Dutch, English and French, is also used.

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Physical features
1.113

1 For a description of the physical features of Bonaire, Curaçao and Aruba, see 7.38, 7.70 and 7.156, respectively.

Industry and trade
1.114

1 The economy of Nederlandse is almost entirely based on the refining, or transhipment, of imported oil. Other economic activities are the mining of calcium phosphate on Curaçao and the large ship repairing and dry docking industry at Willemstad. There is also light industry, such as textile manufacturing, on all three islands.

COLOMBIA

General description
1.115

1 Colombia is bounded on the E by Venezuela and Brazil, on the N by the Caribbean Sea, on the S by Peru and Ecuador, on the NW by Panama, and on the W by the Pacific Ocean. The country has an estimated area of 1 141 815 square kilometres.

2 Colombia also includes the outlying islands of Isla de San Andrés and Isla de Providencia, 48 miles NNE, lying off the coast of Nicaragua. These small islands, with their off-lying cays, are described in *East Coasts of Central America and Gulf of Mexico Pilot*.

National limits
1.116

1 Colombia claims a 12 mile territorial sea (TS) and an Exclusive Economic Zone (EEZ) of 200 miles. For further information see *Annual Summary of Admiralty Notices to Mariners* and *The Mariner's Handbook.*

History
1.117

1 The territory was visited, in 1502, by Columbus. In 1536, a Spanish expedition penetrated into the interior and established a government continuing Spanish rule until the revolt of Spanish-American colonies in 1811 to 1824. In 1819, Simón Bolívar established the Republic of Colombia, consisting of the territories now known as Colombia, Panama, Venezuela and Ecuador.

2 In 1829 to 1830, Venezuela and Ecuador withdrew from the Republic of Colombia and, in 1831, the remaining territories were reformed into the Republic of New Granada. In 1858, the name was changed to the Granadine Confederation and in 1861, to the United States of Colombia. The present title was adopted in 1886.

3 Panama seceded from Colombia in 1903 and became a separate republic.

Government
1.118

1 The legislative power rests with a Congress of two houses, consisting of the Senate of 102 members and the House of Representatives of 161 members, both elected for 4 years. The President is elected by direct vote of the people for a term of 4 years and is not eligible for re-election for a further 4 years. There are 13 Ministries.

2 The Republic is divided for local Government into 23 Departmentos, five Intendencias, and four Comisarias.

Population
1.119

1 The total population of Colombia in 1993 was 33 109 840; it is divided racially into 58% mestizo, 20% white, 13% mulatto, 4% black, 3% mixed black-Indian, and 1% Indian. Bogotá (4°42′N, 74°34′W), the capital, had an estimated population of 6 276 000 in 1999.

Language
1.120

1 Spanish is the official language.

Physical features
1.121

1 Three great ranges of the Andes traverse Colombia from N and S and are known as Cordilleras Oriental, Central, and Occidental; the highest peaks, rising to more than 5000 m, are in Cordillera Central. Cordillera Oriental, on which stands Bogatá at an elevation of 2743 m, consists of a series of vast tablelands which are cool and healthy; this temperate region is the most densely populated part of the country.

2 The principal rivers flowing into the Caribbean Sea are Río Magdalena (9.107), the largest, and navigable for about 800 miles, and Río Atrato (9.258) and Río Cauca (9.141). Río Guaviare (3.72) is one of the largest of several tributaries of Río Orinoco flowing from Colombia.

Flora and fauna
1.122

1 Flora of Colombia combines almost all the products of the tropical, inter-tropical, and temperate zones owing to the geographical position of the country.

Fauna is very varied, presenting almost all the great American types. Among wild animals are the puma, jaguar, bear, sloth, deer, armadillo, cavy, alligator, opossum, tapir, monkey, condor, parrot and humming bird.

2 The boa constrictor and various other snakes are frequently found in the warmer regions. Insects are numerous, especially ants, which in some districts are almost a plague. Turtle abound on the coast.

Industry and trade
1.123

1 **Petroleum products.** In 1998 275·5 million barrels of crude oil were produced; natural gas production reached 5·2 billion cubic metres in 1999.

Minerals are found in abundance; coal is becoming one of the most important for export. Other minerals are gold, silver, copper, lead, mercury, emeralds (Colombia accounts for half of the worlds production), manganese, platinum (largest deposit in the world), salt and iron.

2 **Agriculture.** Crops are varied owing to the range of climate. Colombia is a large producer of coffee; other products are cotton, bananas, rice, cocoa, sugar-cane, maize, wheat and soyabeans.

Forestry. Extensive forests include mahogany, cedar, fustic and other dyewoods, and rubber trees.

3 **Industry.** Manufactures include oil-refining, textiles, vehicles, cement, sugar, chemicals and steel.

Trade. The main exports in 1999 were crude oil, chemicals, coal, bananas, cut flowers and clothing; imports include machinery and other manufactured products.

PANAMA

General description
1.124

1 Panama forms the isthmus which joins North and South America; it is bounded on the E by Colombia, on the W

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by Costa Rica, on the N by the Caribbean Sea, and on the S by the Pacific Ocean. The country has an area of 75 517 square miles.

2 The Panama Canal, at the narrowest part of the isthmus, is described in Chapter 11.

National limits

1.125

1 Panama claims a 12 mile territorial sea (TS), a contiguous zone (CZ) of 24 miles, and an Exclusive Economic Zone (EEZ) of 200 miles. For further information see *Annual Summary of Admiralty Notices to Mariners* and *The Mariner's Handbook.*

History

1.126

1 Panama declared its independence of the United States of Colombia (1.117) after a revolution in 1903; it formed a separate government which was then recognised by the United States of America, soon afterwards by other nations, and eventually in 1914 by Colombia.

2 The first suggestion for a canal across the Isthmus of Panama was made by a Spanish engineer in 1530; surveys were actively undertaken by various private companies between 1825 and 1890. In 1876, a concession to construct a canal was granted to a French company and, in 1881, work was started by a company of which Ferdinard de Lesseps was the nominal head. This company failed as the work to be accomplished proved greater than estimated. A new company was formed and resumed work in 1894, but had to give up in 1900 after a probable death toll of about 20 000.

3 In 1902, the United States of America Government was authorised by Congress to purchase the rights and property of the French company in Panama. The Colombian Government failed to ratify a treaty with the United States of America Government for the cession of the territory and this led to the secession of Panama in 1903.

4 In February 1904, the Panamanian Government ceded to the United States of America the territory then to be known as the Panama Canal Zone. In May 1904, the United States of America Government took possession of the effects of the French company in Panama and resumed work on a canal. Some 6000 lives were lost during the 10 year construction effort by the United States of America. The canal was officially opened on 15th August, 1914, when SS *Ancon* made the first transit of the entire canal.

5 The Panama Canal Zone, a strip of land across the isthmus, ceased to exist on 1st October, 1979; the Republic of Panama then assumed joint control of the Canal Area with the United States of America until 1st January, 2000, when full control was attained.

Government

1.127

1 A new constitution which came into force in 1972, amended in 1978, provides for a President and two Vice Presidents directly elected, and a 72 seat Legislative Assembly. For local government the country is divided into nine provinces and the special territory of San Blas.

Population

1.128

1 The Republic of Panama had at the census of 2000 a population of 2 839 177; Panama City, the capital, had a population of 658 102 in 1995. The population is a mix of African, American, Arab, Chinese, European and Indian immigrants.

Language

1.129

1 Spanish is the official language but English is widely understood.

Physical features

1.130

1 Mountain ranges and hills, heavily wooded, traverse the length of Panama except for the gap at the Canal Area; they are highest at the W end of the country, where Volcán de Chiriquí (8°49′N, 82°34′W) (12.37) rises to 3350 m. Elsewhere there are fertile valleys and plains.

2 Rivers are numerous, but small. Río Chagres (12.18) is the principal river flowing into the Caribbean Sea.

Flora and fauna

1.131

1 Tropical vegetation of great exuberance and variety grows in Panama, especially in the S districts where the forms of Central and South America are intermingled; it includes cacao, bananas, breadfruit trees, splendid palms of many kinds, cacti, and varieties of orchids. The ground is covered by a luxuriant growth of water-plants of the most varied colours.

2 Fauna consist chiefly of opossums, sloths, ant-eaters, armadillos, peccaries, deep, tapir, olingos, rats, tayra, agoutis, pacas, squirrels, rabbits, racoons, coati, ocelot, jaguarondi, jaguars, bats and monkeys, among the mammals. Alligators abound in the creeks. Ducks and other migratory birds are plentiful in season.

Industry and trade

1.132

1 **Minerals.** Large deposits of copper, the most important of which is in the W province of Chiriquí, are being developed; limestone, clay and salt are also produced.

Agriculture. The most important crops are bananas and sugar cane; also grown are rice, maize, cocoa, coffee and coconuts. Livestock are also raised.

Timber resources are great, notably mahogany.

2 **Industry.** Agricultural processing is the main industry. Other industries are oil refining, near Colón, chemicals, paper-making and cement production.

Trade. The main exports are bananas, shellfish and sugar; imports include manufactured goods, transport material, minerals, chemicals and foodstuffs. To further international trade the Colón Free Zone was set up in 1953; in 1997 there where 1556 companies within the zone, which is tax free and exempt from labour code provisions.

PRINCIPAL PORTS, HARBOURS AND ANCHORAGES

1.133

Place and position	*Remarks*
Guyane Française	
1 Dégrad des Cannes (4°51′N, 52°16′W) (2.21)	Principal port for Guyane Française
Cayenne (4°56′N, 52°20′W) (2.52)	Minor port and capital of Guyane Française
Pariacabo (5°09′N, 52°40′W) (2.62)	Minor port serving space station
Saint-Laurent du Maroni (5°30′N, 54°02′W) (2.77)	Small port

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Suriname

2	Paramaribo (5°50′N, 55°10′W) (2.97)	Principal port and capital of Suriname
	Paranam (5°36′N, 55°05′W) (2.127)	Bauxite/aluminium loading port
	Nieuw Nickerie (5°57′N, 57°00′W) (2.139)	Small commercial port

Guyana

3	Skeldon (5°53′N, 57°08′W) (2.151)	Minor harbour
	New Amsterdam (6°15′N, 57°31′W) (2.152)	Commercial port
	Georgetown (6°49′N, 58°10′W) (2.186)	Principal port and capital of Guyana
	Linden (6°00′N, 58°18′W) (2.221)	Bauxite ore terminal
	Bartica (6°24′N, 58°38′W) (2.264)	Minor anchorage port

Venezuela — Río Orinoco

4	San Félix (8°22′N, 62°40′W) (3.37)	Commercial port, handling grain and general cargo
	Palúa (8°22′N, 62°42′W) (3.38)	Iron ore loading terminal
	Punta Cuchillo Oil Terminal (8°20′N, 62°48′W) (3.39)	Oil terminal
5	Puerto Ordaz (8°21′N, 62°43′W) (3.44)	Largest iron ore loading terminal on the Río Orinoco
	Puerto Matanzas (8°17′N, 62°51′W) (3.50)	Port serving steel mill
	Ciudad Bolívar (8°08′N, 63°33′W) (3.59)	Principal port of Río Orinoco

Trinidad and Tobago

6	Galeota Oil Terminal (10°06′N, 61°01′W) (4.19)	Offshore oil loading terminal
	Chaguaramas Bay (10°41′N, 61°39′W) (4.96)	Commercial repair yard
	Tembladora Bauxite Terminal (10°41′N, 61°36′W) (4.106)	Transhipment centre for bauxite
7	Port of Spain (10°39′N, 61°31′W) (4.116)	Principal port and capital of Trinidad and Tobago
	Claxton Bay Marine Terminal (10°21′N, 61°28′W) (4.151)	Cement handling terminal
	Brighton Harbour (10°15′N, 61°38′W) (4.158)	Handles oil industry related products
8	Lisas Point Ports (10°23′N, 61°30′W) (4.166)	Two ports combined serving a large industrial complex
	Pointe-à-Pierre (10°19′N, 61°28′W) (4.188)	Major oil terminal
	Point Fortin (10°11′N, 61°42′W) (4.215)	LNG gas terminal
	Scarborough (11°11′N, 60°44′W) (4.322)	Principal port for Tobago

Venezuela — north-east coast

9	Boca Grande Transhipment Terminal (9°57′N, 61°35′W) (4.29)	Offshore iron ore terminal
	Cristobal Colon (10°39′N, 61°56′W) (4.242)	Small port handling gypsum
	Puerto de Hierro (10°38′N, 62°06′W) (4.249)	Trans-shipment port for bauxite
10	Puerto de Güiria (10°34′N, 62°18′W) (4.256)	Fishing harbour and pilot station
	Caripito Oil Terminal (10°09′N, 63°02′W) (4.278)	Exports petroleum products and crude oil

Venezuela — north coast

11	Puerto Carúpano (10°41′N, 63°14′W (5.30)	Small commercial port
	Bahía Pampatar (11°00′N, 63°47′W) (5.79)	Anchorage
	Bahía La Mar and Porlamar (10°57′N, 63°51′W) (5.80)	Anchorage with a pier for small passenger vessels
12	Punta Carnero (10°53′N, 64°01′W) (5.81)	Small oil terminal
	Punta de Piedras (10°54′N, 64°06′W) (5.82)	Ferry harbour
	Puerto El Guamache (10°52′N, 64°04′W) (5.72)	Commercial port for Isla de Margarita
13	Pueblo de Araya (10°34′N, 64°16′W) (5.101)	Minor harbour used for handling salt
	Cumaná (10°28′N, 64°11′W) (5.109)	Commercial and fishing port
	Puerto La Cruz (10°14′N, 64°38′W) (5.134)	Second largest oil exporting port in Venezuela; general cargo also handled
14	Puerto Jose (10°06′N, 64°52′W) (5.173)	Industrial harbour for petroleum products, chemicals and dry bulk
	Puerto La Guaira (10°36′N, 66°56′W) (6.15)	Principal port of Venezuela and port for Caracas
	Catia La Mar Marine Terminal (10°36′N, 67°02′W) (6.47)	Oil and cement terminal
15	Puerto Turiamo (10°27′N, 67°51′W) (6.51)	Minor harbour; restricted access
	Puerto Cabello (10°29′N, 68°00′W) (6.56)	Major commercial port and naval base
	El Palito Terminal (10°29′N, 68°07′W) (6.97)	Oil terminal
16	Puerto Chichiriviche (10°55′N, 68°16′W) (6.112)	Small port handling cement
	Puerto Cumarebo (11°29′N, 69°21′W) (6.125)	Oil terminal and general cargo port
	La Vela de Coro (11°28′N, 69°34′W) (6.130)	Port of entry and ferry terminal

Nederlandse Antillen

17	**Bonaire**	
	Kralendijk (12°09′N, 68°17′W) (7.52)	Commercial port and capital of Bonaire

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	Goto Terminal (12°13′N, 68°23′W) (7.60)	Oil transhipment terminal
	Salina Pier (12°05′N, 68°17′W) (7.67)	Bulk salt facility
18	**Curaçao**	
	Fuik Baai (12°03′N, 68°50′W) (7.81)	Phosphate loading terminal
	Caracas Baai (12°05′N, 68°52′W) (7.88)	Former oil terminal used by cruise liners
19	Willemstad (12°07′N, 68°56′W) (7.96)	Major commercial and oil port and capital of Nederlandse Antillen
	Sint Michielsbaai (12°09′N, 69°00′W) (7.138)	Anchorage port for minor repairs
	Bullenbaai (12°12′N, 69°02′W) (7.143)	Oil transhipment terminal
20	**Aruba**	
	Sint Nicolaas (12°26′N, 69°54′W) (7.171)	Oil terminal and dry bulk handling port
	Haven Barcadera (12°29′N, 70°00′W) (7.208)	Industrial harbour for Aruba
21	Oranjestad (12°31′N, 70°02′W) (7.216)	Commercial port and ferry terminal; capital of Aruba
	Venezuela — north-west coast	
	Golfo de Venezuela	
	Bahía de Amuay (11°45′N, 70°13′W) (8.33)	Loading port for refined oil; dry bulk cargoes also handled
22	Bahía Boca de las Piedras (11°42′N, 70°13′W) (8.62)	Oil transhipment port
	Puerto Guaranao (11°40′N, 70°13′W) (8.69)	Minor commercial port
	Puerto Cardón (11°37′N, 70°14′W) (8.76)	Oil terminal serving a large refinery
23	**Canal de Maracaibo**	
	Palmarejo de Mara Pier (10°48′N, 71°40′W) (8.142)	Minor port for local tankers
	Puerto Miranda and El Tablazo (10°46′N, 71°33′W) (8.144)	Oil terminal and port serving petrochemical facility
24	Puerto de Maracaibo (10°39′N, 71°36′W) (8.174)	One of the largest cargo handling ports in Venezuela
	Terminal Bajo Grande (10°31′N, 71°36′W) (8.208)	Offshore oil and gas terminal
	Punta de Palmas Terminal (10°24′N, 71°34′W) (8.215)	Offshore oil terminal
25	Punta Piedras Terminal (10°35′N, 71°36′W) (8.222)	Minor terminal for the importing of petroleum products
	Punta Camacho (10°33′N, 71°32′W) (8.223)	Minor port exporting barytes; importing LPG
26	**Lago de Maracaibo**	
	La Salina Terminal (10°22′N, 71°28′W) (8.234)	Oil loading terminal
	Bachaquero (9°57′N, 71°09′W) (8.241)	Crude oil, asphalt and general cargo minor port
	San Lorenzo (9°47′N, 71°04′W) (8.248)	Oil terminal
27	Las Morochas (10°12′N, 71°20′W) (8.255)	Minor harbour
	La Ceiba (9°28′N, 71°04′W) (8.256)	Minor harbour for dry bulk and general cargo
	Coloncha (9°12′N, 71°45′W) (8.257)	Small offshore oil terminal
28	**Colombia**	
	Puerto Bolivar (12°15′N, 71°58′W) (9.12)	Main coal exporting port for Colombia
	Ríohacha (11°33′N, 72°55′W) (9.46)	Minor harbour
	Manaure (11°47′N, 72°26′W) (9.52)	Minor harbour exporting salt
29	Santa Marta (11°15′N, 74°13′W) (9.61)	Major commercial port
	Puerto Zúñiga encompassing Pozos Colorados Terminal (11°09′N, 74°15′W), Puerto Prodeco (11°07′N, 74°14′W) and Puerto Drummond (11°04′N, 74°13′W) (9.98)	Offshore oil and coal terminals
30	Puerto Barranquilla (10°59′N, 74°46′W) (9.107)	Commercial port
	Bahía de Cartagena (10°20′N, 75°32′W) (9.155)	Largest harbour in Colombia with commercial port, oil terminals and naval base
	Puerto Coveñas (9°25′N, 75°42′W) (9.215)	Offshore oil terminal
31	Turbo (8°05′N, 76°44′W) (9.260)	Banana port
	Panama	
	Rada Playa de Damas (9°36′N, 79°28′W) (10.43)	Anchorage
	Bahía Nombre de Dios (9°35′N, 79°29′W) (10.44)	Minor port serving plantations and manganese mines
32	Bahía de Portobelo (9°33′N, 79°40′W) (10.63)	Well sheltered harbour, but little commerce
	Puerto de la Bahía de Las Minas (9°24′N, 79°49′W) (10.67)	Crude oil imported; refined products exported
	Colón (9°22′N, 79°54′W) (11.3)	Major container port with facilities for general cargo and cruise vessels
33	Puerto Cristóbal (9°21′N, 79°54′W) (11.79)	Commercial and bunkering port
	Puerto de Chiriquí Grande (8°57′N, 82°07′W) (12.53)	Offshore oil loading port with alongside general cargo wharf
	Bocas del Toro (9°20′N, 82°15′W) (12.83)	Port of entry and pilot station
34	Almirante (9°17′N, 82°23′W) (12.90)	Banana port

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PORT SERVICES — SUMMARY

Docking facilities

1.134

1 Ports with docking facilities and where available, the size of the largest vessel that can be accommodated, are as follows:

Suriname
Paramaribo. Two floating dry docks; maximum lifting capacity 100 tonnes (2.120).

2 **Guyana**
New Amsterdam. Floating dry dock; lifting capacity 600 dwt (2.172).
Georgetown. Dry dock for coastal vessels (2.212).
Mazaruni. Dry dock for small vessels (2.267).

3 **Trinidad**
Chaguaramas Bay. Floating dry dock; for vessels up to 11 380 tonnes; ship hoist. (4.102).
Port of Spain. Slipways for vessels up to 1800 tonnes (4.138).

4 **Venezuela – north coast**
Ciudad Bolívar. Three floating docks (3.63).
Cumaná. Small slipways (5.115).
Puerto La Guaira. Ship hoist with a capacity of 650 tonnes and a slipway (6.34).

5 Puerto Cabello. Dry dock, with a length of 220·5 m for vessels up to 30 000 dwt; ship hoist with a capacity of 5000 tonnes; slipway for up to 3000 tonnes (6.83).
Puerto de Maracaibo. Two small dry docks; patent slip with a capacity of 155 tonnes (8.196).

6 **Nederlandse Antillen**
Willemstad. Two dry docks, with the largest accommodating vessels up to 155 500 dwt; floating dry dock with a lifting capacity of 10 000 tonnes (7.128).

7 **Colombia**
Barranquilla. Patent slips for vessels up to 600 tons (9.137).
Cartagena. Floating dry dock for vessels up to 3000 dwt; syncro-lift with a capacity of 3500 tonnes; lifting hoists with a maximum capacity of 700 tonnes; slipways for vessels up to 1300 dwt (9.192).

8 **Panama**
Puerto Cristóbal. Dry dock 117·8 m in length; slipway with a lifting capacity of 750 tonnes (11.97).

Other facilities

Salvage services

1.135

1 **Nederlandse Antillen**
Willemstad (7.129).
Panama
Puerto Cristóbal (11.98).

Compass adjustment

1.136

1 **Trinidad**
Lisas Point Ports (4.185).
Nederlandse Antillen
Oranjestad (7.239).

Deratting

1.137

1 **Guyane Française**
Dégrad des Cannes (2.42).
Suriname
Paramaribo (2.121).
Paranam (2.127).

2 **Guyana**
Skeldon (2.151).
New Amsterdam (2.173).
Georgetown (2.213).
Morawhanna (2.280).

3 **Trinidad and Tobago**
Galeota Oil Terminal (4.24).
Chaguaramas Bay (4.102).
Tembladora Bauxite Terminal (4.112).
Port of Spain (4.139).
Brighton Harbour (4.164).
Lisas Point Ports (4.185).
Pointe-à-Pierre (4.209).
Scarborough (4.329).

4 **Venezuela**
Puerto Matanzas (3.54).
Cristobal Colon (4.248).
Puerto de Hierro (4.255).
Caripito Oil Terminal (4.283).
Puerto Carúpano (5.36).

5 Cumaná (5.115).
Puerto La Cruz (5.162).
Puerto La Guaira (6.35).
Puerto Cabello (6.84).
Puerto Cumarebo (6.129).

6 La Vela de Coro (6.130).
Puerto Guaranao (8.75).
Puerto de Maracaibo (8.197).
Terminal Bajo Grande (8.214).
Punta Camacho (8.223).

7 **Nederlandse Antillen**
Kralendijk (7.58).
Caracas Baai (7.94).
Willemstad (7.129).
Bullenbaai (7.149).
Sint Nicolaasbaai (7.199).
Oranjestad (7.239).

8 **Colombia**
Santa Marta (9.89).
Puerto Barranquilla (9.138).
Cartagena (9.193).

9 **Panama**
Puerto Cristóbal (11.98).

Measured distances

1.138

1 Within the area covered by this volume there are measured distances at:
Chacachacare Island, Trinidad (4.84).
Puerto Cabello, Venezuela (6.42).
West side of Isla Tierra Bomba, Cartagena (9.178).

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NATURAL CONDITIONS

MARITIME TOPOGRAPHY

Seabed

1.139

1 The N coast of South America from Cabo Orange (4°26′N, 51°32′W) to Punta Tirbi (Terraba) (9°26′N, 82°21′W) has a narrow continental shelf sloping steeply to deep trenches and basins. The continental shelf, to the 200 m contour, varies in width from 55 miles off Río Orinoco (3.1) to less than 5 miles close W of Caracas (10°30′N, 66°55′W). The largest shelf areas are in the Golfo de Venezuela/Lago de Maracaibo region and Gulf of Paria, W of Trinidad.

2 To seaward of the shelf edge, the submarine topography is quite varied. The Tobago Basin, more than 2000 m deep, E of the Windward Islands, separates The Grenadines from Barbados; farther E is the Barbados Basin, more than 2000 m deep, followed by the comparatively gentle slope to the Guiana Basin.

3 The following features lie to the W of the Windward Islands:

Grenada Basin, 3000 m deep.

Aves Ridge, joining the Leeward Islands to the continental shelf N of Isla de Margarita (11°00′N, 64°00′W).

Venezuelan Basin, more than 5000 m deep, which is joined to the Colombian Basin farther W by the Venezuelan Trough N of Golfo de Venezuela.

4 Between Isla la Tortuga (10°56′N, 65°19′W) and the Venezuelan coast is the Cariaco Trench, more than 1000 m deep.

In the area covered by this volume two major rivers, Río Magdalena in Colombia and Río Orinoco in Venezuela, affect the submarine topography; both have large deltas. Río Magdalena has almost eliminated the continental shelf over a wide area, while Río Orinoco has not built so noticeably across the shelf, possibly due to the effect of the Guiana Current.

5 The seabed on the continental shelf is mostly mud and sand. The largest areas of mud are:

E of Isla de Margarita and S of Trinidad to the Corentyn River (6°00′N, 57°05′W).

The Golfo de Venezuela/Lago de Maracaibo shelf area.

W of Río Magdalena to Golfo de Urabá (8°20′N, 76°55′W).

6 Elsewhere, the coast is bordered by areas of mud, mud and sand, and sand, gravel and sand. The deep basins and trenches are all mud and sand. The main river deltas have silty sediments inshore, merging to clays and then sand offshore.

LOCAL MAGNETIC ANOMALIES

1.140

1 From observations on land, there are indications that local magnetic anomalies exist in the vicinity of Cayenne (4°56′N, 52°20′W). Local magnetic anomalies have also been reported in the following positions:

An area in Golfo de Cariaco (10°30′N, 64°00′W) (5.102).

2 Between Puerto Cumarebo (11°29′N, 69°21′W) (6.125) and Bahía La Vela de Coro (11°28′N, 69°35′W).

Between Cabo San Román (12°11′N, 70°00′W) (6.136) and Aruba (12°31′N, 69°58′W) (7.155).

3 Between 10 and 15 miles N of Bonaire (12°10′N, 68°17′W) (7.37), reported in 1947.

CURRENTS, TIDAL STREAMS AND FLOW

Currents

Current diagrams

1.141

1 In the current diagrams 1.141.1 to 1.141.4 the arrows indicate predominant direction, average rate and constancy, 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**, to the nearest ¼ kn, of the highest 50% in the predominant sectors 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. For example low constancy implies marked variability in rate and particularly, direction.

Major currents

1.142

1 Throughout the year, the North-east Trade Wind drives the Guiana Current, off the South American coast, towards the Lesser Antilles. On reaching the island chain, much of the water is forced through the central section, principally the passages N and S of the island of Saint Lucia (*West Indies Pilot Volume II*); additionally, water from the W-setting North Equatorial Current enters the E and N boundaries of the Caribbean Sea, with a well marked axis of moderate to high constancy some 60 to 120 miles off the South American coast.

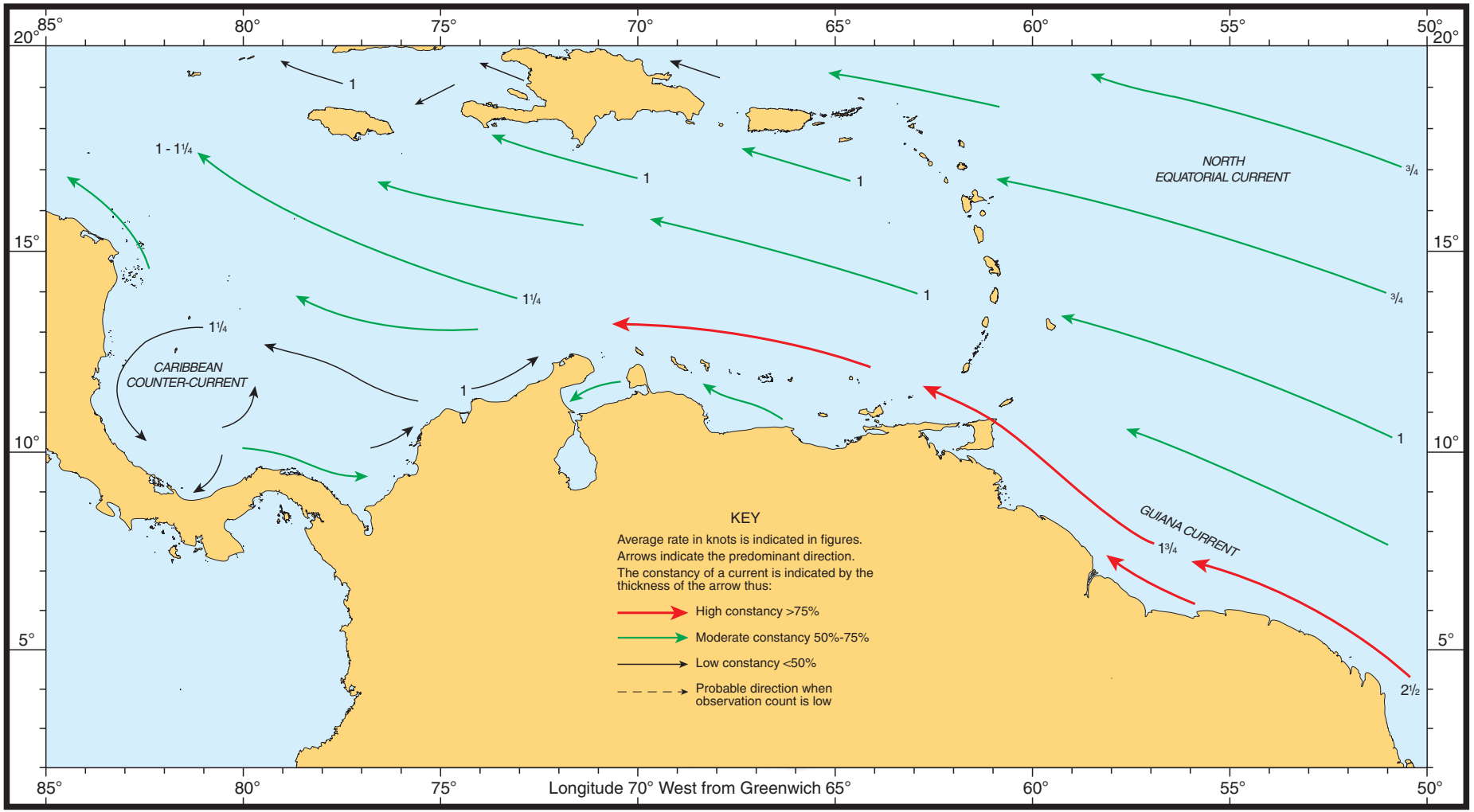
2 The flow becomes somewhat less pronounced W of longitude 75°W, though still maintaining a set just N of W; it eventually crosses the Caribbean Ridge near 80°W. The magnitude of the main flow is of moderate to high constancy throughout the year with average rates from 2 to 2½ kn at longitude 50°W, reducing to 1 to 1½ kn near longitude 75°W. Some slight fluctuations can be detected, but these are minimal with average rates tending to reach maximum values in summer and minimum in autumn, the difference being less than ½ kn in most cases.

3 Separate from the general W to NW-setting flow of the Caribbean Sea is a circulation known as the Caribbean Counter-current, which effects the extreme W sea area covered by this volume. Some of the water approaching the Caribbean Ridge is diverted S and thence E parallel to the coasts of Nicaragua and Costa Rica, subsequently setting N or NW off Colombia to rejoin the main flow of the central Caribbean Sea.

4 Unlike the main flow, the counter-current varies considerably in strength and constancy through the seasons, being most constant and of maximum strength during late summer and early autumn. This counter-clockwise circulation contracts to a minimum in winter when the main WNW-going stream spreads farthest S; see 1.141.4 Some evidence of NE to E-going sets towards Punta Gallinas (12°28′N, 71°40′W) shows in all seasons. Constancies are low to moderate with average rates of about 1 kn.

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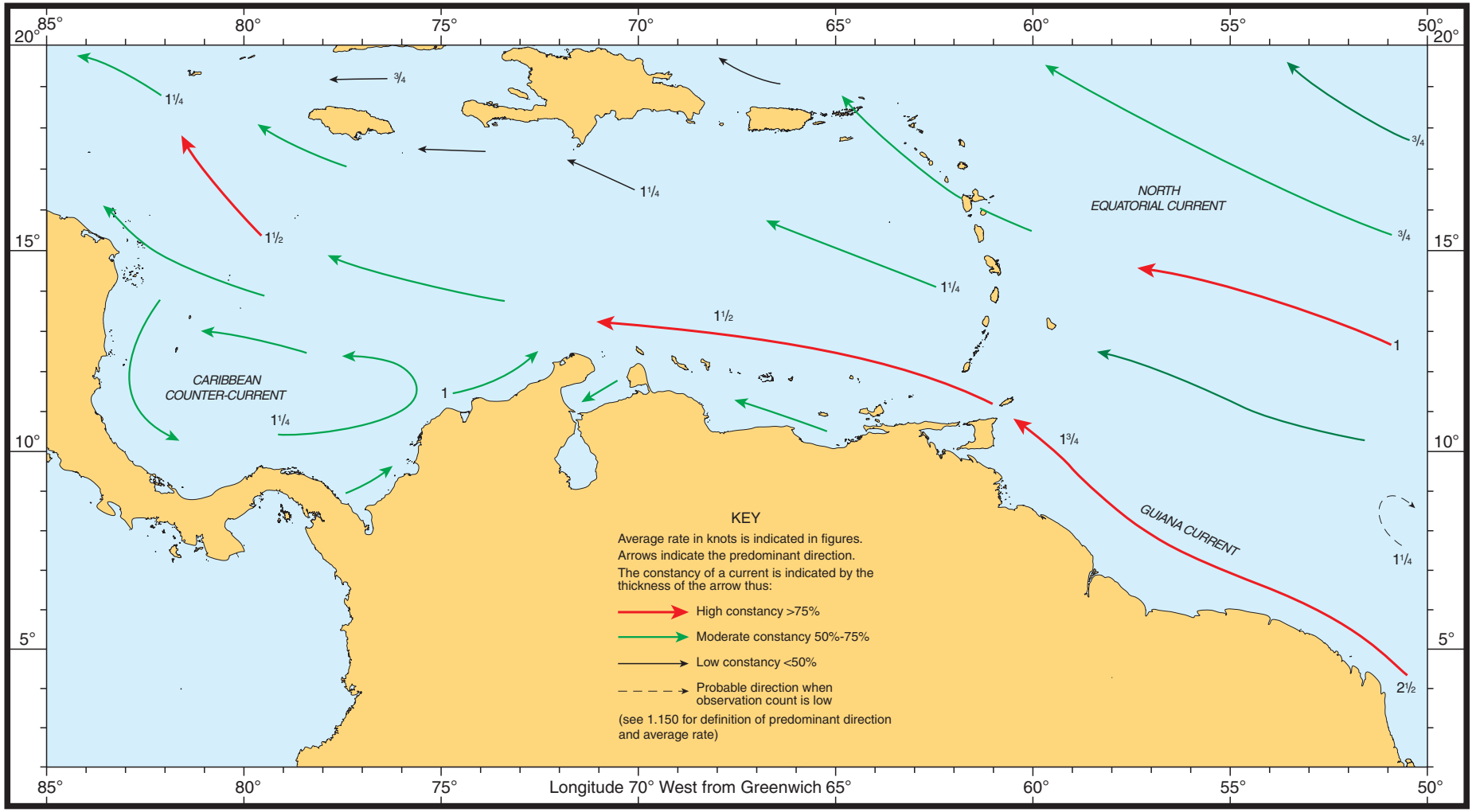
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Predominant currents, with rates in knots MARCH to MAY (1.141.1)

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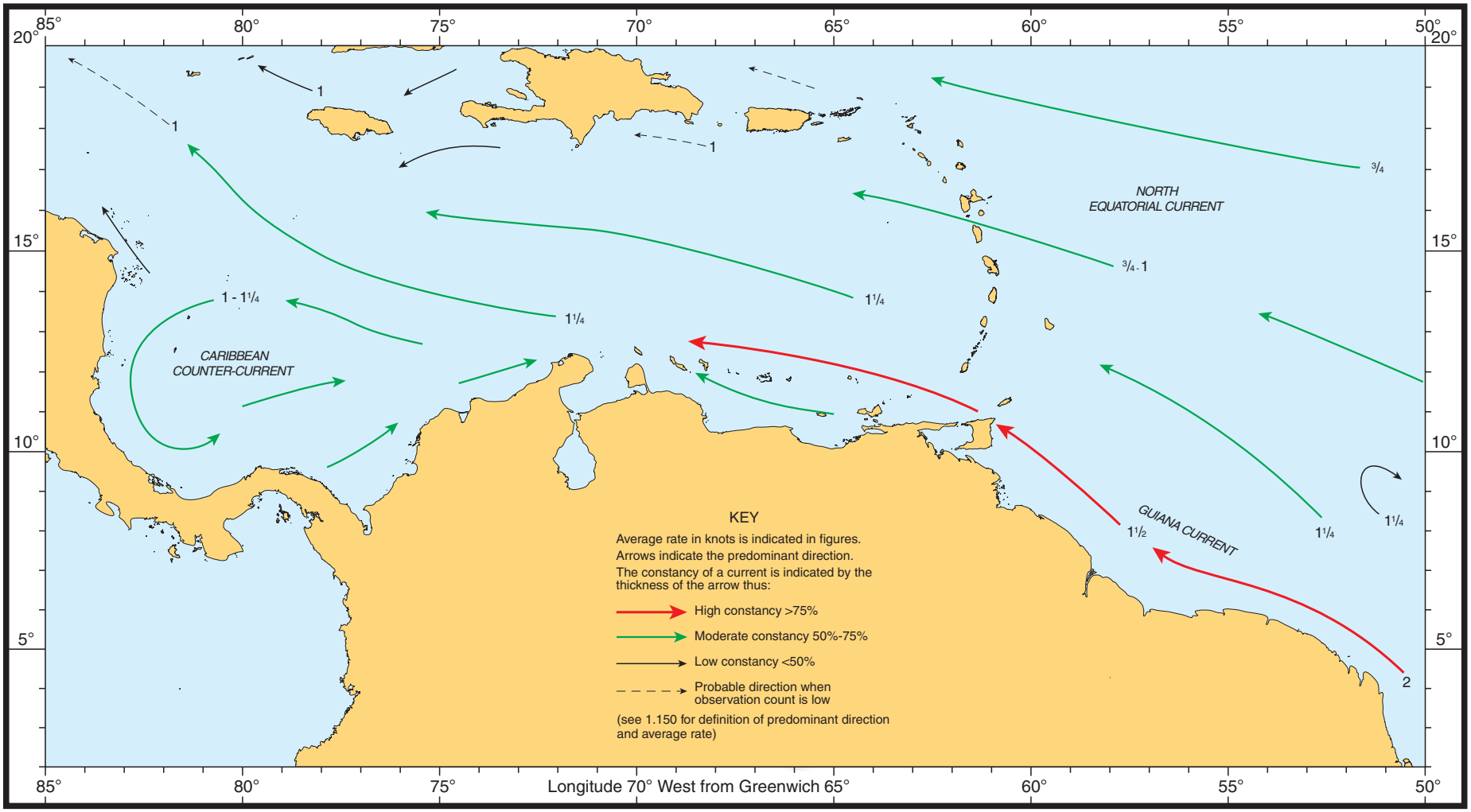
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Predominant currents, with rates in knots - JUNE TO AUGUST (1.141.2)

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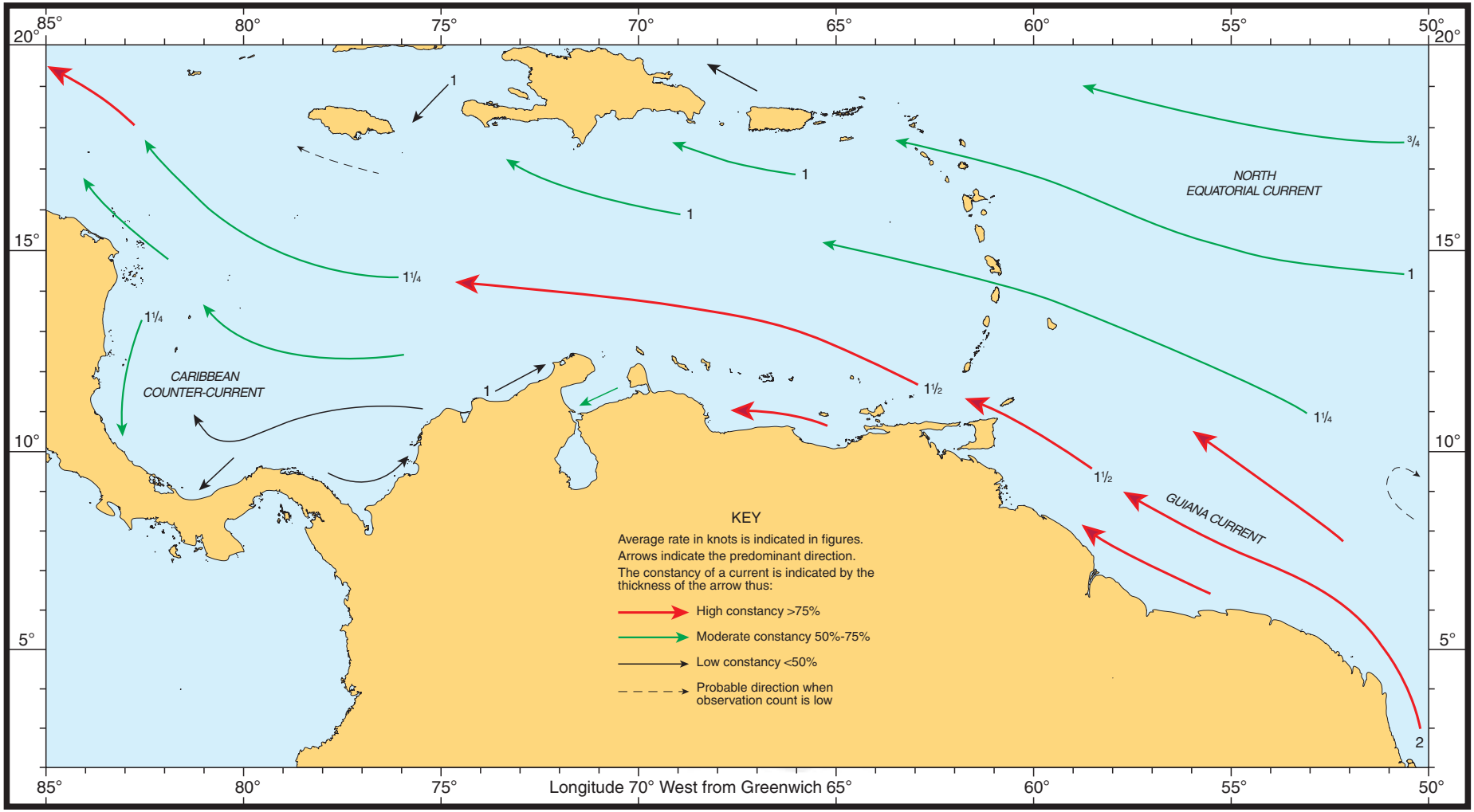
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Predominant currents, with rates in knots - SEPTEMBER to NOVEMBER (1.141.3)

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Predominant currents, with rates in knots DECEMBER to FEBRUARY (1.141.4)

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Tidal streams

1.143

1 In general, the tidal streams are W-going while the tide is rising and E-going when it is falling; the rates are small, seldom exceeding a maximum of 1½ kn. Only close inshore, in river mouths and constricted passages, do the streams become significant in comparison with the currents. The tidal streams flow into Gulf of Paria (10°20′N, 62°00′W) from both N and S, through Bocas del Dragon (4.73) and Serpent's Mouth (4.291) while the tide is rising and out through these entrances while it is falling.

2 Details of tidal streams and currents inshore, if observations have been made, will be found in the body of the book under the particular localities.

SEA LEVEL AND TIDES

Tides

1.144

1 Tides reflect the characteristics of the tidal streams being semi-diurnal E of Gulf of Paria (4.68); those W of the gulf are very weak and subject to considerable diurnal inequality.

Tidal levels

1.145

1 Tidal levels vary between the E and W ends of the area covered by this volume as follows:

Location	*MHWS*	*MLWS*
Cayenne (4°56′N, 52°20′W)	3·3 m	1·0 m
Colón Tidal Station (9°21′N, 79°55′W)	0·3 m	0·0 m

SEA AND SWELL

General information

1.146

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

Sea and swell conditions

1.147

1 It is unusual for the waters covered by this volume to be affected directly by hurricanes; however, the resulting heavy swell or rough seas may sometimes be experienced. Heavy rollers may occur along the coast from December to March, especially in December and January when the North-east Trade Wind is strong. These rollers are usually observed where depths decrease irregularly or in depths of about 9 m over coastal mud and sandbanks.

SEA WATER CHARACTERISTICS

Salinity and density

Salinity

1.148

1 For an explanation of salinity as applied to sea-water, see *The Mariner's Handbook*. The salinity values for the areas covered by this volume are as follows:

Area east of Trinidad

Period	*Parts per thousand*
2 January through March	31 to 34
April through June	34 to 35
July through September	32 to 33
October through December	34 to 35

Area west of Trinidad

Period	*Parts per thousand*
3 January through March	36·5 to 35·7 (seaward)
April through June	35·2 to 36·2
July through September	34·0 to 36·0
October through December	35·0 to 35·7

Density

1.149

1 For an explanation of density as applied to sea water, see *The Mariner's Handbook*. The density values for the areas covered by this volume are as follows:

Area east of Trinidad

Month	*Density*
2 February	1·021 to 1·023
May	1·022 to 1·023
August	1·022
November	1·022 to 1·023

Area west of Trinidad

Month	*Density*
3 February	1·024 to 1·023 (seaward)
May	1·023
August	1·023
November	1·022 to 1·023

Sea surface temperature

1.150

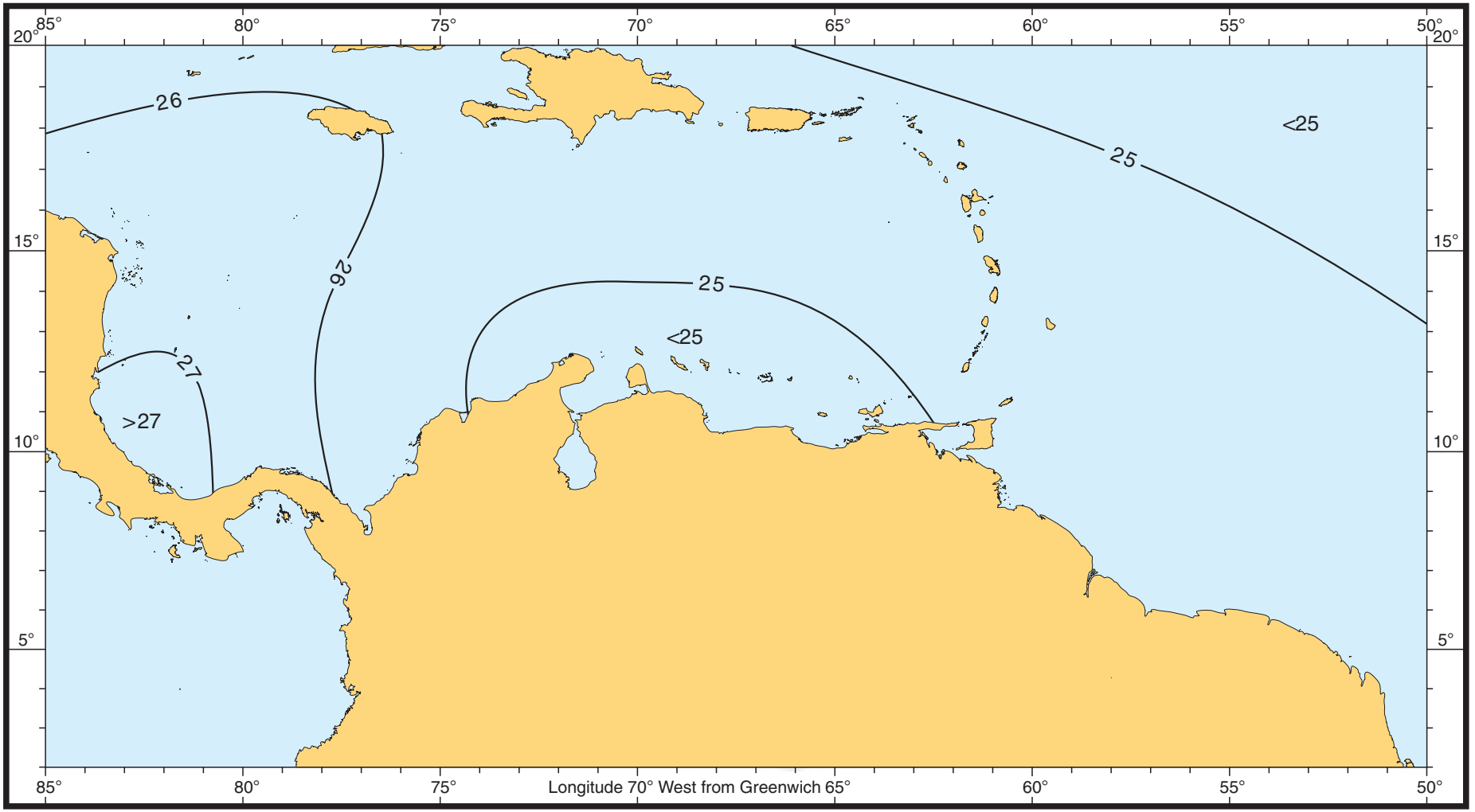
1 The temperature of the sea surface is fairly uniform over the area covered by this volume and there is not a large change during the year.

Mean sea surface temperatures are shown in diagrams 1.150.1 and 1.150.2 for February, when sea temperatures are lowest, and for August when these are near their highest values. The differences are about 3°C.

2 On more than 90% of occasions, actual sea surface temperatures lie within 2°C of the appropriate monthly average. For the most part, there is little difference too between the average monthly temperature of the sea surface and that of the overlying air. These differences do not amount to more than 0·5C in any month, the air temperature being invariably the lower.

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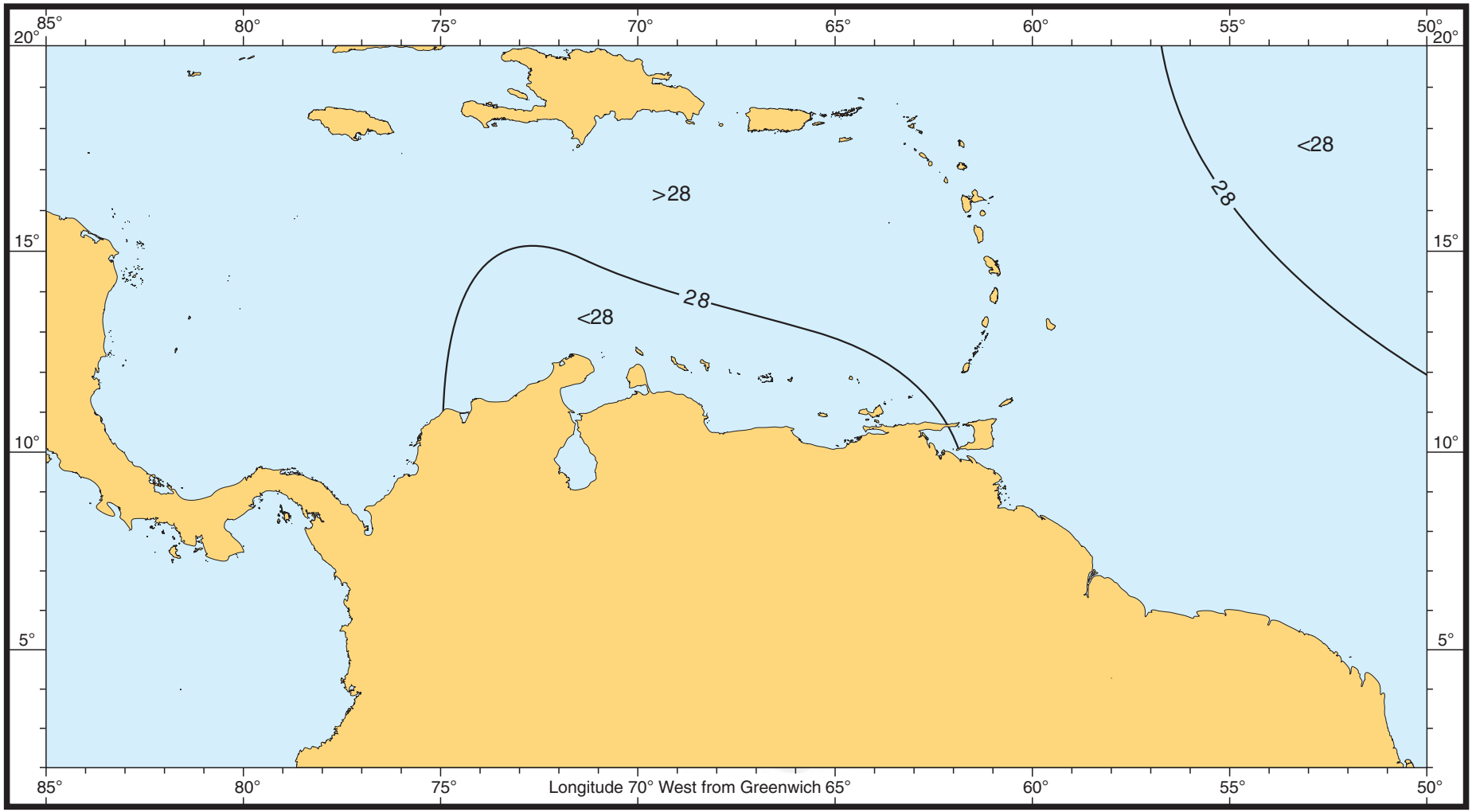
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Mean sea surface temperature (C) FEBRUARY (1.150.1)

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Mean sea surface temperature (C) AUGUST (1.150.2)

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CLIMATE AND WEATHER

General information

Introduction

1.151

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, forecasts and tropical storm/hurricane warnings, that cover the area, are regularly broadcast in English; for details see *Admiralty List of Radio Signals Volume 3.*

General conditions

1.152

1 The area covered by this volume lies mostly in the belt of the North-east Trade Winds; these are normally moderate to fresh and do not often reach gale force except in squalls. Almost the only sustained gale force winds are those associated with the one or two hurricanes which are likely to cross some part of this area during the hurricane season.

2 It was reported in 1984 that sustained E to ENE winds of force 7 were experienced over several days from March to May between 100 and 200 miles off the Colombian coast. These winds are not associated with hurricanes.

Almost all the rain occurs as showers which, when heavy, can reduce visibility temporarily to fog limits.

3 Fog is practically unknown at sea and is uncommon on the coasts.

Temperatures are almost universally high and can, when combined with high humidity during calm spells, lead to oppressive weather.

Pressure

Average distribution

1.153

1 The area covered lies to the S and SW of the North Atlantic anticyclone. Throughout the year, pressure is relatively high in the N and low in the S. Diagrams 1.153.1 and 1.153.2 show the average monthly MSL pressure for winter months, from December to February, and summer, from June to August.

2 The largest departures from average occur when a hurricane affects the area, bringing large falls on its approach, followed by large rises of pressure as it moves away. A hurricane in August, 1980, keeping N of the area covered by this volume, had a central pressure of 911 hPa when located 200 miles S of Puerto Rico; this is the lowest pressure recorded in the E Caribbean Sea.

Diurnal variation

1.154

1 There is a regular diurnal pressure oscillation. Table A gives the hourly changes in this oscillation at sea between latitudes 10° and 20°N. These adjustments enable a mariner to determine how much the observed pressure after correction is below the seasonal value; when 3 hPa or more below the seasonal average, this is a useful indication in summer and early autumn of hurricane activity.

2 In harbour, the diurnal variation varies slightly from place to place and with the seasons, but with the corrections in Table A may be applied without serious error.

Table A

Diurnal variation of pressure at sea, latitude 10°–20°N

Local time	*Correction*	*Local time*	*Correction*
3 0000	–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
4 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

5 Corrections should be applied to the observed barometric pressure to eliminate diurnal variation.

Inter-Tropical Convergence Zone

1.155

1 The Inter-Tropical Convergence Zone (ITCZ) is a diffuse, though active, belt usually found near the centre of the trough which separates the trade wind systems of the N and S hemispheres. Uncertainty frequently exists on its precise position. Opinions differ on its average monthly position; however, it is accepted that the ITCZ is well S of the region from December to April. During May to November, it moves N erratically to latitude 8°30′N by August/September and then retreats S again. A rough indication of the probable monthly positions is given in diagram 1.153.2 which also gives the mean barometric pressure for June to August; the July position in some years is as far N as the August/September position.

2 The ITCZ plays an important role in the weather since tropical disturbances form in this zone and can develop into tropical storms or hurricanes, especially in August and September.

Depressions

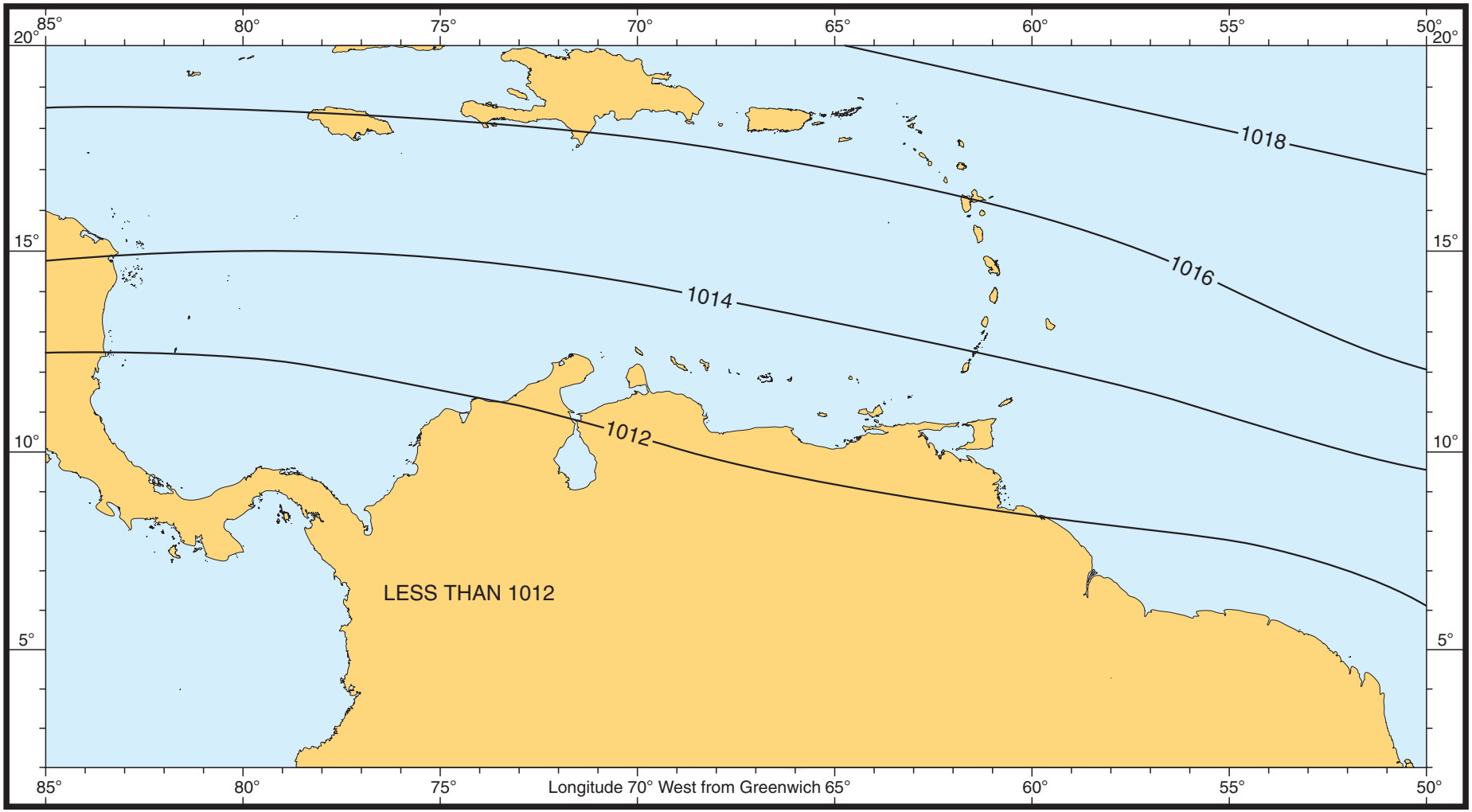
Depressions

1.156

1 The disturbances which are generated in the ITCZ (1.155) differ greatly in intensity, ranging from a low pressure area with so little circulation that it hardly justifies being called a depression to the vigorous depression which develops into a tropical storm or hurricane as it moves N from the ITCZ. The less intense depressions move W without deepening and are a feature of the weather, particularly in May/June and in October/November. Such disturbances tend to follow one another at intervals of 3 to 5 days.

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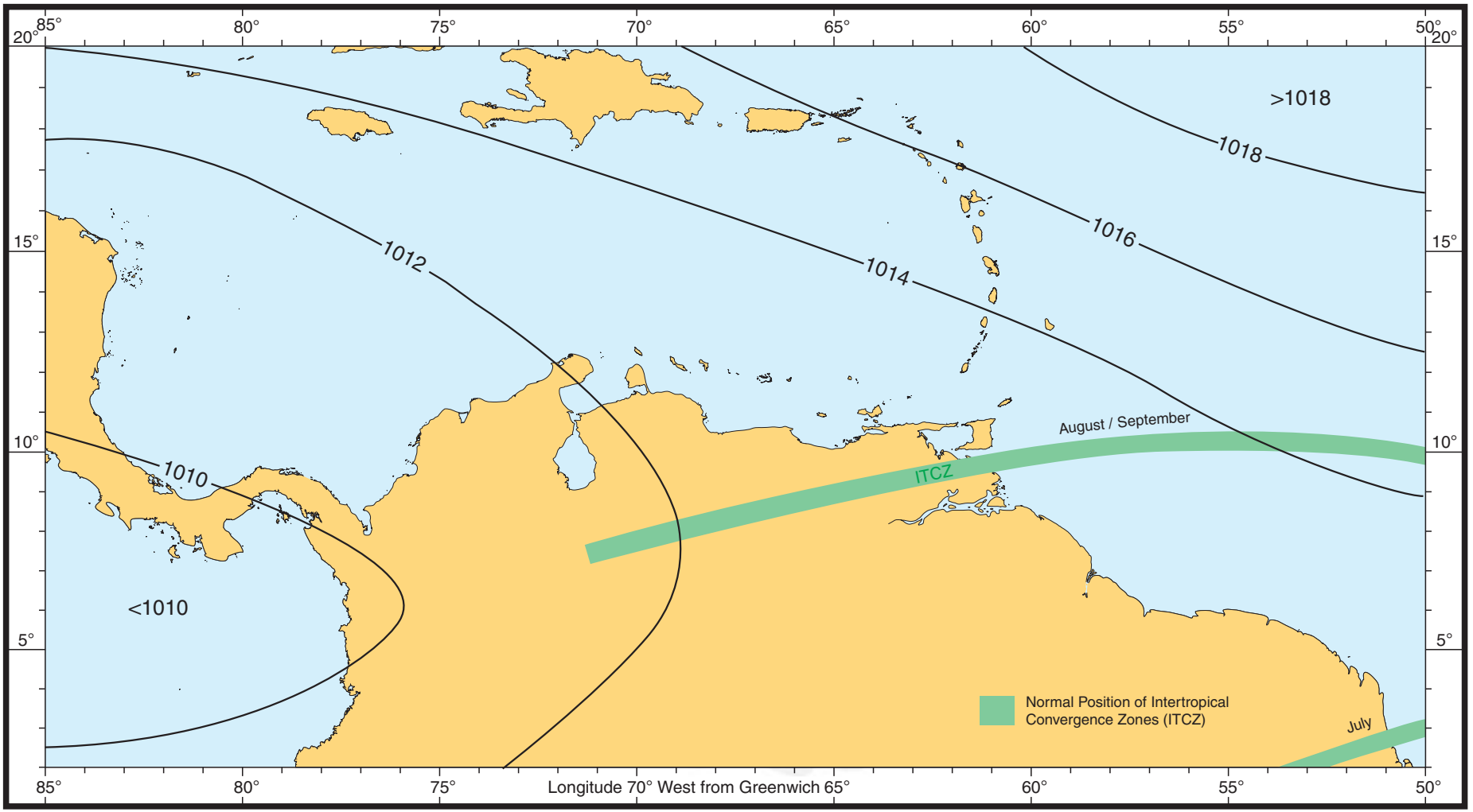
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Mean barometric pressure (hPa) DECEMBER to FEBRUARY (1.153.1)

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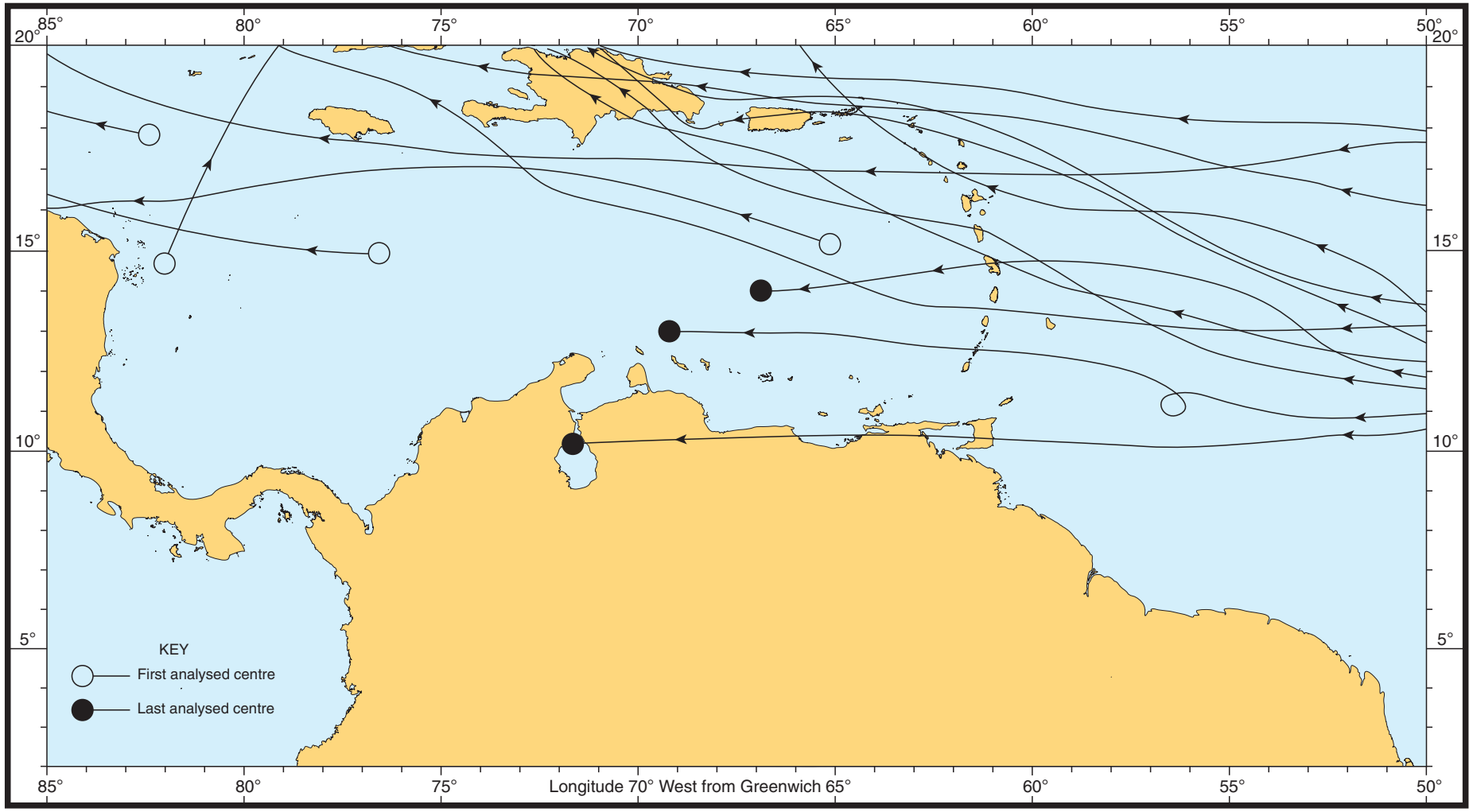
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Mean barometric pressure (hPa) JUNE to AUGUST (1.153.2)

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Tracks of recent hurricanes (1.157.1)

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Tropical storms or hurricanes

1.157

1 The West Indian hurricane is a severe tropical revolving storm similar to the typhoon of the China Sea and the tropical cyclone of the Arabian Sea and the Bay of Bengal.

The main hurricane season in the E Caribbean is usually during August and the first half of September, but hurricanes have occurred as early as June and as late as November. It is rare for these particular coasts to be directly affected by them, but the resulting heavy swell and rough seas sometimes affect the coasts when a hurricane passes to the N.

2 The tropical storms forming N of the ITCZ move slowly W usually in their early stages, turning N of W as they intensify to become, in extreme cases, hurricanes. They seldom move farther S than about latitude 12°N. However one in 1933 passed S of Trinidad and more recently, in August 1974, another moved W along latitude 10°N. This hurricane was not intense; the central pressure was not much below average pressure and the maximum wind was estimated to be 50 to 60 kn. After passing W over Trinidad its circulation was destroyed by the mountainous terrain of N Venezuela.

3 In contrast, a hurricane in August, 1980, moving on a more N track had a central pressure of 911 hPa when about 200 miles S of Puerto Rico. This is about 100 hPa below average pressure and is the lowest recorded in the E Caribbean.

Hurricanes sometimes move very erratically; another feature is the tendency to weaken over land and strengthen when they move over the sea. Diagram 1.157.1 gives the tracks of hurricanes in recent years.

Winds

Average distribution

1.158

1 **General information.** The area covered by this volume lies mostly at the SW end of the North-east Trade Winds of the North Atlantic Ocean. Over open sea and over most of the region, E to NE winds predominate throughout the year. That part extending N from the Isthmus of Panama for about 100 miles has rather less steady trade winds; in early summer and autumn it sometimes has periods of variable winds, considered as the E extension of the Pacific doldrums. Wind roses showing the frequency of winds of various directions and speeds for January, April, July and October are given in diagrams 1.158.1 to 1.158.4.

2 **Latitudes 10°N to 15°N.** Winds from between N and E account for approximately 70 to 80% of all winds in most months; the lower limit applies to longitudes W of 75°W and the upper limit to longitudes E of 75°W. In autumn, however, such winds are not quite so dominant, accounting for 45 to 70% in October and 55 to 75% in September and November, with the same inference regarding limits. From May through November, E winds have a higher frequency than all other winds over much of the longitude band E of 70°W.

3 Winds force 3 and 4 occur E of 70°W on 60 to 70% of occasions, with up to 30% force 5 in winter months and 10 to 15% in summer. Force 6 occurs about 10% in winter and 50 to 60% in summer. Winds force 3 and 4 occurring W of 70°W have a frequency of 40 to 50% in winter and 50 to 60% in summer. Force 5 occurs on 25 to 35% of occasions in most months, but falls well below 15% in September and October in places. Force 6 represents up to 15 to 20% of occasions in the depth of winter and 5 to 15% in most other months except September and October when the percentage frequency falls below 5%.

4 **Latitudes S of 10°N.** Between Trinidad and Cabo Orange (4°26′N, 51°32′W), NE or E winds are still dominant, accounting for 70 to 80% of all winds from December through June. During July to November the frequency is lower, but even in August and September these winds still have a frequency of around 50%.

5 Winds force 3 and 4 occur with a frequency of 55 to 70% in all months. Force 5 represents about 20 to 30% in winter and 5% or below in July through October. Force 6 occurs with a frequency of 5 to 10% in mid-winter, but with only 1 or 2% in July through November.

Coastal winds

1.159

1 The trade winds over the open sea are modified when nearing the coasts. The local topography causes some deflection of the trade winds, especially where mountains slope steeply to the shore. Land and sea breezes resulting from the differential heating over land and sea affect winds on the mainland coasts and also, though to a lesser extent, around islands.

2 These modifications are described in *The Mariner's Handbook*.

Gales

1.160

1 The monthly frequency of gales, that is force 7 or more, is shown in Table B for the same latitude/longitude areas as the wind roses. Gales force 8 or more occur only rarely and then only in association with brief squalls or during the passage of a hurricane when such winds can blow from any direction.

Table B

Percentage frequency of gales

	Lat °*N*	*Long* °*W*	*J*	*F*	*M*	*A*	*M*	*J*	*J*	*A*	*S*	*O*	*N*	*D*	*Year*
2	15/20	50/55	1	1	1	+	+	+	1	1	1	1	1	1	1
	15/20	55/60	1	1	1	+	+	1	1	1	+	+	1	1	1
	15/20	60/65	1	1	1	+	+	+	+	1	1	+	1	1	1
	15/20	65/70	1	1	1	1	+	+	1	+	1	+	1	1	1
	15/20	70/75	4	3	3	2	1	1	2	1	1	1	1	2	2
	15/20	75/80	2	2	1	1	1	1	2	1	1	1	1	2	1

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Percentage frequency of gales

	Lat °*N*	*Long* °*W*	*J*	*F*	*M*	*A*	*M*	*J*	*J*	*A*	*S*	*O*	*N*	*D*	*Year*
3	15/20	80/85	1	1	1	1	+	1	+	+	+	1	1	2	1
	10/15	50/55	3	2	2	1	1	2	+	+	1	+	1	2	1
	10/15	55/60	2	1	1	+	1	1	1	1	+	+	1	2	1
	10/15	60/65	1	+	+	+	+	1	+	+	+	+	+	+	+
	10/15	65/70	1	1	1	1	1	1	1	+	+	+	+	+	1
4	10/15	70/75	6	7	7	3	2	4	5	3	1	1	1	4	4
	10/15	75/80	9	8	6	3	1	3	5	2	1	+	1	5	4
	10/15	80/85	1	1	1	+	+	+	1	+	+	+	+	1	1
	5/10	50/55	1	1	1	1	1	1	+	+	+	+	+	+	1
	5/10	55/60	+	+	+	+	+	+	+	+	+	+	1	+	+

Note. + indicates less than 0·5%

Squalls

1.161

1 Squalls of varying intensity are a rather common feature, especially during thunderstorms. White squalls, with little or no cloud, may occur in any season on the coast or at sea. Their approach is indicated only by the sea disturbance which they create.

Cloud

1.162

1 The average cloud cover is generally about 4 oktas. Completely overcast skies seldom persist for more than several hours and almost cloudless skies, too, do not last much longer. The commonest cloud is trade wind cumulus; this is usually more prevalent over the islands and mainland coasts than over the sea. In the rainy period, which occurs at different times of the year in different parts of the region, great masses of cumulonimbus frequently develop over land by day and tend to disperse largely at night, but any drifting over the sea tends to persist.

2 See the climatic tables (1.167) for the mean cloud amounts, for morning and afternoon, at a number of reporting stations within the area.

Precipitation

1.163

1 **Rain.** There is a considerable variation in average annual rainfall and in the time when the rainy season occurs.

The coasts of Panama are wet, with an annual rainfall reaching 5000 mm at many places at sea level. Coastal regions E of Panama have less rain, the driest parts being in Venezuela and the nearby islands with totals averaging 500 to 600 mm. Rainfall totals are higher E of Venezuela and again approach 5000 mm near the Brazilian border.

2 The rainy season lasts from May to December from the Isthmus of Panama to the Orinoco delta, and February through April tends to be dry. From the Orinoco delta towards Cayenne (4°56′N, 52°20′W), the wet season has a double structure with rather less rain for a month or two between the months of highest rainfall.

3 Along the coast, the months of highest rainfall are as follows:

	Longitude	*Main peak*	*Secondary peak*
4	63°W	June to August	October
	61°W	June and July	November
	58°W	May to July	December
	55°W	April to July	December and January
	52°W	March to June	January (weak)

5 At longitudes 63°W and 61°W, February to April are the driest months; at 58°W, September and October are driest, as they are at 55°W and 52°W. These differences in the time of the rainy seasons are thought to be due to the seasonal shift of the ITCZ. Widespread continuous rain is rare and most of the rain occurs in showers which are light in the dry season and heavy in the wet season.

6 **Hail** does occur, but is rather infrequent.

Thunder often accompanies the showers in the wet season.

Fog and visibility

1.164

1 Fog is almost unknown over the open sea and is usually confined to the low-lying marshy areas of coasts and river estuaries; even then, it normally only occurs for a few hours around dawn. Visibility is usually quite good over these waters. Heavy rain causes a rapid drop in visibility, sometimes to fog limits, but such a serious reduction seldom lasts longer than about an hour except when the rain is associated with a hurricane.

2 Visibility over the sea may be reduced by mist or haze at any time of the year. The most likely months off the coasts E of the Isthmus of Panama are November through May, and especially in March and April. The highest percentage frequency of poor visibility, less than 10 km, is 4 to 6% in December to June.

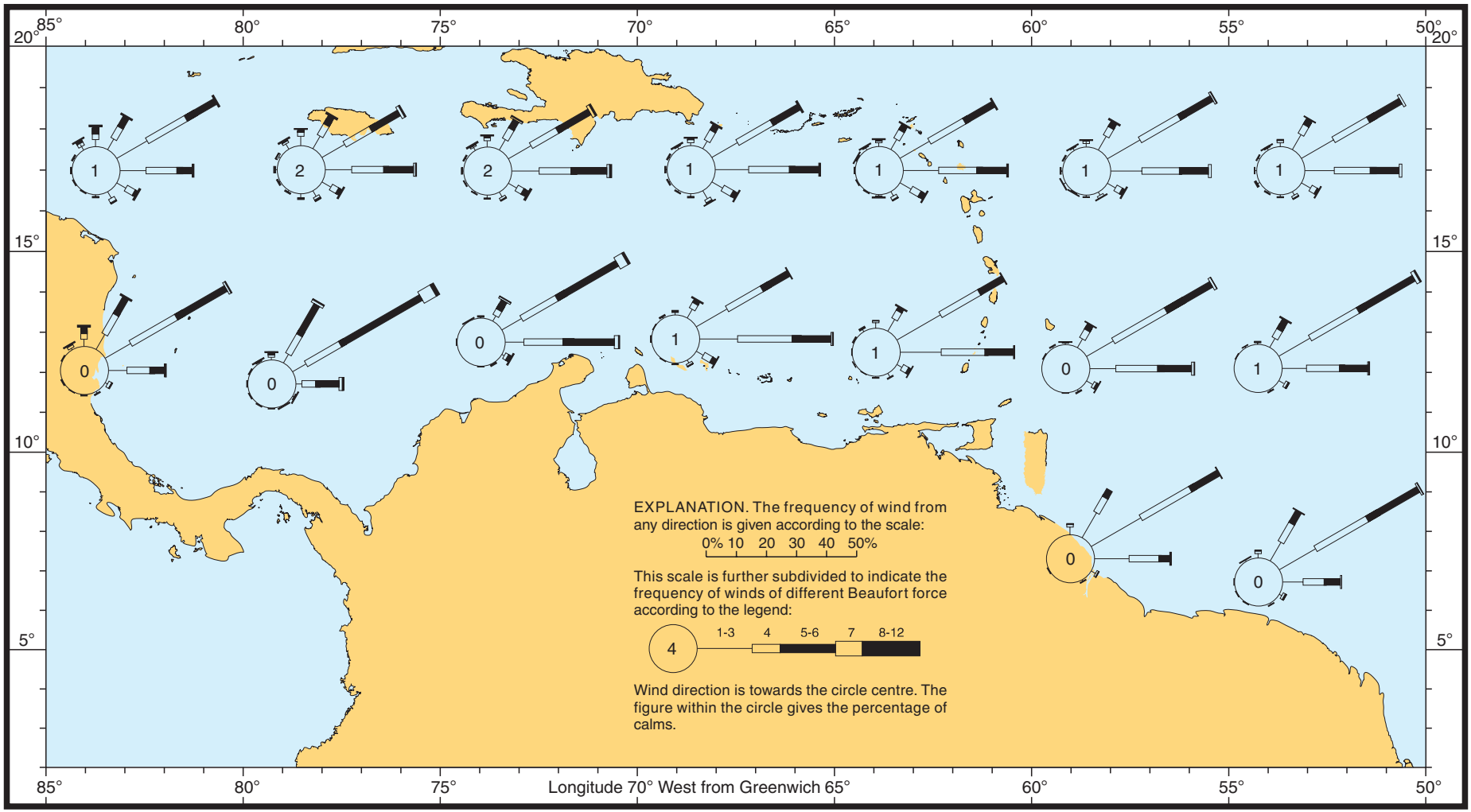
Air temperature.

1.165

1 Monthly average air temperatures over these seas only range through a few degrees, being lowest in January (26°C) and highest in August to October (28°C). On

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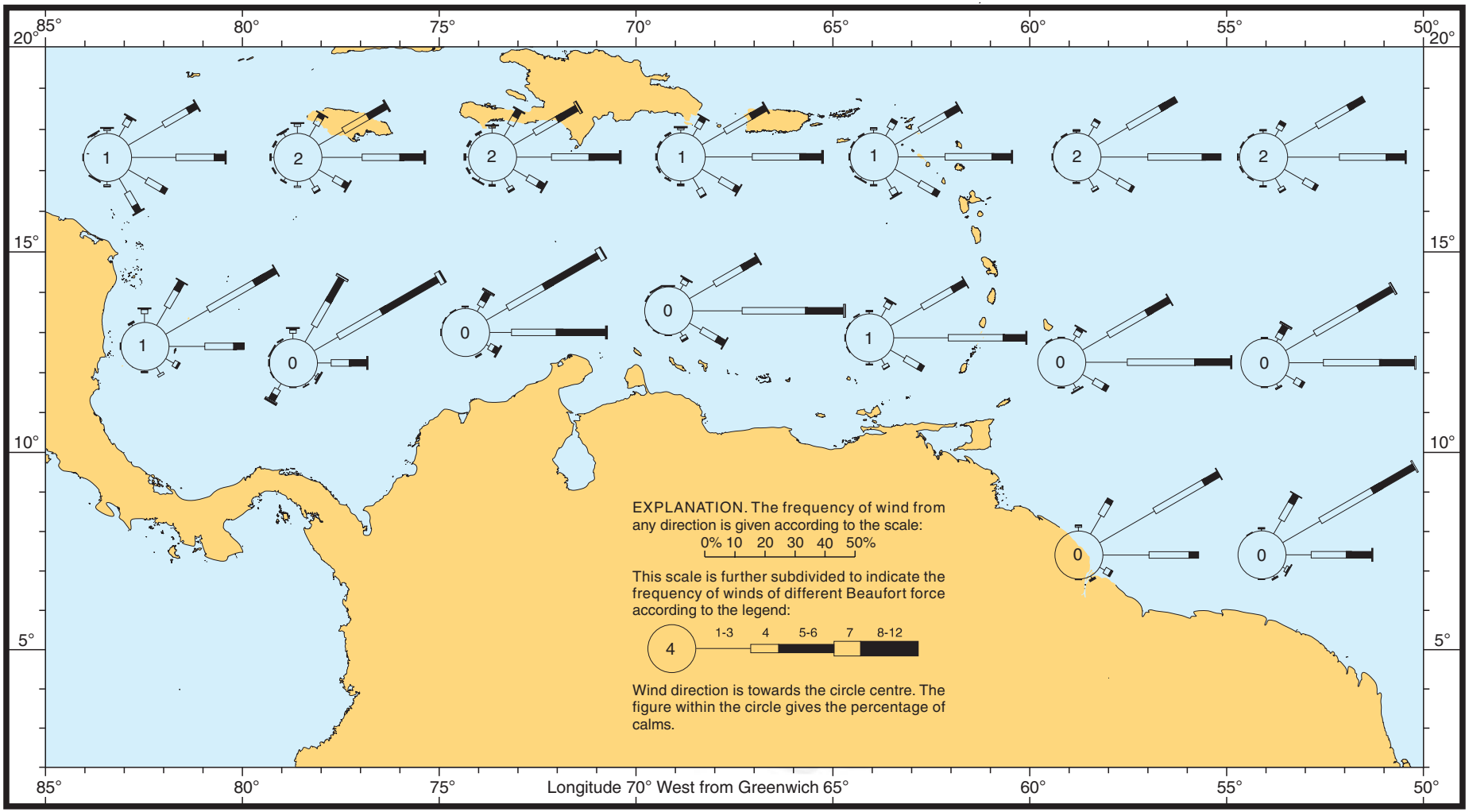
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Wind distribution JANUARY (1.158.1)

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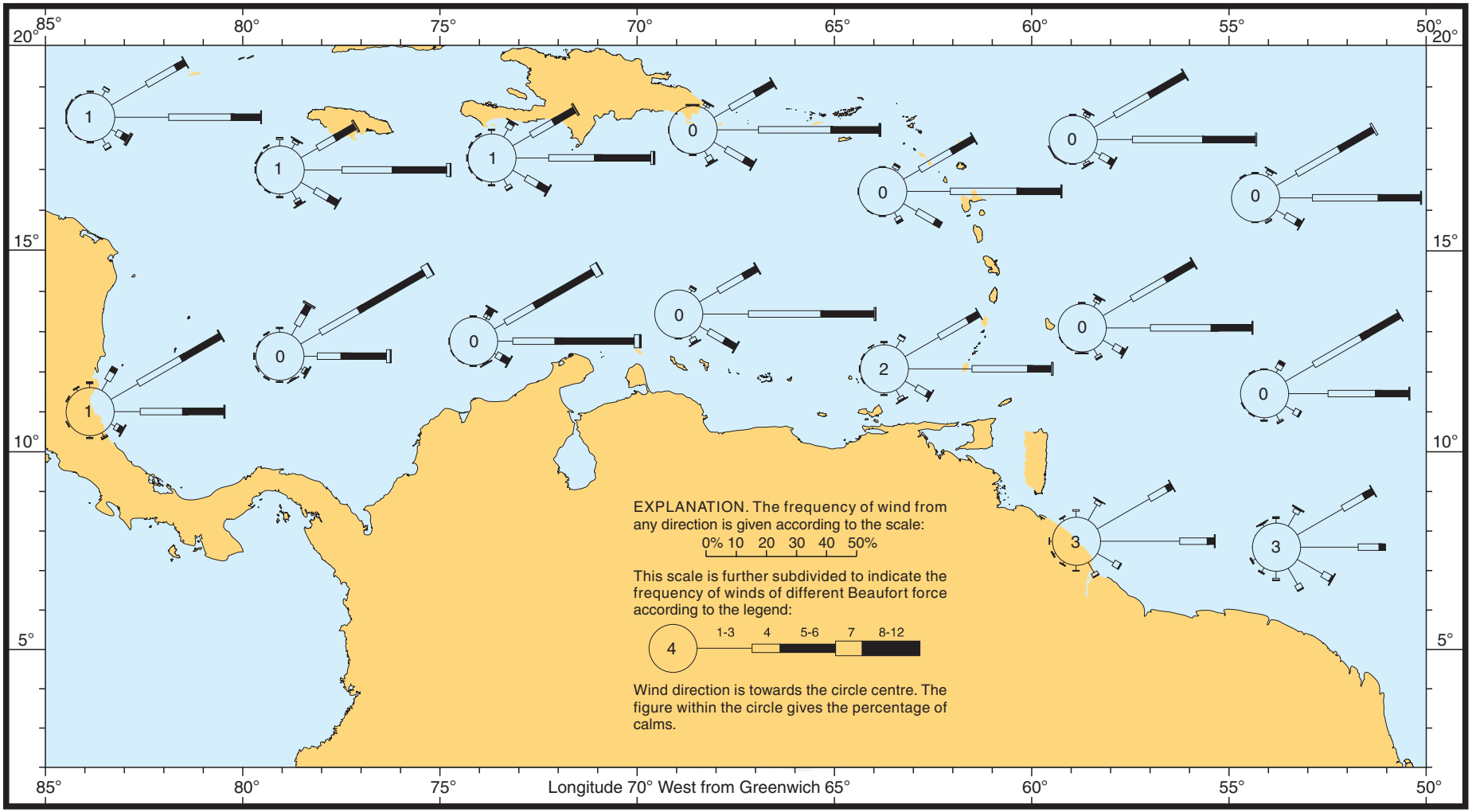
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Wind distribution APRIL (1.158.2)

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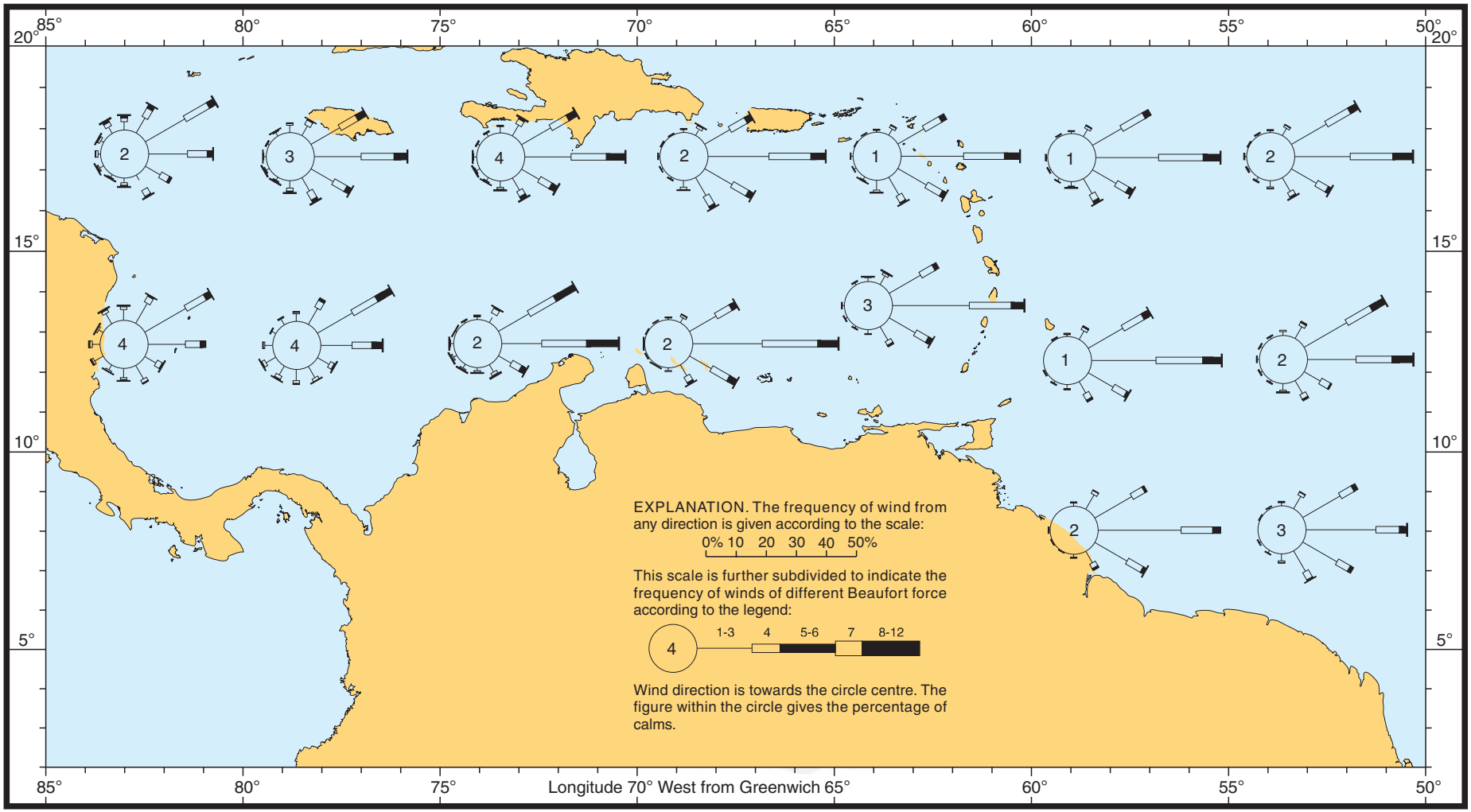
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Wind distribution JULY (1.158.3)

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Wind distribution OCTOBER (1.158.4)

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individual occasions temperatures occur outside this narrow range, but on 90% of times the difference does not exceed 2°C

2 On the coasts, average monthly temperature ranges from 25°C to 30°C. The difference between day and night temperature is very dependant upon local topography, but extremes of temperature are still very limited. Temperature varies little from one day to the next, but even when it is the same on two days a difference in wind strength can make one day feel warmer than the other.

Humidity

1.166

1 Relative humidity is moderately high everywhere; it varies inversely with temperature, being highest around dawn when temperature is low and lowest near the time of maximum temperature in early afternoon. In most places, this change is a fall of 10 to 15%, from 75 to 90% around dawn to 66 to 75% by afternoon. The good ventilation which the trade winds provide for most of the year largely offsets the oppressive character of the weather normally associated with high temperatures and high humidity.

CLIMATIC TABLES

1.167

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

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 the approaches to ports in their vicinity.

2 The following comments briefly list some of the differences to be expected between conditions over the open sea and the nearest reporting station:

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

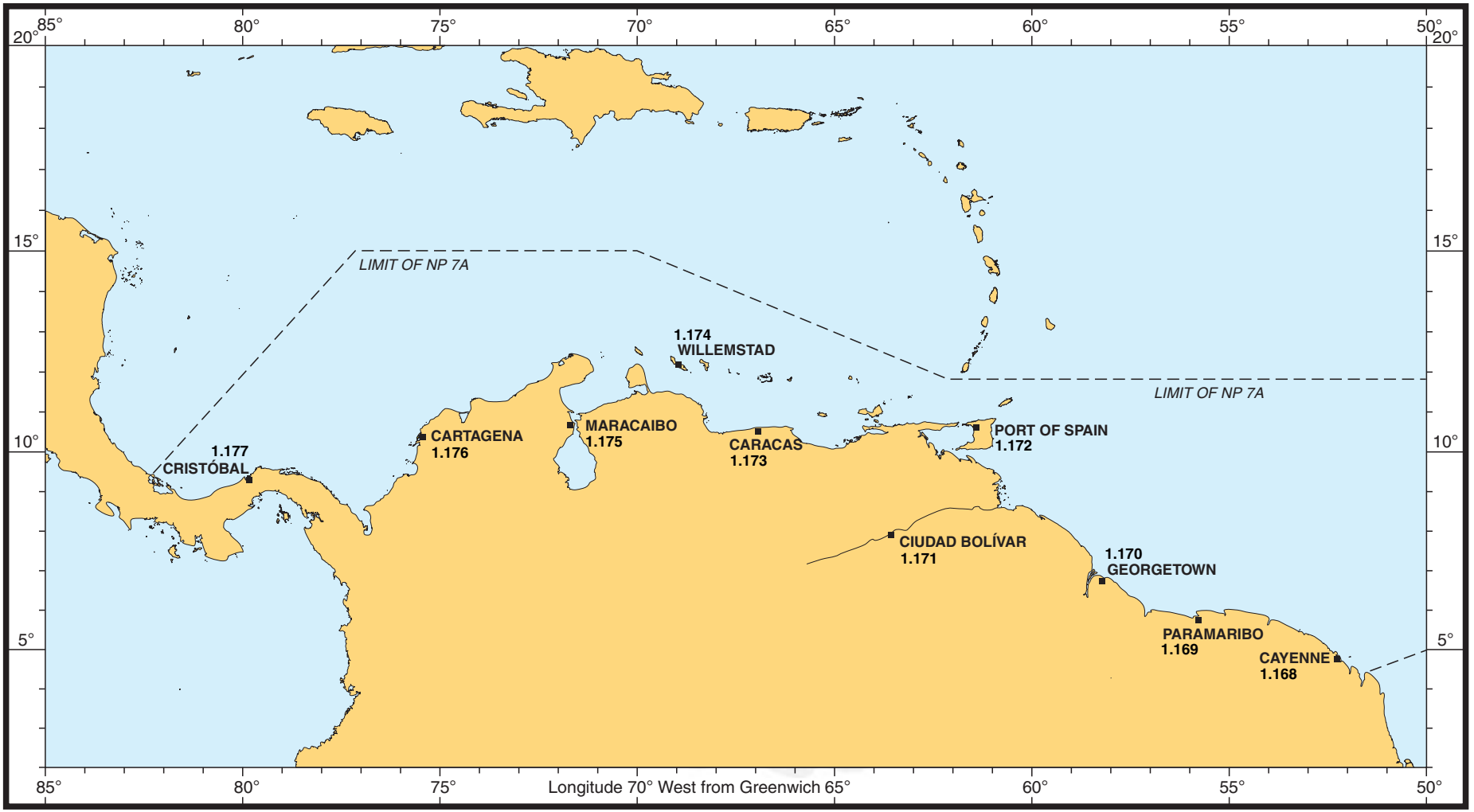
Precipitation along mountainous wind facing coasts can be considerably higher than at sea to windward. Similarly precipitation in the lee of high ground is generally less.

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

Topography has a marked affect on local conditions. For further details see *The Mariner's Handbook*.

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Location of climatic stations

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1.168

WMO No – 81405

CAYENNE/ROCHAMBEAU AIRPORT (4° 50′ N, 52° 22′ W) Height above MSL – 9 m

Climatic Table compiled from 8 to 30 years observations

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	0900									1500											
												N	NE	E	SE	S	SW	W	NW	Calm	N	NE	E	SE	S	SW	W	NW	Calm	0900	1500	Gale	Fog	Thunder
	hPa	°C	°C	°C	°C	%	%	Oktas		mm																				Knots				
January	1012	29	23	31	20	88	75	6	7	431	25	24	36	28	8	0	0	0	0	4	27	39	26	6	0	0	0	0	2	5	6	⊕	⊕	
February	1012	29	23	31	21	86	75	5	7	423	24	25	41	25	4	0	0	0	0	5	27	43	23	4	0	0	0	0	3	5	6	⊕	0	
March	1012	29	23	31	21	84	74	6	7	432	25	26	33	29	6	0	0	0	0	6	29	35	27	6	0	0	0	0	3	4	5	⊕	⊕	
April	1012	29	23	31	21	85	75	6	6	480	26	22	30	30	9	1	0	0	0	8	24	35	30	7	1	0	0	0	3	3	4	⊕	⊕	
May	1012	29	23	31	21	89	78	6	7	590	29	10	17	33	20	2	1	0	0	17	16	23	37	17	0	0	0	0	7	2	4	⊕	⊕	
June	1013	30	22	32	20	89	76	5	6	457	28	5	11	36	27	4	1	0	0	16	11	16	40	25	3	0	0	0	5	2	4	⊕	⊕	
July	1014	30	22	32	20	88	73	4	6	274	23	3	5	36	34	5	1	0	0	16	8	13	41	32	4	0	0	0	2	2	5	⊕	0	
August	1013	31	22	33	20	85	69	4	6	144	18	4	4	40	37	3	0	0	0	12	8	10	44	33	3	0	0	0	2	3	5	0	0	
September	1013	32	22	33	20	82	63	3	5	32	8	4	6	45	35	3	0	0	0	7	7	11	45	33	3	0	0	0	1	3	5	⊕	0	
October	1012	32	21	33	20	79	61	3	5	42	7	8	8	45	32	1	0	0	0	6	12	14	46	26	1	0	0	0	1	3	5	⊕	⊕	
November	1011	31	21	33	20	83	67	4	5	122	14	7	12	43	27	1	0	0	0	10	12	18	42	25	1	0	0	0	2	3	4	⊕	0	
December	1011	30	22	32	20	89	74	5	6	317	24	11	19	38	20	1	0	0	0	11	14	23	39	20	0	0	0	0	4	3	4	0	⊕	
Means	1012	30	22	33*	19§	87	72	5	6	–	–	12	18	36	22	2	0	0	0	10	16	23	37	20	1	0	0	0	3	3	5	–	–	–
Totals	–	–	–	–	–	–	–	–	–	3744	253	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–
Extreme values	–	–	–	35†	17‡	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
No. of years observations	30	14		12		8		10		30	10	20									20									14/15		20	20	

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

† Highest recorded temperature
‡ Lowest recorded temperature

⊕ Rare
⊖ All observations

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1.169

WMO No – (See note)

PARAMARIBO, SURINAME (5° 50′ N, 55° 10′ W) Height above MSL – 4 m

Climatic Table compiled from 3 to 54 years observations

Month	Average pressure at MSL	Temperatures				Average humidity		Average cloud cover		Precipitation		Wind direction – 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	1011	30	23	32	20	92	73	5	6	193	18	11	51	33	1	0	0	0	0	4	19	64	15	1	0	0	0	1	0	2	5	⊕	0	
February	1012	30	23	32	20	90	69	5	5	150	13	10	57	29	1	0	0	0	1	2	16	59	21	2	0	0	0	2	0	2	6	0	0	
March	1012	30	23	33	20	88	68	5	6	162	14	8	61	28	1	0	0	0	0	2	20	62	17	1	0	0	0	0	0	3	6	0	0	
April	1012	31	23	33	21	88	71	5	6	232	16	6	55	35	0	0	0	1	0	3	15	64	20	0	0	0	0	0	1	3	6	⊕	0	
May	1012	30	23	33	22	91	78	5	6	321	23	3	53	39	3	0	0	0	0	2	11	66	19	1	0	1	0	1	1	2	4	⊕	0	
June	1013	30	23	33	22	91	78	5	6	303	23	5	44	42	4	3	0	0	0	2	14	58	21	3	1	0	0	2	1	2	3	1	⊕	
July	1013	31	23	33	22	90	72	3	6	226	20	6	49	36	3	2	1	1	0	2	18	56	18	3	2	3	0	0	0	2	3	1	⊕	
August	1012	32	23	33	22	87	66	3	5	167	14	3	44	44	7	1	1	0	0	0	14	52	27	4	2	1	0	0	0	3	3	1	0	
September	1011	33	23	34	22	86	62	3	5	86	9	4	37	48	9	2	0	0	0	0	15	54	24	5	1	1	0	0	0	4	4	0	1	
October	1011	33	23	35	22	85	63	3	5	87	9	3	39	49	8	1	0	0	0	0	19	54	21	3	1	1	0	0	1	4	4	1	1	
November	1010	32	23	34	22	87	66	3	5	109	12	7	48	39	4	1	0	0	0	1	20	55	20	2	2	0	0	0	1	3	4	⊕	1	
December	1011	31	23	33	21	91	72	4	6	174	18	9	51	36	2	1	0	0	0	1	16	59	21	1	2	1	0	0	0	2	4	⊕	1	
Means	1011	31	23	35*	19§	89	70	4	5	–	–	6	49	38	4	1	0	0	0	2	16	59	20	2	1	1	0	1	0	3	4	–	–	–
Totals	–	–	–	–	–	–	–	–	–	2208	189	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5	3	–
Extreme values	–	–	–	37†	16‡	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
No. of years observations	30	30				20		20		30	54	9									9									20		3/4	3/4	

Note: Nearest present reporting station, WMO No 81200 **ZORG EN HOOP AIRFIELD** (5° 49′ N, 55° 11′ W) Height above MSL — 4m

* Mean of highest each year
§ Mean of lowest each year
† Highest recorded temperature
‡ Lowest recorded temperature
⊕ Rare
⊖ All observations

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1.170

WMO No – 81001

GEORGETOWN, GUYANA (6° 49′ N, 58° 10′ W) Height above MSL – 2 m

Climatic Table compiled from 15 to 60 years observations

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	0400									1600									2000 – 0800	0800 – 2000	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	1013	29	24	30	22	87	76	6	6	221	17	6	50	15	8	0	2	1	1	17	8	54	17	11	1	2	1	3	3	6	8	⊕	⊕	
February	1013	29	24	30	22	85	74	6	6	120	13	7	62	14	8	1	0	0	1	7	7	66	16	8	0	0	0	2	1	6	9	⊕	⊕	
March	1013	29	24	30	22	83	72	5	6	138	12	4	46	28	15	0	0	0	0	7	6	56	25	11	0	0	0	1	1	6	9	0	⊕	
April	1013	29	25	31	23	85	74	6	6	161	12	2	37	33	22	1	0	0	0	5	2	46	29	21	0	1	0	0	1	6	9	0	⊕	
May	1013	29	25	31	23	89	78	6	6	299	20	2	29	23	25	3	2	0	0	16	3	51	25	18	0	0	0	2	1	5	8	⊕	0	
June	1014	29	24	31	23	92	78	6	6	325	24	3	23	15	17	3	2	0	0	37	5	59	16	11	0	1	0	3	5	4	7	0	0	
July	1014	30	24	31	22	92	76	6	5	267	21	2	19	7	15	3	3	0	1	50	4	54	11	13	1	1	0	9	7	3	6	⊕	⊕	
August	1013	30	24	32	22	91	74	5	5	183	15	1	16	7	12	3	5	1	1	54	5	52	9	18	1	2	0	4	9	3	6	⊕	0	
September	1013	31	25	32	23	87	71	5	5	86	7	1	27	13	12	3	2	0	0	42	3	59	18	13	0	2	0	1	4	4	8	⊕	⊕	
October	1012	31	25	32	23	86	71	5	5	84	9	2	31	13	14	0	1	0	0	39	2	53	19	16	1	1	0	3	5	4	8	0	⊕	
November	1011	30	25	31	23	87	73	5	5	147	10	1	34	19	15	1	1	0	0	29	2	58	22	15	0	0	0	2	1	4	8	0	⊕	
December	1012	29	24	31	22	90	77	6	6	303	20	3	47	14	10	1	1	1	2	21	5	61	19	9	0	0	0	3	3	5	8	0	⊕	
Means	1013	30	24	32*	21§	88	75	6	5	_	_	3	35	17	14	2	2	0	0	27	4	56	19	14	0	1	0	3	3	5	8	_	_	_
Totals	_	_	_	_	_	_	_	_	_	2334	180	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	1	1	_
Extreme values	_	_	_	34†	20‡	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
No. of years observations	30	30				20		20		60	19	15									15									19		36	36	

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

† Highest recorded temperature
‡ Lowest recorded temperature

⊕ Rare
⊖ All observations

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1.171

WMO No – 80444

CIUDAD BOLÍVAR (8° 08′ N, 63° 33′ W) Height above MSL – 50 m

Climatic Table compiled from 8 to 30 years observations

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	0730	1330	⊖		Average fall	No. of days with 1 mm or more	0600									1200									⊖		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	1013	31	22	33	21	90	60	5		36	5	1	67	23	3	0	0	0	0	6	0	45	47	8	0	0	0	0	0	6		⊕	⊕	
February	1013	32	23	34	21	89	53	5		19	3	1	65	23	3	0	0	0	0	8	2	49	42	4	0	0	0	0	3	6		⊕	0	
March	1012	33	23	35	21	87	50	5		17	2	0	68	26	0	0	0	0	0	6	0	52	41	3	0	0	0	0	4	7		1	⊕	
April	1012	34	24	35	22	85	49	5		25	3	0	54	33	3	0	0	0	0	10	2	58	30	5	0	0	1	0	4	6		⊕	0	
May	1012	33	24	35	23	86	55	6		97	9	0	56	27	4	0	0	0	0	13	2	58	26	7	0	0	0	1	6	5		1	⊕	
June	1014	32	24	34	22	87	63	6		139	15	0	43	23	6	1	1	1	1	24	2	51	30	6	2	1	4	0	4	4		⊕	0	
July	1014	32	24	34	22	87	62	6		160	15	2	26	13	12	3	2	3	0	39	5	39	20	5	2	3	8	3	15	4		⊕	0	
August	1013	32	24	34	22	86	62	6		180	12	1	23	11	11	3	3	3	2	43	8	48	13	3	2	2	9	6	9	3		⊕	⊕	
September	1012	33	24	35	22	84	57	5		92	7	2	17	11	10	8	2	1	0	49	8	53	12	7	7	0	4	4	5	4		⊕	0	
October	1012	33	24	35	22	85	58	5		101	6	3	33	15	9	1	1	0	1	37	11	57	21	4	0	1	1	3	2	4		⊕	0	
November	1011	33	24	34	22	87	61	5		72	5	5	44	18	6	1	0	0	1	25	6	53	26	5	1	0	1	1	7	4		⊕	0	
December	1012	32	23	33	21	89	59	5		34	5	4	63	21	2	0	0	0	0	10	9	44	38	7	0	0	1	0	1	5		⊕	0	
Means	1013	33	24	36*	20§	87	58	5		_	_	2	47	20	6	1	1	1	0	22	5	51	29	5	1	1	2	1	5	5		_	_	_
Totals	_	_	_	_	_	_	_	_	_	972	87	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	4	1	_
Extreme values	_	_	_	38†	18‡	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
No. of years observations	30	28–29				9–10		14		30	23/27	8									8									14		14	14	

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

† Highest recorded temperature
‡ Lowest recorded temperature

⊕ Rare
⊖ All observations

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1.172

WMO No – (See note)

PORT OF SPAIN, TRINIDAD (10° 39′ N, 61° 31′ W) Height above MSL – 20 m

Climatic Table compiled from 3 to 60 years observations

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 0.3mm or more	0700 and 1500																		⊖		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	1013	31	21	33	18	84	74	3	3	62	14	9	54	10	17	2	3	1	4											4		0	0	
February	1013	32	20	33	18	81	67	3	1	38	10	8	50	10	17	3	4	1	7											4		0	1	
March	1013	32	20	34	18	76	63	3	3	43	9	7	49	10	20	3	4	1	6											4		0	0	
April	1013	33	21	35	19	73	61	5	2	53	8	7	45	11	24	3	3	2	5											5		⊕	0	
May	1013	33	22	35	20	75	63	4	2	87	12	5	43	11	27	3	4	2	5											5		0	1	
June	1014	32	22	34	20	80	70	4	3	180	19	7	43	13	24	3	4	2	4											4		0	1	
July	1014	32	22	33	20	82	72	3	3	207	22	8	45	12	19	2	5	2	7											4		0	1	
August	1013	32	22	34	20	83	73	3	4	236	23	9	46	10	17	3	6	2	7											3		⊕	1	
September	1012	32	22	34	20	81	74	3	3	198	19	9	43	11	18	2	6	2	9											3		0	⊕	
October	1011	32	22	34	20	81	76	3	3	168	18	7	46	10	20	1	6	2	8											3		0	0	
November	1011	32	21	34	19	83	76	3	3	184	19	7	49	11	20	2	5	1	5											3		⊕	1	
December	1012	32	21	33	19	85	73	3	3	130	18	9	52	11	16	2	3	1	6											3		0	⊕	
Means	1013	32	21	35*	17§	80	70	3	3	–	–	8	47	11	20	2	4	2	6	–										4		–	–	–
Totals	–	–	–	–	–	–	–	–	–	1587	191	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	6	–
Extreme values	–	–	–	37†	12‡	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
No. of years observations	30	27–30				11		13	7	60	29	29–30																		4		7	3	

Note: Nearest present reporting station, WMO No 78970 **PIARCO AIRPORT, TRINIDAD** (10° 37′ N, 61° 21′ W) Height above MSL — 15m

* Mean of highest each year
§ Mean of lowest each year
† Highest recorded temperature
‡ Lowest recorded temperature
⊕ Rare
⊖ All observations
♦ From observations at Piarco

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1.173

WMO No – 80415

CARACAS/MAIQUETÍA AIRPORT (10° 36′ N, 66° 59′ W) Height above MSL – 48 m

Climatic Table compiled from 1 to 20 years observations

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	⊖				Average fall	No. of days with rain	N	NE	E	SE	S	SW	W	NW	Calm	N	NE	E	SE	S	SW	W	NW	Calm			Gale	Fog	Thunder
	hPa	°C	°C	°C	°C	%	%	Oktas		mm																				Knots				
January		28	22	29	20	72				32	4																					0	⊕	
February		28	22	31	20	73				23	2																					0	1	
March		28	23	33	21	79				25	2																					0	⊕	
April		30	23	34	21	81				17	2																					0	0	
May		31	24	36	22	78				39	4																					0	⊕	
June		31	24	35	21	77				56	6																					0	⊕	
July		31	24	35	21	78				39	5																					0	0	
August		32	24	36	21	77				38	6																					0	0	
September		32	25	36	20	76				64	7																					0	⊕	
October		31	24	33	23	76				55	6																					⊕	0	
November		31	24	32	22	75				104	9																					0	1	
December		29	23	32	21	80				60	6																					0	0	
Means				*	§	77				–	–																					–	–	–
Totals	–	–	–	–	–	–	–	–	–	550	59	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	⊕	3	–
Extreme values	–	–	–	36†	20‡	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
No. of years observations		8–10		2–4		1–4				19/20																						7/8	7/8	

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

† Highest recorded temperature
‡ Lowest recorded temperature

⊕ Rare
⊖ All observations

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1.174

WMO No – (See note)

WILLEMSTAD, CURAÇAO (12° 07′ N, 68° 56′ W) Height above MSL – 68 m

Climatic Table compiled from 5 to 40 years observations

Month	Average pressure at MSL ◊	Temperature ♦ Mean daily max.	Temperature ♦ Mean daily min.	Temperature ♦ Mean highest in each month	Temperature ♦ Mean lowest in each month	Average humidity ♦ 0800	Average humidity ♦ 1300	Average cloud cover		Precipitation ◊	Precipitation No. of days with rain	Wind distribution – Percentage of observations from • N	NE	E	SE	S	SW	W	NW	Calm	Wind distribution – Percentage of observations from • N	NE	E	SE	S	SW	W	NW	Calm	Mean wind speed •		Number of days with ♣ Little cloud	♠ Much cloud	Thunder
	hPa	°C	°C	°C	°C	%	%	Oktas		mm																					Knots				
January	1013	29	23	31	21	80	68			63	14	0	10	84	5	0	0	0	0	1											10		7	5	
February	1013	29	23	31	22	77	65			29	8	0	10	83	6	0	0	0	0	1											11		10	5	
March	1012	30	23	32	21	78	64			16	7	0	17	79	4	0	0	0	0	0											11		9	6	
April	1011	31	24	32	23	78	65			15	4	0	14	77	8	0	1	0	0	0											11		8	5	
May	1011	31	25	33	23	78	66			18	4	0	7	83	10	0	0	0	0	0											12		8	4	
June	1012	31	25	33	23	78	66			27	7	0	6	82	12	0	0	0	0	0											12		7	5	
July	1013	32	25	33	23	78	64			29	9	0	8	80	12	0	0	0	0	0											11		8	5	
August	1011	32	25	34	23	77	63			40	8	0	9	77	13	1	0	0	0	0											11		8	6	
September	1010	33	25	34	23	76	63			33	6	1	11	68	18	1	0	0	0	1											10		9	5	
October	1010	32	25	34	23	77	67			78	9	1	9	68	18	2	1	0	0	1											8		9	6	
November	1010	31	24	33	22	80	72			128	15	1	16	73	6	1	0	0	1	2											8		4	6	
December	1012	30	24	32	22	80	71			106	16	1	13	80	5	0	0	0	0	1											9		4	5	
Means	1012	31	24	35*	20§	78	66			–	–	0	11	78	10	0	0	0	0	1											10		–	–	–
Totals	–	–	–	–	–	–	–	–	–	580	107	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	91	63	–
Extreme values	–	–	–	†	‡	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
No. of years observations	10	13		14		10				30	40	8																			5		5	5	

* Mean of highest each year
§ Mean of lowest each year
† Highest recorded temperature
‡ Lowest recorded temperature

⊕ Rare
⊖ All observations
♣ Average cloud <3 oktas
♠ Average cloud >6 oktas

◊ At Dr A Plesman Airport, Curaç
♦ At Fort Nassau
• At Cas Chiquito

Note: Nearest present reporting station, WMO No 78988
DR A PLESMAN AIRPORT, CURAÇAO (12° 12′ N, 68° 58′ W)
Height above MSL — 17m

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1.175

WMO No – (See note)

MARACAIBO (10° 39′ N, 71° 36′ W) Height above MSL – 6 m
Climatic Table compiled from 3 to 36 years observations

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			
												0600									1200									⊖		◊	♦	
		Mean daily max.	Mean daily min.	Mean highest in each month	Mean lowest in each month	0730	1330			Average fall	No. of days with trace	N	NE	E	SE	S	SW	W	NW	Calm	N	NE	E	SE	S	SW	W	NW	Calm			Little cloud	Much cloud	Thunder
	hPa	°C	°C	°C	°C	%	%	Oktas		mm																			Knots				
January	1010	32	23	34	21	81	61			3	1	25	39	1	0	0	0	0	0	35	39	18	6	4	1	1	0	14	17	5		4	4	
February	1010	32	23	34	22	81	62			0	0	30	38	2	1	0	0	2	6	21	48	16	4	1	2	0	1	15	13	5		5	5	
March	1010	33	23	35	22	79	62			8	1	46	30	1	0	0	1	3	4	15	52	16	4	1	1	0	1	10	15	6		3	5	
April	1009	33	24	36	23	79	62			20	3	35	30	1	0	0	1	1	6	26	39	14	5	6	1	1	0	17	17	5		2	11	
May	1009	33	25	36	22	83	65			18	7	17	30	4	1	2	4	0	2	40	31	12	12	10	5	1	1	4	24	3		1	14	
June	1009	34	25	36	23	80	61			56	7	14	30	8	3	3	2	0	2	38	13	9	11	19	7	3	0	1	37	4		1	15	
July	1009	34	24	36	23	79	61			46	6	11	34	5	3	1	1	0	1	44	14	15	12	18	9	3	0	4	25	4		1	14	
August	1009	34	25	37	22	84	66			56	7	10	31	6	3	2	1	0	2	45	10	16	10	27	14	4	1	2	16	4		1	15	
September	1009	34	25	37	22	86	64			71	8	3	19	11	5	4	2	3	2	51	4	11	7	39	19	4	0	1	15	4		⊕	17	
October	1008	34	24	36	21	85	63			150	11	4	12	5	5	9	3	0	6	56	5	6	11	31	13	2	1	1	30	5		⊕	16	
November	1008	33	24	35	23	84	64			84	7	18	31	6	3	6	1	1	2	32	21	22	10	11	5	3	1	5	22	3		1	12	
December	1009	33	24	34	22	84	64			15	2	22	47	2	0	0	1	1	3	24	29	30	8	7	1	2	1	9	13	5		5	6	
Means	1009	33	24	37*	21§	82	63			–	–	20	31	4	2	2	1	1	3	36	25	15	8	15	7	2	1	7	20	4		–	–	–
Totals	–	–	–	–	–	–	–	–	–	527	60	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	24	134	–
Extreme values	–	–	–	†	‡	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
No. of years observations	10	11	11	14	15	5				36		6									6									5		3	3	

Note: Nearest present reporting station, WMO No 80407 **MARACAIBO/LA CHINITA** (10° 34′ N, 71° 44′ W) Height above MSL — 65m

* Mean of highest each year
§ Mean of lowest each year
† Highest recorded temperature
‡ Lowest recorded temperature
⊕ Rare
⊖ All observations
◊ Average cloud < 2 oktas
♦ Average cloud > 6 oktas

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1.176

WMO No – 80415

CARTAGENA/CRESPO AIRPORT (10° 27′ N, 75° 31′ W) Height above MSL – 2 m

Climatic Table compiled from 5 to 10 years observations

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	⊖		⊖			No. of days with rain	N	NE	E	SE	S	SW	W	NW	Calm	N	NE	E	SE	S	SW	W	NW	Calm	⊖		Gale	Fog	Thunder
	hPa	°C	°C	°C	°C	%	%	Oktas		mm																			Knots				
January	1008	32	23	40	19	79		4		31	1																		11				
February	1008	32	23	38	19	77		4		1	⊕																		13				
March	1008	32	23	38	19	77		5		1	⊕																		13				
April	1008	32	24	38	21	78		6		45	4																		12				
May	1008	33	25	40	22	80		6		83	9																		9				
June	1008	33	25	38	21	81		7		129	12																		7				
July	1008	33	25	39	21	80		6		78	9																		9				
August	1008	33	25	38	21	81		7		127	13																		8				
September	1008	33	24	38	21	82		7		148	12																		7				
October	1008	32	24	39	21	82		7		217	15																		7				
November	1008	32	24	40	19	82		6		134	11																		7				
December	1007	33	24	39	18	80		5		42	3																		8				
Means	1008	32	24	*	§	80		6		–	–																		9		–	–	–
Totals	–	–	–	–	–	–	–	–	–	1036	91	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Extreme values	–	–	–	40†	18‡	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
No. of years observations	9	9–10				9–10		9		5/10	7/10																		9				

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

† Highest recorded temperature
‡ Lowest recorded temperature

⊕ Rare
⊖ All observations

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1.177

WMO No – (See note)

CRISTOBAL (9° 21′ N, 79° 54′ W) Height above MSL – 11 m
Climatic Table compiled from 11 to 73 years observations

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	2000				No. of days with 1 mm or more	% frequency																	⊖		◊ Little cloud	♦ Much cloud	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	1011	29	24	31	23	82	81			86	10	61	28	1	1	0	1	2	6										12		9	4	
February	1012	29	24	31	23	81	81			38	8	67	24	1	0	0	0	1	7										13		8	3	
March	1012	29	25	31	23	80	80			38	7	74	19	1	0	0	0	1	5										13		10	4	
April	1011	30	25	32	24	82	82			104	10	62	18	2	3	2	1	3	9										11		5	9	
May	1010	30	24	33	23	87	87			318	17	30	12	5	17	10	5	10	11										7		1	17	
June	1010	30	24	33	23	89	88			353	20	14	9	6	21	13	10	16	11										6		1	20	
July	1011	29	24	32	23	89	88			396	21	22	14	4	12	9	9	19	11										7		1	21	
August	1011	29	24	32	23	90	88			388	21	18	9	4	15	10	10	21	13										7		1	19	
September	1010	30	24	33	23	89	88			323	20	8	5	6	28	16	10	16	11										6		1	17	
October	1010	30	24	33	23	89	89			401	20	6	3	6	31	19	10	16	9										6		2	18	
November	1010	29	24	32	22	89	88			566	23	17	9	5	14	13	13	18	11										7		2	17	
December	1011	29	24	31	23	86	85			297	16	42	29	3	3	3	3	9	8										10		6	9	
Means	1011	19	24	33*	22§	86	85			_	_	35	15	4	12	8	6	11	9										9		_	_	_
Totals	_	_	_	_	_	_	_	_	_	3310	193	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_		47	158	_
Extreme values	_	_	_	35†	19‡	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_		_	_	_
No. of years observations	11	36		14		20				73	20	N/K																	N/K		20	20	

Note: Nearest present reporting station, WMO No 78801 **FORT SHERWIN ROCKET FACILITY** (9° 20′ N, 79° 59′ W) Height above MSL — 52m

* Mean of highest each year
§ Mean of lowest each year
† Highest recorded temperature
‡ Lowest recorded temperature
⊕ Rare
⊖ All observations
◊ Average cloud < 3 oktas
♦ Average cloud > 6 oktas
* Continuous record

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1.178

METEOROLOGICAL CONVERSION TABLE AND SCALES

Fahrenheit to Celsius

°Fahrenheit

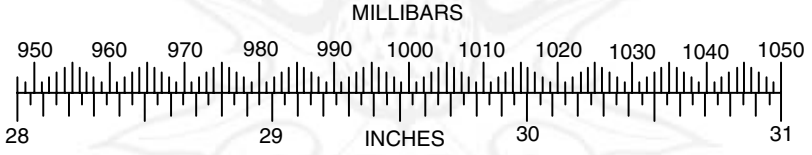
	0	1	2	3	4	5	6	7	8	9
°F				Degrees Celsius						
−100	−73·3	−73·9	−74·4	−75·0	−75·6	−76·1	−76·7	−77·2	−77·8	−78·3
−90	−67·8	−68·3	−68·9	−69·4	−70·0	−70·6	−71·1	−71·7	−72·2	−72·8
−80	−62·2	−62·8	−63·3	−63·9	−64·4	−65·0	−65·6	−66·1	−66·7	−67·2
−70	−56·7	−57·2	−57·8	−58·3	−58·9	−59·4	−60·0	−60·6	−61·1	−61·7
−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

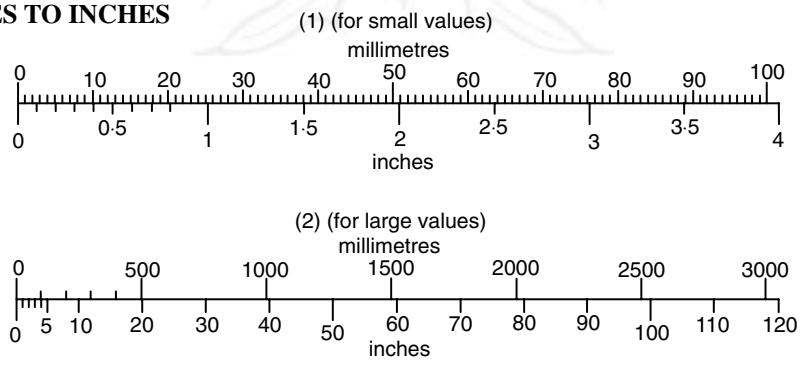
°Celsius

	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

MILLIBARS TO INCHES



MILLIMETRES TO INCHES

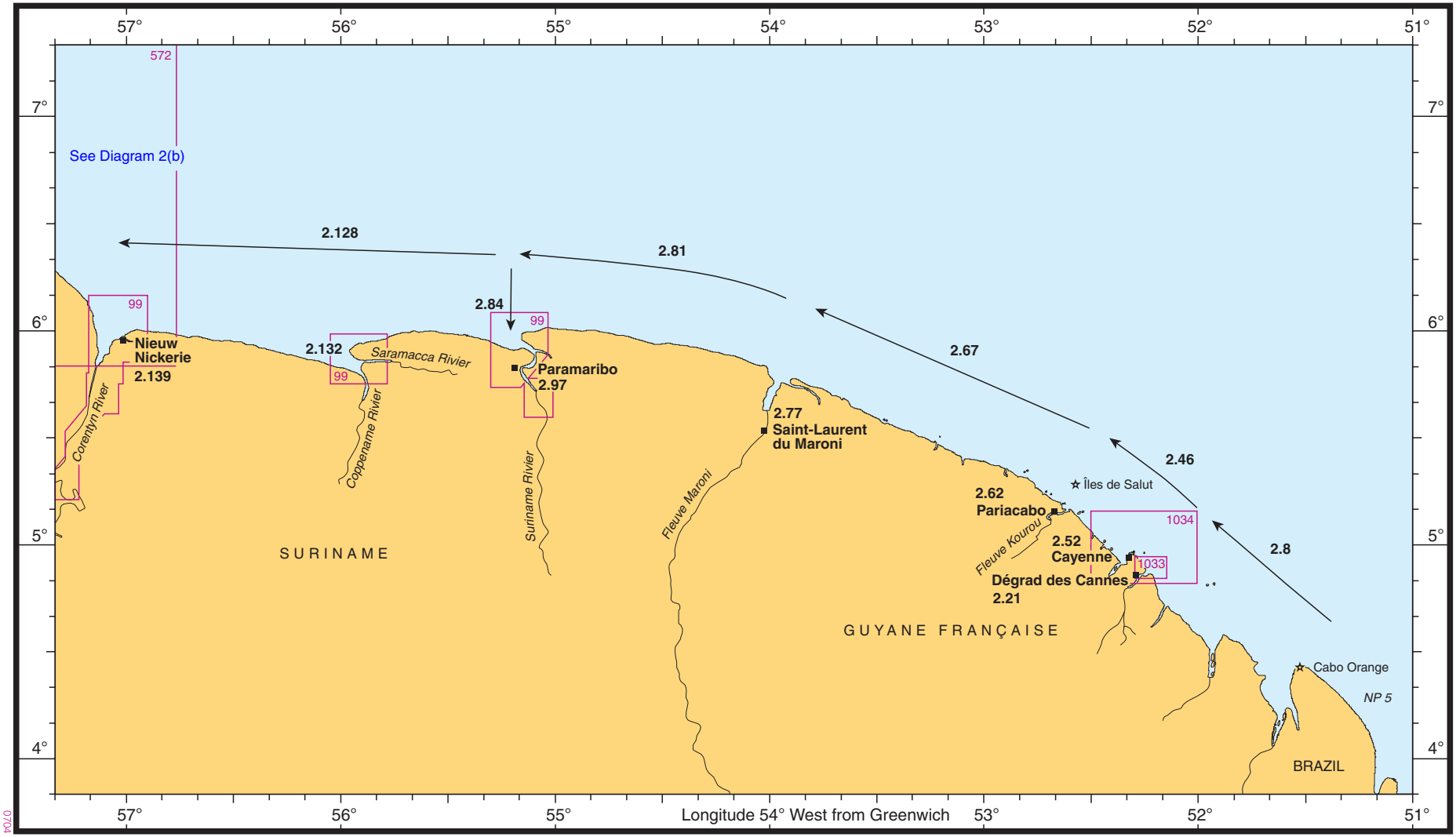


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NOTES

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2 (a)

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CHAPTER 2

COAST OF GUYANE FRANÇAISE, SURINAME AND GUYANA

GENERAL INFORMATION

Chart 517

Scope of chapter

2.1

1 This chapter describes the coastal waters of Guyane Française, Suriname and Guyana, from Cabo Orange (4°26′N, 51°32′W) to Punta Playa (8°33′N, 60°01′W), 570 miles WNW, E of the entrance to Río Orinoco. It also includes descriptions of the principal ports of Dégrad des Cannes (2.21) in Guyane Française, Paramaribo (2.97) in Suriname, and Georgetown (2.186) in Guyana. The only sheltered anchorage off this coast is at Îles du Salut (5°17′N, 52°36′W) (2.63).

2 The chapter is arranged as follows:

Guyane Française (2.5).
Suriname (2.79).
Guyana — Corentyn River to Essequibo River (2.142).
Guyana — Essequibo River (2.222).
Guyana — Essequibo River to Punta Playa (2.269).

Topography

2.2

1 Between Cabo Orange, situated at the N end of Brazil, and Punta Playa the coasts of Guyane Française, Suriname and Guyana are low and mostly fronted by mudbanks.

Navigation

2.3

1 As depths less than 10 m extend as much as 17 miles offshore, an ocean-going vessel navigating along the coast would be out of sight of land, even in clear weather, unless making for one of the river ports when great attention to sounding is necessary. Frequent changes in depths occur near the coast, especially in the estuaries of large rivers. The channels are deepened by the scouring action of freshets.

2 Off the estuaries of all the large rivers, except Fleuve Maroni (5°45′N, 53°57′W), the bottom is invariably mud mixed with shells, while elsewhere it is pure mud; this is sometimes a useful guide. At night, a vessel nearing a port is advised to anchor off it and await daylight.

3 Coastal features described in the offshore routes are included for the benefit of mariners who, not constrained by the draught of their vessels, may wish to close the coast.

Natural conditions

2.4

1 **Current.** The full strength of the Guiana Current (1.142) is encountered off this coast. The great majority of sets are between W and NNW from November to April and between WNW and N from May to October. The most predominant set throughout the year is NW. This current is quite constant, but occasional sets in other directions may be experienced.

2 Rates up to 3 or 4 kn may occur throughout the year, the latter rate from May to July and from November to January with normal sets. The rates of other sets seldom exceed 1 kn.

3 This current is not felt close inshore. The band or width of the current apparently fluctuates, its greatest strength being from 60 to 120 miles offshore. The inner edge has been found about 20 miles off the coast of Guyana in position 7°10′N, 58°00′W, but it is sometimes felt in depths of 30 m between Demerara River and Suriname Rivier.

4 **Tidal streams.** Tidal influence affects the current as much as 30 miles offshore; the W-going tidal stream increases the rate of the current and the E-going stream retards it. At the mouths of the rivers, on the rising tide, the stream sets S into them; on the falling tide, however, instead of being E-going the stream is deflected NE by the current.

5 **Rollers.** Heavy rollers may occur along this coast from December to February, especially in December and January when the NE trade winds are strong. Rollers appear where the depths decrease irregularly, or in depths of about 9 m over coastal sand and mudbanks.

GUYANE FRANÇAISE

GENERAL INFORMATION

Chart 517

Area covered

2.5

1 This section covers the coastal waters of Guyane Française from Cabo Orange (4°26′N, 51°32′W) to Fleuve Maroni, 165 miles NE. It is arranged as follows:

Cabo Orange to Dégrad des Cannes (2.8).
Dégrad des Cannes (2.21).
Dégrad des Cannes to Îles du Salut (2.46).
Îles du Salut to Fleuve Maroni (2.67).

Traffic regulations

2.6

1 **Systéme Français de Comptes Rendus de Mouvements (SURNAV).** The following regulation is mandatory for vessels carrying:

a). Hydrocarbons (including oil) (as specified by Appendix 1 to Annex 1 of MARPOL 73).

2 b). Dangerous substances (classes A and B to Appendix 2 to Annex 2 of MARPOL 73).

c). Certain radioactive substances.
d). Certain bulk chemical products.
e). Bulk liquefied gas.

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3 Vessels carrying any of these cargoes intending to enter the 12 nautical mile limit of the territorial waters of Guyane Française from seaward, or to sail from a port and anchorage in these waters, are required to report to the Head of Marine in Guyane Française.

4 **Accidents.** Any vessel which suffers a defect or damage while within 50 nautical miles of the coast of Guyane Française should report the incident to the appropriate authority.

For further information on the reports required and who to contact see *Admiralty List of Radio Signals Volume 6 (5)*.

Rescue

2.7

1 For information on rescue services see 1.59.

CABO ORANGE TO DÉGRAD DES CANNES

General information

Charts 517, 1034

Route

2.8

1 From a position ENE of Cabo Orange (4°26′N, 51°32′W) the offshore route leads NW for about 58 miles to a position NE of Le Père (4°56′N, 52°12′W), the NE-most island of the Îles Rémire group which front the entrance to Dégrad des Cannes (2.21).

Nature reserve

2.9

1 In 1992 Le Grand Connétable (4°50′N, 51°56′W) and Le Petit Connétable along with the surrounding waters contained within a circle, radius 2·7 m, centred on the highest point of Le Grand Connétable, were designated a nature reserve. It is forbidden to land, fish, hunt or anchor within the reserve.

Currents and tidal stream

2.10

1 In summer, the main current in the vicinity of Le Grand Connétable (4°50′N, 51°56′W) is strongly NW-going, but in winter, especially on the falling tide at springs, that current runs considerably farther offshore. The tidal stream combined with the outflow from the mouth of Fleuve Approuague (4°35′N, 51°57′W) sets N and turns NNW at its meeting with the main current near Les Battures du Connétable. This meeting causes a race which appears like breakers on a shoal, but it usually disappears at slack water if the outer current is weak; the water on the inshore side of the race is muddy.

Principal mark

2.11

1 **Major light:**

Cabo Orange (square metal tower on white concrete base, 47 m in height) (4°26′N, 51°32′W).

Directions

2.12

1 From a position ENE of Cabo Orange (4°26′N, 51°32′W) the track leads NW, passing (with positions relative to Cabo Orange):

Clear of a shoal (20 miles NE) reported in 1928 to have a depth of 5·9 m over it. Another shoal, with a depth of 5·8 m over it, the existence of which is doubtful, lies 25 miles E of Cabo Orange. Thence:

2 NE of Cabo Orange from which a light (2.11) is exhibited. The cape is low and fringed with mangroves which are much higher on its extremity than elsewhere and may be seen at a distance of 12 miles; it is easily identified from E, from which direction the hills W of Fleuve Oyapock (2.13) will be seen behind the promontory. Vessels should give Cabo Orange a wide berth keeping in depths of more than 20 m. Thence:

3 NE of Pointe Béhague (25 miles NE) (2.17), the E entrance point of Fleuve Approuage; two dangerous wrecks lie off the point. Thence:

NE of Le Grand Connétable (34 miles NE), a bare rock 50 m high, which is steep-to on its SW side; it is visible for 25 miles in clear weather. Le Petit Connétable, situated 2 miles WSW of Le Grand Connétable, dries and is blackish in colour. Thence:

4 NE of Les Battures du Connétable (38 miles NW) which have depths of 2 m or less over them and consist of a rocky plateau of coral and sand. The sea breaks on the plateau during a swell, but in calm conditions it is only marked by the eddies of the current which is always W-going. Thence:

5 NE of Haut-fond Cospatrick (41 miles NW), the summit of a bank of soft mud with a depth of 4 m over it, thence:

NE of Les Mamelles (47 miles NW) and La Mère (2.38) the SE-most of the Îles Rémire, a chain of wooded islets lying in the approaches to Dégrad des Cannes. Les Mamelles, consisting of two rounded islets, are the smallest of Îles Rémire.

6 The track then leads to a position NE of Le Père (51 miles NW) (2.38).

Clearing line. The line of bearing, 250°, of La Mère (4°53′·5N, 52°11′·0W) in line with the lower edge of the S slope of Plateau de Mahury, 4 miles WSW, clears N of Haut-fond Cospatrick.

(Directions continue for the offshore route at 2.51 and for entry into Dégrad des Cannes at 2.38)

Fleuve Oyapock and approaches

Chart 517, French Chart 7337 (see 1.16)

General information

2.13

1 **Description.** Fleuve Oyapock (4°12′N, 51°38′W), also known as Rio Oiapoque, forms the boundary between Guyane Française and Brazil. The river flows into Baie d'Oyapock on the W side of a promontory, of which Cabo Orange (4°26′N, 51°32′W) (2.12) is the N extremity.

2 **Topography.** The main feature in the approaches to Fleuve Oyapock is Montagne d'Argent (4°23′N, 51°41′W), about 100 m high, situated 8 miles W of Cabo Orange. It forms a small peninsula on the W side of Baie d'Oyapock and is visible for 15 miles; it should not be confused with Mont Carimaré of similar shape 10 miles W. Montagne d'Argent is backed by several hills which resembles islets from the offing.

3 **Tidal levels.** Off Montagne d'Argent there is a mean spring range of about 2·6 m and a mean neap range of about 1·5 m. For further information see the *Admiralty Tide Tables.*

Pilotage. There are no pilots, but pilotage assistance can be obtained from Dégrad des Cannes (2.21) or Belém in Brazil.

4 **Tidal streams.** Off the mouth of Fleuve Oyapock the tidal streams are WNW-going on a rising tide and

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NE-going on the falling tide. The NE-going stream can obtain a rate of 3 kn.

5 The current in the offing sets NNW with a rate of about 2 kn.

Directions

2.14

1 The river has not been completely surveyed and its navigation is difficult and dangerous. Shoals, on which the sea breaks heavily in bad weather, encumber the estuary of the river. Local knowledge is essential.

2 There are no specific directions for entering the river. However attention is drawn to a light-buoy (safe water) (4°30′·5N, 51°38′·2W), marking the border between Brazil and Guyane Française, moored in the middle of the approach to Baie d'Oyapock.

Anchorages

2.15

1 **Montagne d'Argent.** Local vessels normally anchor 1 mile E of the SE point of Montagne d'Argent (4°23′N, 51°41′W) in a depth of about 5 m, over mud. Anchoring closer inshore should be avoided as a line of rocks extends almost 1 mile SSE from this point. The anchorage is exposed to rough seas.

2 **Rivière Ouanary.** Vessels drawing less than 3 m can obtain shelter farther up river and anchor, over a bottom of soft mud, near a small pier off the mouth of Rivière Ouanary; this tributary joins Fleuve Oyapock close N of Montagne Bruyère (4°13′N, 51°39′W), which is about 80 m high with a double summit.

Saint Georges

2.16

1 **Description.** Saint Georges (3°52′N, 51°49′W), a settlement 30 miles up Fleuve Oyapock and on the NW bank of the river, can be reached by vessels drawing nearly 4·0 m at HWS. Anchorage above Saint Georges is difficult.

2 **Berth.** A pier at the settlement has a berthing length of 20 m.

Supplies. Provisions are obtainable.

Communications. There is an airport at the Brazilian town of Oiapoque, 1 mile distant.

Fleuve Approuague

Chart 517

General information

2.17

1 **Description.** Fleuve Approuague is entered W of Pointe Béhague (4°40′N, 51°54′W) which is low and covered with mangroves, as is the coast NW and SE of the entrance. A drying mudflat extends from the W entrance point to a position 7 miles NW of Pointe Béhague.

2 **Topography.** Montagnes de Kaw, a chain of high and level hills about 12 miles SW of Pointe Béhague, may be seen from seaward of Le Grand Connétable (4°50′N, 51°56′W) (2.12) in clear weather. Mont Carimaré, on the E side of the river 15 miles S of Pointe Béhague, is visible at a considerable distance.

Directions

2.18

1 There are no specific directions for the river as it is not marked and it is only accessible to local coastal vessels. At HW, there are depths of 5 m over the sandbanks between Le Grand Connétable and the river entrance 8 miles S. Within the entrance, the fairway lies close to the E bank of the river and continues with depths of 5 m at HW for 10 miles to the small village of Guisanbourg (4°24′N, 51°56′W).

2 The channel above the village is narrow and tortuous, often passing close to dangerous rocks and sandbanks.

Régina

2.19

1 **Description.** Régina (4°19′N, 52°08′W), a settlement on the W bank of the river 30 miles from its mouth, has a wharf with a depth of 4 m alongside. A bore sometimes occurs here at the beginning of the in-going tide at springs and in the rainy season.

2 **Facility.** There is an infirmary at the settlement.

Supplies. Fresh provisions are available.

Communications. There are sea and air links with Cayenne and the settlements on the Fleuve Oyapock.

Small craft

Le Grand Connétable

2.20

1 **Description.** On the SW side of Le Grand Connétable (4°50′N, 51°56′W) (2.12) small craft can enter the N of two small coves in depths from 4 to 5 m. A reef extending from the E side of the rock should be given a berth of at least 3½ cables, allowing for current.

2 **Local knowledge** is required.

DÉGRAD DES CANNES

General information

Charts 1034, 1033

Position

2.21

1 Dégrad des Cannes (4°51′N, 52°16′W) is situated on the NW bank of Fleuve Mahury, 5½ miles SSE of the town of Cayenne.

Function

2.22

1 It is the main commercial port for Guyane Française, having replaced Cayenne in the 1970's. Half of the imported cargo comes from France; half of the exports go to the United States of America. Timber is one of the commodities exported.

Topography

2.23

1 Fleuve Mahury is entered between Pointe Diamant (4°53′N, 52°15′W), the E extremity of Île de Cayenne, and a mudflat extending NNE from Pointe Jaguar, situated 1½ miles SE. The SE bank of the river is very low and fringed with mangroves. Montagne du Mahury (4°52′N, 52°16′W) rises from the NW bank of the river to an elevation of 162 m.

Approach and entry

2.24

1 The port is approached through the Îles Rémire (2.12) and entered via an access channel, ¾ cable wide, which leads into Fleuve Mahury over a bar. The bottom in the channel is very soft mud and sand, and vessels frequently plough through it.

Traffic

2.25

1 In 1996 the port was used by 2200 vessels and 2 900 000 tonnes of cargo was handled.

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Port Authority

2.26

1 Port Director, Departemental de l'Equipement, Vieux Port, 97300 Cayenne.

Limiting conditions

Controlling depth

2.27

1 The access channel over the bar at the entrance to Fleuve Mahury, although dredged, is subject to silting; the depth in the channel is about 3 m. For the latest information on depths the local Port Authority should be consulted. Depths increase within the entrance to the river.

Tidal levels

2.28

1 Dégrad des Cannes has a mean spring range of about 2·3 m and a mean neap range of about 1·2 m. During the rainy season there is no HW slack and the duration of LW slack varies, according to the amount of rainfall, between 1 and 1½ hours.

2 There is a tide gauge on D13 Light-beacon (4°52′·5N, 52°13′·6W), half-way along on the NW side of the access channel. For further information on tides see the *Admiralty Tide Tables.*

Maximum size of vessel handled

2.29

1 Vessels up to 160 m in length have used the port.

Arrival information

Port radio

2.30

1 There is a port radio station at Dégrad des Cannes. For further information see *Admiralty List of Radio Signals Volume 6 (5).*

Notice of ETA required

2.31

1 Vessels should send an ETA at least 48 hours in advance.

Outer anchorages

2.32

1 **Waiting anchorage.** A vessel awaiting the pilot or tide may obtain anchorage 5 cables NE of DC Light-Buoy (4°57′·4N, 52°09′·6W) in a depth of 9 m. For a prolonged wait vessels should anchor off Îles du Salut (2.63).

2 **Tankers.** There is a designated tanker anchorage, radius 1 mile, 1½ miles NW of DC Light-buoy, with depths of 7 to 10 m.

Pilotage

2.33

1 Pilotage is compulsory and available 24 hours. The pilot boards in the vicinity of DC Light-buoy (4°57′·4N, 52°09′·6W). For further information see *Admiralty List of Radio Signals Volume 6 (5).*

Local knowledge

2.34

1 Local knowledge is required. The buoyage in the access channel and other navigational aids are liable to change. For the latest information consult the local Port Authority.

Harbour

General layout

2.35

1 The commercial berths are situated on the N shore of Fleuve Mahury 2½ miles within the river entrance. There is a turning area S of the W-most berth, with a diameter of 400 m and a dredged depth of 6 m.

Tidal streams

2.36

1 The tidal stream, along the access channel leading into Fleuve Mahury, crosses virtually over its entire length. In the river the in-going stream attains a rate of up to 2·0 kn and the out-going stream up to 1·8 kn. In the vicinity of Dégrad des Cannes the out-going stream, between 3·0 and 4·0 kn, is much stronger than that of the in-going stream, which has a rate of between 1·5 and 2·0 kn, regardless of the season.

Principal marks

2.37

1 **Landmarks:**

Mont Bourda (4°56′N, 52°17′W) rising steeply from the shore.

Radio tower (4°55′N, 52°18′W), with an elevation of 201 m, standing on Montagne du Tigre.

2 Montagne du Mahury (4°52′N, 52°16′W) (2.23).

Mont Grand Matoury (4°52′N, 52°21′W), with an elevation of 234 m, rising above the hills of Île de Cayenne 5 miles SSW of the town.

Directions for entering harbour

(continued from 2.12)

From seaward to Dégrad des Cannes

2.38

1 From a position NE of Le Père (4°56′N, 52°12′W) the track leads SW, passing (with positions relative to Le Père):

Either side of DC Light-buoy (safe water) (3 miles NE), thence:

2 NW of a wreck (2½ miles ENE), with a depth of 3·8 m over it; it is marked on its NW side by a light-buoy (W cardinal). Thence:

SE of an obstruction (2 miles NE), with a depth of 4·6 m over it.

3 The track then enters the dredged access channel (1½ miles E) marked by light-beacons and light-buoys, numbered D1 to D19, forming gates in places. Thence the track continues SW through this channel, passing (with positions relative to Le Père):

4 SE of Le Père, surmounted by a mast (red and white bands, 14 m in height), thence:

NW of La Mère (2 miles SSE), the largest of Îles Rémire; a mast (red and white stripes, 14 m in height) stands at the NW end of the island.

5 On passing SE of D19 Light-buoy (starboard hand) (5 miles SSW) the track turns to the W and then leads directly to the berths at Dégrad des Cannes. This part of the channel is marked by light-beacons and light-buoys numbered D20 to D27.

Fleuve Mahury above Dégrad des Cannes

2.39

1 From Dégrad des Cannes the track leads SSW for 10 miles to the entrance to Rivière Oyac, thence along this river for a farther 4 miles to its confluence with Rivière Comté (4°39′N, 52°20′W), above which it takes the name Rivière Orapu. The track then leads generally S in Rivière

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Orapu for another 4 miles to Fourgassié which is a timber loading place.

2 There are least depths in the fairway of 4·3 m as far as this settlement where the river is only 90 m wide. Vessels turn at Fourgassié by pushing the stem into the mud of the steep river bank in order to swing with the stern clear. Hawsers are made fast to trees on both sides of the river above the loading place, and vessels are warped alongside.

Berths

2.40

1 (positioned from Pointe du Mahury (4°51′·5N, 52°15′·4W)):

Naval base pier (7 cables SW). Lights (metal towers) are exhibited from the head of the pier.

Quay (1·1 miles WSW) providing three berths. The combined length of Berth's 1 and 2 is 309 m with a depth of 6 m alongside. Berth No 3 is 150 m long with a depth of 5 m alongside. There are Ro-Ro facilities at this quay.

2 Pier (1·3 miles WSW), L–shaped and flanked by dolphins. The overall length of the berth is reported to be 42·5 m.

Tanker berth (1·4 miles WSW). This is a steel wharf with dolphins; the minimum length for berthing is 80 m; maximum length 120 m.

Port services

Repairs

2.41

1 Minor repairs only.

Other facilities

2.42

1 Deratting Exemption Certificates issued; hospital; fumigation service.

Supplies

2.43

1 Fresh water; fuel supplied by road transport; provisions.

Communications

2.44

1 Rochambeau Airport, 10 km distant.

Small craft

La Mère

2.45

1 On the S side of La Mère (4°53′·5N, 52°11′·0W) there is a landing place near two dwellings.

DÉGRAD DES CANNES TO ÎLES DU SALUT

General information

Charts 517, 1034

Route

2.46

1 From a position NE of Le Père (4°56′N, 52°12′W) the offshore route leads NW, for about 33 miles, to a position NE of Île du Diable (5°18′N, 52°35′W), the N-most island of Îles du Salut.

Local magnetic anomaly

2.47

1 Observations on land indicate that local magnetic anomalies exist in the vicinity of Cayenne.

Submarine cable

2.48

1 A submarine cable is laid from a position on the shore 8 cables E of Pointe de Saint-Joseph (4°57′N, 52°20′W), at Cayenne, to the N for 5 cables and thence NE out into the Atlantic Ocean. Anchoring, fishing and dredging are prohibited within 3 cables either side of the cable.

2 For further information on submarines cables see 1.42.

Rocket firing

2.49

1 Rocket firing associated with the space program of the Centre Spatial Guyanais de Kourou (5°14′N, 52°46′W) is conducted off this part of the coast of Guyane Française. Launch warnings are broadcast through the International SafetyNET service. For further details see *Admiralty List of Radio Signals Volume 5*.

Principal marks

2.50

1 **Landmarks:**

Radio tower (4°55′N, 52°18′W) (2.37).

Mont Bourda (4°56′N, 52°17′W) (2.37).

Mont Macouria (4°59′N, 52°29′W) (Mornes de Macouria on Chart 1034), situated 10 miles WNW of Cayenne and appearing like an island above the low sandy coast.

2 Montagne des Pères (5°07′N, 52°39′W) (not shown on Chart 517), wooded with three summits. Le Cône or Montagne Galliot, the S-most summit, is prominent with two large parabolic antenna on it. On Montagne Leblond, the highest and N-most summit with an elevation of 152 m, there is a radar tracking station; its radome is prominent.

3 **Major lights:**

Fort Cépérou Light (white column, red top, 9 m in height) (4°56′N, 52°20′W).

Île Royale Light (red tower, 20 m in height) (5°17′N, 52°36′W), exhibited from the W part of Île Royale.

Directions

(continued from 2.12)

2.51

1 **Caution.** Mariners proceeding along the coast are advised to keep well offshore as large areas NE, N and NW of L'Enfant Perdu (5°03′N, 52°21′W), as shown on Chart 1034, are unsurveyed or incompletely surveyed.

Track. From a position NE of Le Père (4°56′N, 52°12′W) the track leads NW, passing (with positions relative to L'Enfant Perdu):

2 NE of Le Malingre (7¾ miles SE), the NW-most islet of Îles Rémire (2.12), thence:

NE of Roche Saint-François (5¾ miles SE), the NE of many rocks, some of which dry or are above-water, extending from the N end of Île de Cayenne, thence:

NE of L'Enfant Perdu (2.56), from which a light is exhibited, thence:

3 NE of the coastal bank lying between L'Enfant Perdu and Îles du Salut. Depths on this bank decrease gradually from 5 m, 5 miles offshore, to about 1 m, 5 cables offshore. Roche Garadier (13 miles NW),

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which dries but is seldom visible, lies on this bank 5 miles E of Pointe Guatémala, the S entrance point of Fleuve Kourou (2.60).

4 The track then leads to a position NE of Île du Diable (20½ miles NW) (2.63).

(Directions continue for the offshore route at 2.70)
Directions for entering Cayenne are given at 2.56 and for Fleuve Kourou at 2.61)

Cayenne

General information

2.52

1 **Position.** Cayenne (4°56′N, 52°20′W), the capital of Guyane Française and seat of Government, occupies the N part of Île de Cayenne, and is bordered on its W side by Rivière de Cayenne.

Function. The harbour at Cayenne was closed to commercial traffic in the 1970's and is now used mainly by fishing vessels.

2 **Topography.** Île de Cayenne is hilly and irregular, especially in the E part. It presents an aspect totally different from that of other parts of the country and is easily identified from seaward.

Approach and entry. Cayenne is approached from the NE and entered through a channel, flanked by drying mudbanks, which leads across a bar of soft mud into Rivière de Cayenne. The channel is liable to frequent changes and is marked by light-buoys which are moved accordingly.

3 **Port Authority.** Cayenne Port Authority, c/o SOMAIG, Place Leopold Heder 1, F–97322 Cayenne.

Limiting conditions

2.53

1 **Controlling depth.** In 1974, vessels with a draught of 5 m could enter Rivière de Cayenne at highest HWS. In 1995 it was reported that the minimum depth in the channel as far as Le Larivot was equal to the height of tide at Cayenne. However, the channel is subject to continual silting; for the latest depth the local Port Authority should be consulted.

2 **Tidal levels.** Cayenne has a mean spring range of about 2·3 m and a mean neap range of about 1·2 m. Tidal levels are affected by floods. For further information on tides see the *Admiralty Tide Tables.*

Arrival information

2.54

1 **Notice of ETA required.** An ETA should be sent at least 48 hours in advance, stating the vessel's draught, through the agent.

Outer anchorages. A vessel awaiting the pilot or tide should anchor 2½ miles ENE of L'Enfant Perdu (5°03′N, 52°21′W), in a depth of about 6 m. For tankers there is a designated anchorage, radius 5 cables, 5½ miles ENE of L'Enfant Perdu.

2 Vessels expecting a long wait should anchor off Îles du Salut (2.63).

Submarine cable. See 2.48.

Pilotage. For Cayenne pilotage is compulsory and available 24 hours. The pilot is provided by the pilot station at Dégrad des Cannes (2.21) and boards 5 cables NW of CA Light-buoy (5°03′N, 52°18′W). A vessel should reach the vicinity of CA Light-buoy at least 2 hours before HW at Cayenne. For further information see *Admiralty List of Radio Signals Volume 6 (5).*

3 **Local knowledge** is essential.

Harbour

2.55

1 **General layout.** There is a small harbour at Cayenne, situated on the E bank of Rivière de Cayenne close S of Pointe de Saint-Joseph (4°57′N, 52°20′W), and another small harbour at Le Larivot, 2½ miles SSW of Cayenne. Small tankers were still handled at Le Larivot in 1980, which is also a fishing harbour.

Hazards. Heavy seas sometimes makes entry into Rivière de Cayenne difficult and fishing stakes exist within the estuary.

2 **Current and tidal streams.** The current in the offing sets generally between WNW and NW, and attains a rate from 2 to 3 kn with the assistance of the trade wind. In the vicinity of L'Enfant Perdu, tidal streams become noticeable; combined with the current the in-going stream sets NW, whilst the out-going stream sets NNE. The streams have a rate up to 2 kn.

3 Off the mouth of Rivière de Cayenne, the in-going stream sets slightly towards Banc du Macouria, on the W side of the channel, especially during SE winds; the out-going stream sets E towards the banks extending N from Île de Cayenne, and there is an E-going stream along the coast in the vicinity of Îlets Dupont (4°57′N, 52°18′W).

4 Within the river, the streams follow the channel, attaining greatest rates of 4 kn on the out-going stream and 2½ kn on the in-going stream.

Climatic table. For Cayenne (Rochambeau Airport) see 1.167 and 1.168.

5 **Landmarks:**

Radome, with two radio towers nearby, standing close ENE of Mont de Montabo (4°57′N, 52°19′W).
Mont Bourda (4°56′N, 52°17′W) (2.37).
Radio tower (4°55′N, 52°18′W) (2.37).

6 Mont Grand Matoury (4°52′N, 52°21′W) (2.37).
Mont Macouria (4°59′N, 52°29′W) (Mornes de Macouria on Chart 1034) (2.50).

Major light:

Fort Cépérou Light (4°56′N, 52°20′W) (2.50).

Directions for entering harbour

2.56

1 From the vicinity of 5°07′N, 52°15′W, on the offshore route (2.51), the track leads SW, passing (with positions relative to L'Enfant Perdu (5°03′N, 52°21′W)):

Either side of CA Light-buoy (safe water) (3 miles E), thence:
SE of L'Enfant Perdu, a low flat above-water rock lying on a reef, from which a light (grey tower, 15 m in height) is exhibited. A dangerous wreck, the position of which is doubtful, lies 4 cables E of the rock.

2 When a position is reached about 2¼ miles S of L'Enfant Perdu the track then leads SSE, passing (with positions relative to Pointe de Saint-Joseph (4°57′N, 52°20′W)):

ENE of Banc du Macouria (2 miles NW). This part of the access channel is marked by light-buoys (port hand). Thence:

3 WSW of Roche Aimable (2¾ cables WNW), which dries; C6 Light-buoy (port hand) is moored 4½ cables WNW of the rock. Thence:
WSW of Roche Maillard (4 cables WSW), a dangerous rock not named on the chart, thence:
WSW of the harbour (4 cables SSW) at Cayenne, thence:

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4 ENE of Le Cheval Blanc Light (white pylon, red top, marked CH–B, 15 m in height) (1 mile SSW); foul ground, with the ruins of fishtraps on it, extends 5 cables W from Le Cheval Blanc to the drying bank on the W side of the river entrance. And:
WSW of Roche Montesquiou (1 mile S), a dangerous rock; a stranded wreck lies close SW of the rock.

5 The track then leads S, passing (with positions relative to Pointe de Saint-Joseph):
E of a wreck (1¼ miles SSW), with a depth of 2·1 m over it; the wreck is marked on its S side by V Buoy (starboard hand). And:
W of Roche Paule (1¼ miles SSW), marked on its SW side by C8 Light-buoy (port hand); fish traps lie N and S of the rock.

6 Thence the track leads SW in mid-channel to Le Larivot (2¾ miles SSW).

Berths

2.57

1 **Anchorages:**
Cayenne. Anchorage, as shown on the chart, is obtainable about 4½ cables WSW of Fort Cépérou Light (4°56′N, 52°20′W), off the small harbour at Cayenne. It is exposed to swell and the streams are strong, but the holding ground is good.

2 Le Larivot. If the swell conditions are too bad off Cayenne, a vessel can anchor N of the pier at Le Larivot (4°54′N, 52°22′W), care being taken to avoid submarine cables laid across the river close upstream of the pier; attention is also drawn to the bridge which spans the river W of Le Larivot.

3 **Alongside berths:**
Cayenne. At the town, 2 cables WSW of Fort Cépérou Light, there is an L–shaped pier 114 m long at its head, with charted depths of less than 1 m alongside; the bottom is soft mud and vessels take the ground safely at LW, but a heavy scend may occur here. Berthing is difficult for vessels of maximum draught. The tidal stream can attain 3 kn, especially when out-going.

4 Le Larivot. There are two piers at Le Larivot. The W-most pier has a berthing length of 100 m and a charted depth of 3 m alongside; the E pier also has a berthing length of 100 m. A private pier, 80 m downstream of the E pier, is used by fishing vessels.

Port services

2.58

1 **Facilities.** Hospital services available.
Supplies: fresh water available; fresh provisions obtainable in small quantities.
Communications. Rochambeau Airport provides scheduled air services.

2 **Harbour regulation.** It is forbidden to anchor within 20 m of the piers at Le Larivot.

Small craft

2.59

1 Rivière de Cayenne above Le Larivot is accessible by small craft, although a bridge, the vertical clearance of which is not known, spans the river close W of Le Larivot. On the N side of the river, 1 mile WSW of Le Larivot, stands Pointe du Petit Cayenne; it is marked by a beacon. Rivière de Montsinéry flows into the river from W on the N side of the point.

2 Rivière de Cayenne divides into two branches about 8 miles above Le Larivot. Rivière Tonégrande flows from W and is narrow, but has no snags for about 2 miles upstream. Rivière des Cascades, flowing from SSW, is navigable for about 10 miles with depths from 4 to 5 m in the fairway.

Fleuve Kourou and approaches

French Charts 7480, 7481 (see 1.16)

General information

2.60

1 **Description.** Fleuve Kourou is approached from the N through an access channel which leads across an outer bar of hard mud, over which the sea usually breaks, and an inner bar of soft mud. The river is then entered SE of Pointe des Roches (5°09′N, 52°38′W), 8 miles SSW of Îles du Salut. The river owes its importance to the small port of Pariacabo (2.62) 2¾ miles within the entrance.

2 **Controlling depth.** In 1995 the access channel was maintained to a depth of 2·5 m.

Tidal levels. In the entrance to Fleuve Kourou there is a mean spring range of about 2·2 m and a mean neap range of about 1·2 m. For further information on tides see the *Admiralty Tide Tables.*

3 **Rocket firing.** A light (mast, elevation 100 m, flashing white morse J, with obstruction lights) (5°12′N, 52°44′W), indicating that rocket firing is in progress, is exhibited from a position W of Pointe Charlotte. A day signal (four spheres, black, yellow, yellow, white) is also displayed from a position approximately 1000 m SE of Pointe Charlotte. See also 2.49.

4 **Pilotage.** It is compulsory and provided by the pilot station at Dégrad des Cannes (2.21). Requests should be sent 48 hours in advance. The pilot boards in the vicinity of KO Light-buoy (5°13′N, 52°36′W). For further information see *Admiralty List of Radio Signals Volume 6 (5).*

5 **Anchorage.** Vessels can obtain anchorage N of KO Light-buoy (5°13′N, 52°36′W) while awaiting the pilot or, for a prolonged wait, S of Îles du Salut. Vessels of 1600 grt or more carrying hydrocarbons or hazardous materials should anchor in the tanker anchorage (2.66), off Île Royale.
Anchorage is prohibited in the vicinity of a submarine cable laid across Fleuve Kourou, about 1 mile within Pointe des Roches (5°09′N, 52°38′W).

6 **Tidal streams.** In the entrance channel, in the vicinity of K5 Light-buoy (5°10′·5N, 52°37′·2W), the out-going stream sets NE; the in-going stream sets SW. The rate may exceed 1 kn at neaps and 2 kn at springs.

Landmark:
Satellite launching towers (5°14′N, 52°46′W) (2.69).

Major light:
Île Royale Light (5°17′N, 52°36′W) (2.50).

Directions

2.61

1 From the vicinity of KO Light-buoy (safe water) (5°13′N, 52°36′W), noting an obstruction with a depth of 4·5 m over it about 2 miles NNE, the track leads SSW through a maintained channel marked by paired light-buoys (lateral), passing (with positions relative to Pointe des Roches (5°09′N, 52°38′W)):

2 WNW of Roche La Folle (9 cables NNE), marked on its W side by a beacon, thence:
ESE of Roche Vitalo (7 cables N), thence:

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WNW of Roche Ariana (3½ cables NE), a dangerous rock marked by K6 Light-buoy (port hand), thence:

3 ESE of Pointe des Roches, a low rocky point, on which stands a monument (elevation 19 m) to Dreyfus. At this point the NW side of the channel is marked by K9 Light-buoy (starboard hand).

The track then leads SW, for 1¼ miles, and thence WNW, for a farther 1½ miles, in mid-channel to Pariacabo; the channel is marked in places by light-buoys and buoys.

Pariacabo

2.62

1 **Position and function.** Pariacabo (5°09′N, 52°40′W) is situated on the N bank of Fleuve Kourou close E of a road bridge spanning the river. The port serves Centre Spatial Guyanais de Kourou, the European Space Agency satellite launching station.

Traffic. In 1997 the port was used by 26 vessels with a total of 119 094 dwt.

2 **Berth.** The wharf at Pariacabo is 105 m long with a depth of 3·6 m alongside. It handles Ro-Ro vessels and tankers.

Supplies: fresh water available in an emergency; fresh provisions.

Communications. Rochambeau Airport at Cayenne.

Harbour regulation. It is forbidden for a dry cargo vessel and an oil tanker to be alongside simultaneously.

Îles de Salut

French Chart 7481 (see 1.16)

General information

2.63

1 **Description.** Îles du Salut (5°17′N, 52°36′W), three in number, form a good landfall for vessels making the coast of Guyane Française; they were formerly places of deportation. Île Royale, the W and largest island, is 66 m high; the prison buildings, encroached by vegetation, and the hospital and church can be distinguished on the summit of Île Royale from the offing. Île du Diable, the N island also known as Devil's Island, and most of Île Saint Joseph, the S island, are covered with high and dense vegetation.

2 The islands afford the most important anchorage off the coast of Guyane Française and almost the only one which can offer shelter between Río Orinoco and Rio Amazonas.

Pilotage. Provided by the pilot station at Dégrad des Cannes (2.21). The pilot boards in the vicinity of 5°18′·6N, 52°33′·9W, 1¼ miles NE of Île du Diable.

3 **Tidal levels.** At Îles du Salut there is a mean spring range of about 2·1 m and a mean neap range of about 1·1 m. For further information on tides see the *Admiralty Tide Tables.*

Current. The current sets generally NW. A SW-going current with rates from 1 to 3 kn, and more during NE winds, passes between Île Royale and Île Saint Joseph, then becomes WSW and weakens S of Île Royale. Within ½ cable of the S side of Île Royale, there is a weak E-going current.

4 **Tidal streams.** In a position 1 mile S of Îles du Salut, the in-going tidal stream flows WNW with a rate of 0·3 kn; the out-going tidal stream flows NNW with a rate of 1 kn.

Major light:

Île Royale Light (5°17′N, 52°36′W) (2.50).

Directions

2.64

1 **Approach.** There are no specific directions for approaching Îles du Salut although attention is drawn to the following:

Banks which extend NE from Île du Diable and ENE from Île Saint Joseph; breakers occur on these banks, especially from December to June.

2 Banc du Lamotte-Piquet, on which there are rocky patches with a least depth of 3 m over them, lying from 7½ cables to 1¾ miles NNW of Île Royale Light. Banc de L'Alouette, situated 2 cables NE of the N extremity of Banc du Lamotte-Piquet, has a least depth of 4·5 m over it.

3 **Passage between Île Royale and Île Saint Joseph.** This passage is narrow and dangerous due to strong currents. It is also encumbered by a rock, with a depth of 4 m over it, lying almost in the centre, and by two drying rocks lying near the fairway on the N side; on the S side of the fairway there is a rock, with a depth of 2 m or less over it. A sea, making boat work difficult, often occurs in the passage.

Anchorage – Île Saint Joseph

2.65

1 Vessels drawing up to 7 m may pass not less than 3 cables E of Île Saint Joseph and anchor off the bay on the S side of this island, about 4 cables from the shore in a depth of 11 m, over hard mud. This anchorage has little shelter from swell and winds from NE, and communication with the shore is difficult.

Anchorage and landing – Île Royale

2.66

1 **Anchorages.** There are designated anchorages for tankers and for other vessels, as shown on French Chart 7481, with Île Royale Light bearing 054°, distant 4¾ cables, and 355°, distant 5 cables, respectively, off the bay on the S side of Île Royale. They provide better anchorage than that off Île Saint Joseph; it is recommended that vessels approaching from the N should pass E of Îles du Salut before making for the anchorages.

2 A swell is only felt at these anchorages during NE winds, which occur for 5 months in the year; it passes between Île Royale and Île Saint Joseph, and is generally from 1·0 to 1·5 m high, but is sometimes from 2·5 to 3·0 m high.

Smaller vessels can anchor closer inshore with Île Royale Light bearing 340° and on the alignment (062½°) of the leading lights described later, in a depth of about 5 m.

3 **Landing.** It is always possible to land in the bay on the S side of Île Royale. Landing places on the E side of the bay are sheltered by the pier extending SW from its E entrance point. From the vicinity of the anchorages the alignment (062½°) of the following leading lights leads towards the pier:

4 Front light (white pyramidal tower, green top, 7 m in height) (5°17′·0N, 52°35′·3W), exhibited from the pierhead at the E end of the bay.

Rear light (similar structure, 4 m in height) (150 m from front light), exhibited from the SE point of the island.

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ÎLES DU SALUT TO FLEUVE MARONI

General information

Chart 517

Route

2.67

1 From a position NE of Île du Diable (5°18′N, 52°35′W), the N-most island of Îles du Salut (2.63), the offshore route leads 88 miles NW, to a position about 25 miles NNE of Pointe Française (5°45′N, 53°57′W), the E entrance point of Fleuve Maroni (2.73).

2 It is advisable to keep well offshore as mudbanks, with depths of less than 5 m, extend more than 10 miles from the coast in places.

Topography

2.68

1 Between Pointe Charlotte (5°12′N, 52°40′W) and Pointe Isère, 80 miles WNW, the low coast is backed by land rising gradually towards the interior. It is broken by the mouths of several shallow rivers, the deepest of which is Rivière de Sinnamary (2.71).

Principal marks

2.69

1 **Landmarks:**

Meteorological station mast (red and white bands, 100 m high) standing 3¼ miles W of Pointe Charlotte (5°12′N, 52°40′W).

Satellite launching towers (60 m in height) of the Centre Spatial Guyanais de Kourou (5°14′N, 52°46′W); the towers give a good radar response at ranges exceeding 25 miles. The site can also be seen at night as it is highly lit.

2 Montagne du Diable (5°10′N, 52°55′W), a prominent conical hill 15 miles W of Pointe Charlotte; it is visible for about 20 miles in clear weather.

Radio mast (5°40′N, 53°47′W) close N of Mana; it is radar conspicuous.

3 **Major light:**

Île Royale Light (5°17′N, 52°36′W) (2.50).

Directions

(continued from 2.51)

2.70

1 From a position NE of Île du Diable (5°18′N, 52°35′W) the track leads NW, passing (with positions relative to Île Royale Light (5°17′N, 52°36′W)):

Clear of, depending on draught, a wreck (10 miles NNE) with a depth of 20 m over it, thence:

2 NE of a dangerous wreck (11½ miles NW). Inshore of the wreck lies Battures de Malmanoury, a line of rocks, mostly above-water and whitish in appearance, extending up to 2 miles off the coast. Thence:

3 NE of a patch (26 miles NW), with a depth of 3·7 m over it, thence:

NE of an extensive shoal (34 miles NW), with a least depth of 3·3 m over it, lying 7 miles off the mouth of Rivière de Sinnamary. A stranded wreck lies on the NW edge of this shoal. Thence:

4 NE of a dangerous wreck (66 miles WNW), lying in an area where less water than charted was reported in 1921; other dangerous wrecks lie closer inshore.

The track then leads to a position about 25 miles NNE of Pointe Française (85 miles WNW).

(Directions continue, for the offshore route at 2.83 and for entering Fleuve Maroni at 2.75)

Minor rivers

Chart 517, French Chart 5884 (see 1.16)

Rivière de Sinnamary

2.71

1 **Description.** Rivière de Sinnamary is entered close W of Pointe de Palétuviers (5°27′N, 53°00′W). The entrance is narrow and difficult to distinguish between banks covered with vegetation, but it may be identified by the higher mangroves on the E side. Îlot Corossoni, on the W side of the entrance 1¼ miles W of Pointe des Palétuviers, is not easily identified as it is covered with mangroves merging with those on the mainland.

2 **Depths.** In the outer approaches to the river a rock, with a depth of 2 m over it, was reported in 1931 to lie about 4 miles N of Pointe de Palétuviers; its existence is doubtful. The bar of Rivière de Sinnamary has depths of less than 1 m over it and consists of soft mud, but is liable to change. There are also rocky patches in the channel near Pointe de Palétuviers.

3 **Tidal levels:**

Off Îlot Brigandin, 7 cables S of Pointe de Palétuviers, there is a mean spring range of about 1·9 m and a mean neap range of about 1·3 m.

At Sinnamary (5°23′N, 52°58′W) there is a mean spring range of about 1·7 m and a mean neap range of about 1·2 m.

For further information on tides see the *Admiralty Tide Tables.*

4 **Local knowledge.** The river should not be entered without local knowledge.

Sinnamary. The village of Sinnamary stands on the E bank of the river about 6 miles within the entrance. Fresh provisions can be obtained in small quantities and there is communication by sea and road with Cayenne.

5 **Anchorage.** Small craft may anchor off Sinnamary, in a depth of about 6 m.

Chart 517, French Chart 5883 (see 1.16)

Fleuve Mana

2.72

1 **Description.** Fleuve Mana is entered between Pointe Française (5°45′N, 53°57′W) and Pointe Isère 2½ miles ENE. The river is frequented only by local coastal vessels which can reach Mana, a settlement 10 miles from its mouth. Small craft can enter Rivière Acarouany, 3 miles above Mana, and ascend this tributary for about 8 miles.

Tidal levels. For tidal levels off Pointe Française see 2.73.

2 **Local knowledge** is essential.

Directions. The river is approached from NNE over a bar, with depths from 0·3 to 1·2 m, E of Banc Français (5°49′N, 53°56′W). The bar should not be attempted within 2 hours on either side of LW. The entrance to the river is invisible from the sea, but visible on radar. Within the river the left bank should be avoided as it is encumbered with dangerous tree trunks which are covered at HW.

3 **Useful mark:**

Radio mast situated N of the village of Mana; shows up well on radar.

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Fleuve Maroni

Chart 517, French Charts 5883, 6058 (see 1.16)

General information

2.73

1 **Description.** Fleuve Maroni, known to the Dutch as Marowijne Rivier, forms the international boundary between Guyane Française and Suriname. The river is entered between Pointe Française (5°45′N, 53°57′W) and Hoek Galibi (Pointe Galibi on French Chart 5883), 2 miles W, and gives access to the settlements of Saint-Laurent du Maroni (5°30′N, 54°02′W), in Guyane Française, and Albina (5°30′N, 54°04′W) in Suriname.

2 **Controlling depths.** The channel leading over the bar into the entrance of Fleuve Maroni has a depth of 1·5 m; however the bar undergoes frequent change and the latest depth should be ascertained before crossing. Within the river, in 1994, the least depth in the channel as far as Saint-Laurent du Maroni was reported to be 2·2 m.

At MHW, vessels with a draught up to 4·5 m can ascend 15 miles to the small ports of Saint-Laurent du Maroni and Albina.

3 **Tidal levels:**

Off Pointe Française (5°45′N, 53°57′W), there is a mean spring range of about 2·3 m and a mean neap range of about 1·1 m.

At Saint-Laurent du Maroni there is a mean spring range of about 2·2 m and a mean neap range of about 1·5 m.

An automatic tide-gauge is situated on the W side of the approach channel to Fleuve Maroni, 6 miles NNE of Hoek Galibi. For further information on tides see the *Admiralty Tide Tables.*

4 **Pilotage.** For Saint-Laurent du Maroni pilotage is compulsory and available during daylight hours only. Requests for pilots should be made through the pilot station at Dégrad des Cannes (2.21) 48 hours before arrival at the Fleuve Maroni bar stating draught. A vessel should reach SL Light-buoy, in the vicinity of 5°53′N, 53°53′W, where the pilot boards, at the time of HW at Îles du Salut (2.63).

5 For vessels bound for Albina pilotage assistance is available from Paramaribo (2.97). For further details see *Admiralty List of Radio Signals Volume 6 (5).*

Waiting anchorage. Vessels awaiting a pilot can obtain anchorage near SL Light-buoy where boarding is not difficult except between November and June. Vessels of 1600 grt or more carrying hydrocarbons or hazardous materials should anchor in a circular area, radius 5 cables, centred 2 m NE of SL Light-buoy.

6 **Local knowledge.** The bar in the approach to the river is liable to frequent change and it should not be crossed without local knowledge.

Current. The generally NW-going current is very noticeable seaward of SL Light-buoy. In the entrance abreast Banc Français (5°49′N, 53°56′W) the outflow from the river can attain a rate of 3 kn.

2.74

1 **Landmarks:**

Kaaimanshoofd (Cape des Caïmans on French Chart 5883) (5°50′N, 54°02′W) on the W side of the approach to Fleuve Maroni; identifiable by a high dark clump of trees.

2 The entrance to Fleuve Maroni, marked by a distinct gap in the line of trees along the coast.

The E gable of the former Yalinapo Health Centre situated on the N extremity of Pointe Française (5°45′N, 53°57′W).

Directions

(continued from 2.70)

2.75

1 **Caution.** In 2004 it was reported that the light-buoys marking the entrance channel were unreliable.

Track. From a position about 25 miles NNE of Pointe Française (5°45′N, 53°57′W) the track leads SSW, passing ESE of a wreck (6°06′N, 53°54′W) with a depth of 2·7 m over it, to the pilot boarding area in the vicinity of 5°53′N, 53°53′W, near SL Light-buoy (safe water).

2 Thence the track leads SW through a channel, 200 m wide, marked by light-buoys (lateral) which leads across the bar in the vicinity of Banc Français (5°49′N, 53°56′W). The bar, which consists of hard sand, often has a fairly heavy surf on it and a strong undertow.

The track then leads SSW, passing (with positions relative to Hoek Galibi (5°45′N, 53°59′W)):

3 ESE of Tijger Bank (1½ miles NNE), which dries; a stranded wreck lies off the SE side of the bank. Thence:

WNW of a drying bank (3 miles ENE) lying close N of Pointe Française, thence:

Close WNW of Pointe Française (2½ miles E).

4 The track within the entrance then lies E of some drying banks, about 1 mile W of Pointe Panato (2¼ miles SE), and then E of Îles Arouba which occupy most of the river 8 miles SSW of Pointe Française. The fairway from the entrance to Saint-Laurent du Maroni is marked by light-buoys (lateral) and buoys (lateral) which are moved to conform with frequent changes in the channel.

5 **Useful mark:**

Light (5°30′N, 54°02′W) exhibited from the wreck of the *Edith Cavell*, lying close NW of Saint-Laurent du Maroni.

Anchorage

2.76

1 Good anchorage can be obtained in Fleuve Maroni 5 cables NW of Pointe Panato (5°43′N, 53°58′W) in depths from 7 to 8 m.

Saint-Laurent du Maroni

2.77

1 **Description.** Saint-Laurent du Maroni (5°30′N, 54°02′W), with a population of about 5000, is situated on the E bank of Fleuve Maroni, 15 miles within its entrance. Directions from seaward to Saint-Laurent du Maroni are given at 2.75.

Traffic. In 1997 the port was used by five vessels totalling 26 045 dwt.

2 **Berths:**

Quay 120 m in length at the town.

Pier, T–shaped, with a berthing length of 120 m, at the N end of the town; used by fishing vessels.

Other facility. Hospital facilities are available.

3 **Supplies:** fuel in small quantities; fresh water at the quay; fresh provisions in limited quantities.

Communications: connected to Cayenne by road; ferry service to Albina.

Albina

2.78

1 Albina (5°30′N, 54°04′W) is situated on the W bank of Fleuve Maroni opposite Saint-Laurent du Maroni. It is connected by road to Paramaribo and there is a ferry service to Saint-Laurent du Maroni. There is a wharf at the town where vessels take the ground at LW; reported 2003 to be no longer in use.

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SURINAME

GENERAL INFORMATION

Chart 517

Area covered

2.79

1 This section covers the coastal waters of Suriname from Fleuve Maroni (5°45′N, 53°58′W), to Bluffpunt (5°57′N, 57°04′W), the E entrance point of Corentyn River, 188 miles W. It is arranged as follows:

Fleuve Maroni to the approaches to Suriname Rivier (2.81).

Approaches to Suriname Rivier including Commewijne Rivier and Cottica Rivier (2.84)

Paramaribo and upper reaches of Suriname Rivier (2.97).

From the approaches to Suriname Rivier to Corentyn River (2.128).

Rescue

2.80

1 For information on rescue services see 1.60.

FLEUVE MARONI TO THE APPROACHES TO SURINAME RIVIER

General information

Chart 517

Route

2.81

1 From a position about 25 miles NNE of Pointe Française (5°45′N, 53°57′W), the E entrance point of Fleuve Maroni, the offshore route leads 86 miles WNW along the coast of Suriname to the vicinity of 6°20′N, 55°12′W, off the entrance to Suriname Rivier.

Topography

2.82

1 Between Hoek Galibi (5°45′N, 53°59′W), the W entrance point of Fleuve Maroni and Braamspunt, 70 miles WNW, the coast is low and fronted by mudflats.

Directions

(continued from 2.70)

2.83

1 From a position about 25 miles NNE of Pointe Française (5°45′N, 53°57′W) the track leads WNW, passing (with positions relative to Hoek Galibi (5°45′N, 53°59′W)):

NNE of a wreck (21 miles NNE), with a depth of 2·7 m over it. Kaaimanshoofd (2.74), 5 miles NNW of Hoek Galibi, should be given a wide berth as depths less than 5·5 m have been reported to extend up to 15 miles off the point. Thence:

2 NNE of a patch (27 miles NW) reported in 1989, with a depth of 6·7 m over it. A dangerous wreck lies 4 miles SSW of this patch. Thence:

NNE of a shoal (54 miles NW) reported in 1989 to have a depth of 6·4 m over it, thence:

SSW of a dangerous wreck (60 miles NW).

3 The track then leads to the vicinity of 6°20′N, 55°12′W off the entrance to Suriname Rivier. A dangerous wreck lies 6 miles N of this position and another one lies 6 miles SW.

(Directions continue, for the offshore route at 2.131 and for entering Suriname Rivier at 2.93)

APPROACHES TO SURINAME RIVIER INCLUDING COMMEWIJNE RIVIER AND COTTICA RIVIER

General information

Charts 517, 99 plans of Suriname Rivier

Route

2.84

1 From the vicinity of 6°20′N, 55°12′W the route leads S for 15 miles to the pilot boarding position in the vicinity of LS Light-buoy (6°05′N, 55°13′W). The route then leads S and SE through a buoyed channel, for a farther 14 miles, to a position about 1 mile NW of Nieuw Amsterdam (5°53′N, 55°05′W), off the entrance (5°54′N, 55°06′W) to Commewijne Rivier.

Topography

2.85

1 Suriname Rivier, the principal river of Suriname, is entered 2 miles SW of Braamspunt (5°58′N, 55°10′W). Braamspunt is low, but well defined; the shore S and W of the river entrance, being very low and covered with mangroves, is difficult to see from the offing. The river leads to the town of Paramaribo (2.97).

Depths

2.86

1 The bar (6°04′N, 55°13′W) had a least depth of 4·6 m (15 ft) over it in 2000. With the tide the depths over the bar vary from 6·25 to 7·31 m (20½ to 24 ft) at neaps and springs, respectively.

Tidal levels

2.87

1 In the entrance to Suriname Rivier there is a mean spring range of about 2·3 m and a mean neap range of about 1·1 m. For further information on tides see the *Admiralty Tide Tables*.

Pilotage

2.88

1 Pilotage is compulsory for vessels of more than 50 grt. A pilot should be requested from the Harbour Master through the port radio station at Paramaribo, giving 36, 24 and 12 hours notice of ETA along with the vessel's draught and height, for checking there is sufficient vertical clearance under the bridge (2.102) at Paramaribo. The ETA, including the vessel's draught, should be confirmed or amended 12 hours prior to arrival; the pilot will only be ordered after the receipt of this last message.

2 The pilot boards near LS Light-buoy (safe water) (6°05′N, 55°13′W). For further details see *Admiralty List of Radio Signals Volume 6 (5)*.

Waiting anchorage

2.89

1 Anchorage can be obtained, if awaiting a pilot, 1 mile N of LS Light-buoy in a depth of 4·6 m (15 ft). Large vessels may obtain anchorage between 3 and 5 miles N of this buoy.

Local knowledge

2.90

1 Local knowledge is essential for approaching Suriname Rivier as the depths are subject to frequent change and buoyage is altered accordingly.

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Natural conditions

2.91

1 **Tidal streams.** Off the entrance to the river the in-going tidal stream is W-going; the out-going stream is NW-going.

Rollers. Off the entrance to Suriname Rivier rollers occur between December and March.

Principal marks

2.92

1 **Landmarks:**

Television mast (obstruction lights, 110 m (361 ft) high) (5°50′·1N, 55°09′·6W).

Radio mast (5°48′·5N, 55°10′·4W) with an elevation of 100 m (328 ft).

2 **Major lights:**

Entrance Light (mast, elevation 49 m (160 ft)) (5°53′·2N, 55°13′·1W). Three red lights, disposed vertically, are also exhibited from the mast.

Paramaribo Light (radio mast, elevation 89 m (292 ft)) (5°50′·8N, 55°09′·3W).

3 Aero light (radio mast, elevation 77 m (252 ft)) (5°49′·5N, 55°09′·4W).

Directions

(continued from 2.83)

2.93

1 **Caution.** Numerous dangerous wrecks lie in the N and E approaches to Suriname Rivier; the positions of the known wrecks are shown on the charts.

Track. From the vicinity of 6°20′N, 55′12′W the track leads S to the pilot station, passing (with positions relative to Entrance Light (5°53′·2N, 55°13′·1W)):

2 E of a dangerous wreck (23 miles NNW), thence:

E of another dangerous wreck (19 miles NNW), thence:

Clear of LS Light-buoy (safe water) (11½ miles N).

3 The line of bearing 180½° of the Entrance Light then leads S through a buoyed (lateral) channel, whilst allowing for the tidal stream, until abreast of S8 Light-buoy (port hand) (5¾ miles N). The track then leads SSE, for a short distance, to S10 Light-buoy (port hand) (4¼ miles NNE), and thence SE through another buoyed (lateral) channel to a position about 1 mile NW of Nieuw Amsterdam (7½ miles E).

4 **Useful mark:**

Light-beacon (black metal framework tower, white top) marking the edge of Vissers Bank.

(Directions continue, for Commewijne Rivier at 2.95 and for Paramaribo at 2.118)

Commewijne Rivier and Cottica Rivier

General information

2.94

1 **Description.** Commewijne Rivier can be ascended by ocean-going vessels, in a least depth of 3·3 m (11 ft), for 17 miles to Sommelsdijk (5°51′N, 54°52′W), situated at its junction with Cottica Rivier, thence for another 26 miles to Cassewinica Kreek; coastal vessels up to 55 m in length can proceed 19 miles farther up Commewijne Rivier.

2 Cottica Rivier, which is ¾ cable wide at its junction with Commewijne Rivier, is joined 53 miles upstream by Coermotibo Kreek (5°45′N, 54°24′W) from E and by Boven Cottica from S. At the town of Moengo (2.96), situated 11 miles up Boven Cottica, the navigable channel is only 25 to 30 m wide.

3 **Pilotage.** For vessels of more than 50 grt pilotage is compulsory. For further information see 2.88.

Directions

(continued from 2.93)

2.95

1 **Commewijne Rivier.** From a position about 1 mile NW of Nieuw Amsterdam (5°53′N, 55°06′W) the track leads initially E over a bar of hard mud with a least depth of about 3·3 m (11 ft) (1999), marked by light-beacons, into the river. Above the mouth of the Commewijne Rivier to Sommelsdijk no specific directions are available, local knowledge being essential.

2 **Cottica Rivier.** There is a least depth of 7·2 m (24 ft) in Cottica Rivier from Sommelsdijk to Moengo; the bottom is clay and mud throughout. The wooded banks are steep-to, allowing vessels to lie close to them in most places. Cottica Rivier has many sharp bends which require careful manoeuvring.

3 Vessels more than 110 m in length are assisted by a tug above Koopmans Kreek, situated 29 miles downstream of Moengo. The junction of the river with Koopmans Kreek is the last place where a vessel proceeding upstream can anchor to allow a vessel leaving Moengo to pass.

Moengo

2.96

1 **Description.** Moengo (5°38′N, 54°24′W) is a bauxite mining town situated on the E bank of Boven Cottica 81 miles above the mouth of Commewijne Rivier. In 2003 it was reported that the loading berths at Moengo were not in use.

2 **Limiting conditions.** Vessels up to 160 m in length and 15 850 dwt can be accommodated at the port. Draught depends on the depth of water over the bar of Suriname Rivier. A turning basin, situated close downstream of the town, is 300 m in length.

3 **Tugs.** Two tugs are available.

Berths. The Suriname Aluminium Company owns two piers 131 and 37 m in length, both with depths of 7·3 m alongside.

Repairs. Minor repairs effected by the aluminium company's workshop.

4 **Other facility.** Hospital available.

Supplies: fuel oil supplied in small quantities; fresh water available in limited quantities; provisions not obtainable.

Communication. An airport serves the town. An international airport, Johann Pengal, is situated about 100 km W from Moengo.

PARAMARIBO AND UPPER REACHES OF SURINAME RIVIER

General information

Charts 517, 99 plans of Suriname Rivier

Position

2.97

1 Paramaribo (5°50′N, 55°10′W), the capital and seat of government of Suriname, stands on the W bank of Suriname Rivier 12 miles above its mouth.

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Function
2.98

1 Paramaribo, with a population of about 300 000 in 2003, is the main port for Suriname. Imports include general cargo, containers, flour, cement and petrochemicals.

Traffic
2.99

1 About 2000 vessels visit the port each year with a total of 2 300 000 grt.

Port Authority
2.100

1 **Address.** The Maritime Authority Suriname (MAS), Cornelis Jongbawstreet 2, PO Box 888, Paramaribo, Suriname.

Web site. www.mas.sr.

Limiting conditions

Controlling depths
2.101

1 The controlling depth for the port is the depth over the bar of the Suriname Rivier; see 2.86.

Vertical clearance
2.102

1 A bridge, with a vertical clearance of 41 m (134 ft), spans the river 5 cables S of Hoek van Meerzorg (5°49′N, 55°09′W). Mariners are advised that before approaching the bridge, both anchors are to be prepared for letting go, with crew standing by on the forecastle.

Deepest and longest berths
2.103

1 Deepest berth. Shell Oil Jetty (2.119).
Longest berth. New Harbour (2.119).

Tidal levels
2.104

1 At Paramaribo there is a mean spring range of about 2·1 m and a mean neap range of about 1·2 m. For further information on tides see *Admiralty Tide Tables*.

Density of water
2.105

1 1·000 g/cm^3.

Maximum size of vessel handled
2.106

1 Vessels up to 47 500 dwt with a maximum LOA of 219 m are handled.

Arrival information

Port radio
2.107

1 There is a port radio station at Paramaribo.

Notice of ETA required
2.108

1 Vessels should send an ETA 36, 24 and 12 hours prior to arrival at the LS Light-buoy (6°05′N, 55°13′W).

Anchorages
2.109

1 Vessels awaiting a berth alongside can anchor off Paramaribo in depths from 5 to 10 m (16 to 33 ft), avoiding a submarine power cable laid across the river WNW from Hoek van Meerzorg (5°49′N, 55°09′W).

2 Vessels leaving Paramaribo can anchor 5 miles below the town if required to await HW, avoiding submarine cables laid across the river NE from Leonsberg (5°52′N, 55°06′W); attention is also drawn to an obstruction in the vicinity of this anchorage opposite Suzannasdaal (5°52′N, 55°06′W), as shown on the chart.

Submarine cables
2.110

1 Submarine cables are laid across the river in the following positions:

North-east from Leonsberg (5°52′N, 55°06′W).
West-north-west from Hoek van Meerzorg (5°49′N, 55°09′W).
North-east from Suhoza (5°47′N, 55°10′W) above the bridge.

2 For further information on submarine cables see 1.42.



Suriname River – Leonsberg Jetty from N (2.109)

(Original dated 1994)

(Photograph – Crown Copyright)

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Pilotage

2.111

1 See 2.88.

Tugs

2.112

1 Tugs are not available.

Quarantine

2.113

1 Pratique will be granted after the vessel has been cleared by customs and cannot be applied for by radio.

Harbour

General layout

2.114

1 There are several berths at Paramaribo all situated on the W bank of the Suriname Rivier opposite Hoek van Meerzorg (5°49′N, 55°09′W).

Hazards

2.115

1 **Fish farms.** Fishing stakes exist in the river, but lie outside the main channel.

Snakes. If at anchor, care should be taken to prevent water snakes, which are poisonous, getting on board up the cables.

Climatic table

2.116

1 See 1.167 and 1.169.

Principal marks

2.117

1 See 2.92.

Directions for entering harbour

(continued from 2.93)

2.118

1 From a position about 1 mile NW of Nieuw Amsterdam (5°53′N, 55°06′W) the track is initially marked by the following set of leading lights:

Front light (red diamond, white bands, on red hut on piles) (5°54′·4N, 55°06′·7W).

Rear light (red diamond, white bands, on pyramidal tower on piles) (227 m from front light).

2 The alignment (332½°), astern, of these lights leads SE for about 1¼ miles passing close SW of NA Light-buoy (W cardinal), moored 5 cables NW of Nieuw Amsterdam. The track then leads S close along the E bank of Suriname Rivier, passing E of an obstruction lying 1½ miles S of the fort at Nieuw Amsterdam, but not nearer to the bank than 1½ cables as within that distance there are hard patches with less depths.

3 Thence the track leads SW and W to Paramaribo passing as close as possible SE and S of the pile light-beacons (black and white chequers) marking the SE edge of Jagtlustbank (5°50′N, 55°07′W).

(Directions continue for the Suriname Rivier above Paramaribo at 2.126)

Berths

2.119

1 The following berths are situated at Paramaribo:

Banana export pier; length 90 m with a minimum depth of 4·2 m alongside.

New Harbour; length 520 m with a depth at LWS of 4·0 m.

BEM Wharf; length 33 m with a minimum depth of 4·2 m alongside.

2 Flour pier; length 11 m with a minimum depth of 4·9 m alongside.

Vensur Cement Wharf; length 54 m with a minimum depth of 4·3 m alongside.

Government Oil Terminal; length 21 m with a minimum depth of 4·3 m alongside.

Shell Oil Jetty; length 9·6 m with a minimum depth of 5·0 m alongside.

3 **Caution.** It was reported in 1985 that the strong current in the river combined with suction from passing ships causes strain on berthing ropes.

Port services

Repairs

2.120

1 Repairs can be undertaken. Two floating dry docks are available displacing 800 and 400 tonnes; lifting capacity 100 tonnes.

Other facilities

2.121

1 Deratting and Deratting Exemption Certificates issued; hospital; fumigation possible.

Supplies

2.122

1 Fuel available; fresh water; provisions obtainable.

Communications

2.123

1 Scheduled air services are available at Johan Pengel International Airport, approximately 45 km S of the port. There is a small city airport for internal flights.

Harbour regulation

2.124

1 Vessels alongside must have their main engines ready at all times so that they can unberth at short notice. No repairs are permitted which would interfere with this requirement.

Suriname Rivier above Paramaribo

General information

2.125

1 **Description.** Vessels with a draught of 5·0 m (16 ft), and a maximum height of 41 m (134½ ft), can reach Paranam (2.127) where there is a private port, about 19 miles up the Suriname Rivier from Paramaribo, at any time.

2 **Vertical clearance.** An overhead cable, with a vertical clearance of 60 m (197 ft), spans the river close upstream of Paranam.

Pilotage. See 2.88.

Directions

(continued from 2.118)

2.126

1 There are no specific directions for navigating the river above Paramaribo. Local knowledge is essential as there are several dangerous wrecks in the river. The fairway is marked by light-buoys and light-beacons.

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a



Radio mast a

a



a Church Wreck

Suriname River – Paramaribo Harbour from S (2.97)

(Original dated 1994)

(Photograph – Crown Copyright)

Paranam

2.127

1 **Position and function.** Paranam (5°36′N, 55°05′W) is situated on the left bank of the Suriname Rivier 1 mile above Smalkalden. It is a bauxite mining town where aluminium is smeltered. At the town there is a private port from which bauxite and aluminium is exported; general cargo, containers and oil are also handled.

2 **Port Authority:**

Address. The Maritime Authority Suriname (MAS), Cornelis Jongbawstreet 2, PO Box 888, Paramaribo, Suriname.

Web site. www.mas.sr.

Port operations. Vessels usually arrive at the port, and leave, 2 to 3 hours before HW.

3 **Anchorages.** Vessels are not allowed to anchor in the vicinity of Paranam, causing obstruction to river traffic, but may do so at Groot Chatillon upstream of the first bend above Paranam; vessels may also anchor 3·3 miles downstream at Simonspolder. Loaded vessels, awaiting the next high tide to proceed to sea, use the anchorage off Suzannasdaal described at 2.109.

4 **Maximum size of vessel handled.** Vessels up to 47 500 dwt load to the maximum draught allowed for the outer bar of Suriname Rivier. Vessels up to 200 m in length can be turned near Paranam; there is ample depth in the turning basin and even if the vessel appears to be too close to the shore the over hanging trees prevent it from touching shallow waters.

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Berths. There are three wharves at Paranam as follows:

5 First wharf. This is a concrete wharf, length 107 m, with moorings 201 m apart; there is a depth of 9·1 m alongside.

Second wharf. Used for handling bauxite; it has a length of 126 m.

Third wharf. Length 361 m.

6 **Repairs** are available.

Other facilities: hospital at Paramaribo; Deratting and Deratting Exemption Certificates issued.

Supplies: fuel available in limited quantities; fresh water.

Communications. Johann Pengal International Airport, approximately 28 km from the port.

7 **Harbour regulation.** Vessels alongside must have their main engines ready at all times so that they can unberth at short notice. No repairs are permitted which would interfere with this requirement.

FROM THE APPROACHES TO SURINAME RIVIER TO CORENTYN RIVER

General information

Chart 517

Route

2.128

1 From the vicinity of 6°20′N, 55°12′W, off the entrance to Suriname Rivier, the offshore route leads about 106 miles W to the vicinity of 6°20′N, 56°55′W, in the outer approaches to Nickerie Rivier (2.137) and Corentyn River (2.148).

Topography

2.129

1 Between the entrance to Suriname Rivier and that of Nickerie Rivier, 110 miles W, the coast is low and covered with mangroves and forest. About mid-way along, the coast is indented by the common mouth of Saramacca Rivier and Coppename Rivier.

Principal mark

2.130

1 **Major light:**

Totness Aero Light (radio mast, obstruction lights) (5°53′N, 56°20′W).

Directions

(continued from 2.83)

2.131

1 From the vicinity of 6°20′N, 55°12′W the track leads W, passing (with positions relative to Totness Aero Light (5°53′N, 56°20′W)):

N of a dangerous wreck (68 miles NE); other dangerous wrecks lie 10 miles NNE and 5 miles S of this wreck. Thence:

2 N of another dangerous wreck (38 miles NE), lying on the edge of the coastal bank, thence:

N of the approaches (18 miles ENE) to Saramacca Rivier (2.135) and Coppename Rivier (2.136), thence:

S of a dangerous wreck (34 miles NNW), and:

3 N of Potosi Bank (14 miles NW), forming the main part of the coastal bank between Totness and Nickerie Rivier.

The track then leads to the vicinity of 6°20′N, 56°55′W.

(Directions continue, for Nickerie Rivier at 2.138, for Corentyn River at 2.149 and for the offshore route NW at 2.147)

Saramacca Rivier and Coppename Rivier

Charts 517, 99 plan of Coppename and Saramacca Rivieren

General information

2.132

1 **Description.** Saramacca Rivier and Coppename Rivier have a common mouth which is easily identified by Saramacca Punt (5°54′N, 55°58′W), its N entrance point which is prominent from W or NE.

Tidal levels. At the entrance to Coppename Rivier there is a mean spring range of about 2·8 m and a mean neap range of about 1·0 m. For further information on tides see *Admiralty Tide Tables*.

2 **Pilotage.** Pilots may be obtained from Paramaribo. For information regarding pilotage at Paramaribo see 2.88 and *Admiralty List of Radio Signals Volume 6 (5).*

Major light:

Aero light (radio mast, obstruction lights) (5°47′N, 55°54′W).

Directions

2.133

1 The entrances to Saramacca Rivier and Coppename Rivier are approached from the NW through a channel which leads close SW of Saramacca Punt to a position 1½ miles NW of Coppename Punt (5°49′N, 55°55′W), which is the common entrance point to both rivers.

2 Within the rivers there are no specific directions available. Local knowledge is essential.

Anchorage

2.134

1 Vessels may obtain anchorage 2¼ miles NW of Coppename Punt, as shown on the chart.

Saramacca Rivier

2.135

1 Saramacca Rivier has a least depth of 1·2 m (4 ft) in its entrance N of Coppename Punt. The river is navigable by small vessels for 63 miles to Gran Poika. At Uitkijk (5°47′N, 55°21′W), a canal connects the river with Suriname Rivier.

Coppename Rivier

2.136

1 **General information.** Coppename Rivier is navigable by vessels, the size of which are restricted by the vertical clearance of 7·0 m (23 ft), of the bridge spanning the river 3¼ miles SSE of Coppename Punt (5°49′N, 55°55′W), for 36 miles to Wayombo Rivier, and thence for a farther 37 miles to Arawarra Kreek which connects with Nickerie Rivier.

2 **Controlling depth.** In 1969, there was a least depth of 2·2 m (7 ft) over the bar near Batavia (5°42′N, 55°52′W), a settlement 7 miles above Coppename Punt.

Submarine cable. There is a submarine cable laid across the river in the vicinity of the bridge 3¼ miles SSE of Coppename Punt.

3 **Coesewijne Rivier**, the first tributary of Coppename Rivier, is entered 4 miles SSE of Coppename Punt and has depths of more than 4·5 m (15 ft), but it is only navigable for 12 miles due to impenetrable grass.

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Nickerie Rivier

Charts 517, 99 plan of Corentyn River compartment A

General information

2.137

1 **Description.** Nickerie Rivier is entered E of a Nickerie Punt (5°58′N, 57°01′W), a prominent point 3 miles ENE of Bluffpunt. The town of Nieuw Nickerie (2.139) stands on the SW bank of the river 2 miles within the entrance. The river is navigable for a considerable distance above Nieuw Nickerie, but the size of vessel is restricted by a lift bridge near Groot Henar, approximately 13 miles from Nieuw Nickerie.

2 **Controlling depth.** The bar off the entrance to Nickerie Rivier has a depth of about 2·0 m (6½ ft) over it and consists of very soft mud.

Vertical clearance. The lift bridge near Groot Henar has a vertical clearance of 10 m (33 ft); the lift part of the bridge no longer works.

3 **Pilotage.** For vessels exceeding 50 grt pilotage is compulsory. Vessels should send an ETA through Paramaribo Coast Radio Station 48 and 12 hours in advance to the agent who will arrange for a pilot. The pilot boards in the vicinity of COR–N Light-buoy (6°02′N, 57°01′W). For further details see *Admiralty Radio Signals Volume 6 (5).*

4 **Tidal streams.** Off the entrance to Nickerie Rivier the tidal streams are SW-going and NE-going, attaining rates of 4 kn at springs.

Major light:

Aero light (radio mast, obstruction lights) (5°57′N, 57°00′W) exhibited from Nieuw Nickerie.

Directions

(continued from 2.131)

2.138

1 From seaward, in the vicinity of 6°20′N, 56°55′W, the track leads SSW until the alignment (210½°) of Bluffpunt (5°57′N, 57°04′W) with the NW extremity of Papegaaien Eiland, 4¾ miles SSW, can be seen. Thence continue along the leading line until a position is reached close to COR–R Light-buoy (safe water) (6°02′N, 57°01′W).

2 The track then leads S, passing (with positions relative to Nickerie Punt (5°58′N, 57°01′W)):

Through a channel (2 miles N) marked by light-buoys (port hand). To the E of the channel lies Turtle Bank which dries and lies up to 2 miles offshore. Thence:

Close W of an obstruction (7 cables NNW); N6 Light-beacon stands close SE of the obstruction.

3 The track then leads into the river close E of the W entrance point (3 cables SW), marked by N1 Light-buoy (starboard hand). Within the river no specific directions are available.

Nieuw Nickerie

2.139

1 **Position and function.** Nieuw Nickerie (5°57′N, 57°00′W), with a population of about 35 577 in 2000, is a small river port which serves the NW part of Suriname. The main exports are bananas and rice; imports include cement, fertiliser and oil.

Traffic. In 1997 Nieuw Nickerie was used by 86 vessels with a total of 216 428 dwt.

2 **Port Authority.** Maritime Authority Suriname, Postbus 888, Cornelis Jongbawstraat 2, Paramaribo.

Tidal levels. At Nieuw Nickerie there is a mean spring range of about 2·8 m and a mean neap range of about 1·2 m. For further information on tides see *Admiralty Tide Tables*.

3 **Density of water.** 1·000 g/cm^3.

Maximum size of vessel handled. Length 114 m and up to 5924 dwt.

Pilotage. See 2.137.

Directions for entering harbour. See 2.138.

4 **Berths.** The following berths are situated on the SW side of the river:

Three jetties for small coastal tankers; the Esso jetty is the largest with a length of 33·4 m and a depth of 4·5 m alongside.

Government Wharf; length 120 m with a depth of 3·0 m alongside.

5 Suriname Navigation Co. Wharf; length 91 m with a depth of 3·0 m alongside.

Other facility. Hospital in town.

Supplies: fuel available in small quantities; fresh water; provisions.

6 **Communications.** Airport nearby with connections to Paramaribo. There is also a ferry service to Springlands Wharf (2.151), in Guyana.

Harbour regulation. Vessels alongside must have their main engines ready at all times so that they can unberth at short notice. No repairs are permitted which would interfere with this requirement.

Wageningen

2.140

1 **Position and function.** Wageningen (5°46′N, 56°41′W), a small town 24 miles up river from Nieuw Nickerie, can be reached by vessels able to cross the bar and up to 114 m in length. The main export is rice.

Port Authority. Maritime Authority Suriname, Postbus 888, Cornelis Jongbawstraat 2, Paramaribo.

2 **Density of water.** 1·000 g/cm^3.

Maximum size of vessel handled. Length 114 m and up to 5924 dwt.

Pilotage. See 2.137.

Directions for entering harbour. See 2.138.

Berth. There is one wharf at Wageningen; length 118 m.

3 **Other facility.** Hospital in town.

Supplies. Fresh water available.

Communications. The nearest airport is at Nieuw Nickerie.

Harbour regulation. Vessels alongside must have their main engines ready at all times so that they can unberth at short notice. No repairs are permitted which would interfere with this requirement.

Small craft

Totness

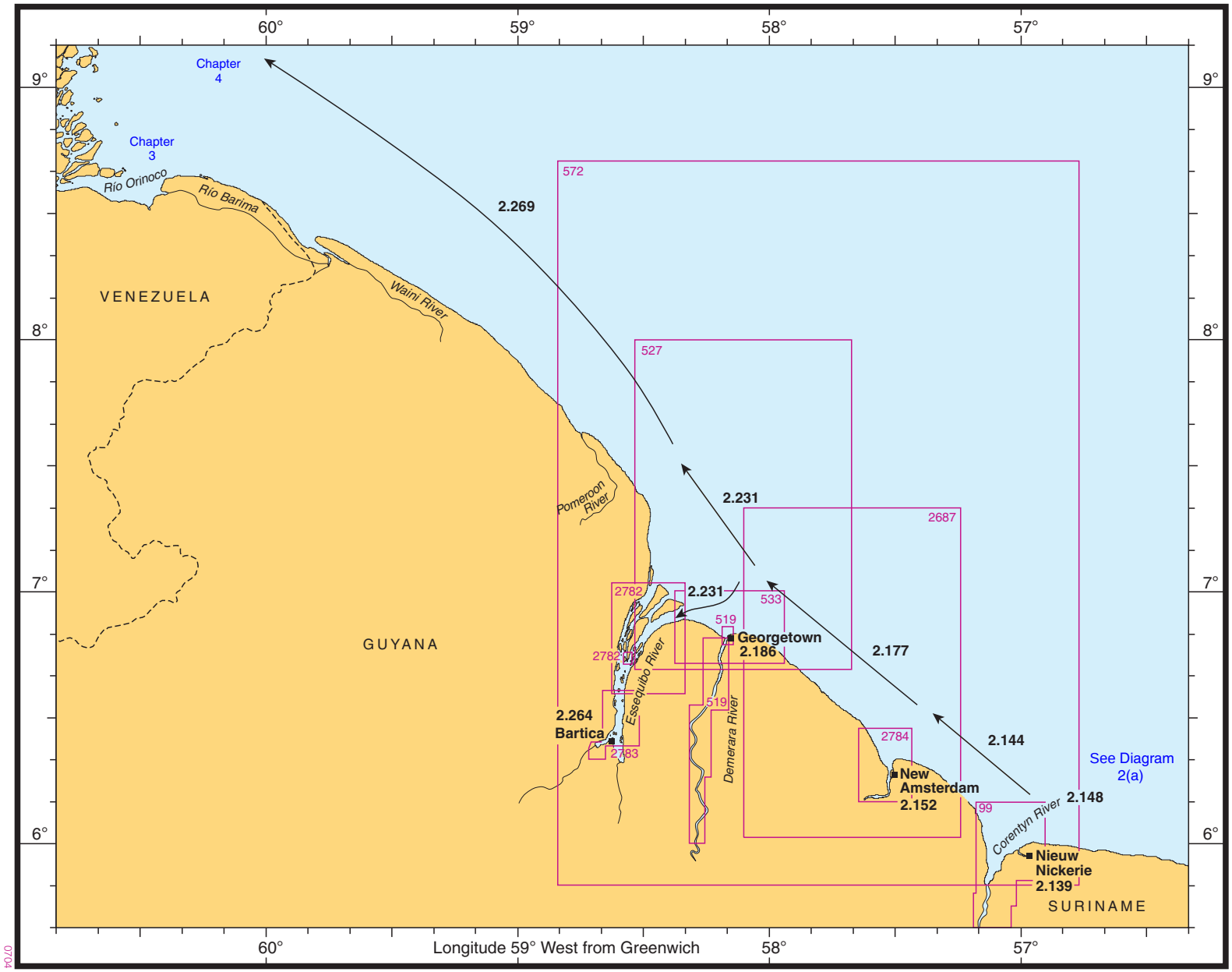
2.141

1 Totness (5°53′N, 56°20′W), with several buildings visible from the offing, is a small town 2 miles up a creek and the capital of the district of Coronie. Coconut oil and rice are produced in the vicinity. Communication by sea is maintained with Paramaribo.

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Guyana



2 (b)

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GUYANA — CORENTYN RIVER TO ESSEQUIBO RIVER

GENERAL INFORMATION

Chart 517

Area covered

2.142

1 This section covers the coastal waters of Guyana from Bluffpunt (5°57′N, 57°04′W), the E entrance point of Corentyn River, to Georgetown (6°49′N, 58°10′W), 84 miles NW. It is arranged as follows:

Corentyn River to New Amsterdam (2.144).
New Amsterdam (2.152).
New Amsterdam to Georgetown (2.177).

2 Georgetown and Demerara River (2.186).

Rescue

2.143

1 For information on rescue services see 1.61.

CORENTYN RIVER TO NEW AMSTERDAM

General information

Charts 572, 2687

Topography

2.144

1 Between the mouth of Corentyn River and Saint Andrew Point (6°19′N, 57°31′W), 30 miles NW, the coast of Guyana is very low and sparsely wooded. A few settlements, most of which have red-roofed houses, are scattered along the coast and become more dense around the mouths of Corentyn and Berbice Rivers.

Seabed

2.145

1 Off Port Mourant (6°15′N, 57°20′W), where depths of 2 m (6 ft) or less extend about 5 miles from the coast, there is an area of very soft mud with a quantity of this fine material suspended in the water, known locally as "sling mud"; such areas are reported to move slowly NW year by year. The fine mud in suspension deadens all sea and swell, and provides quiet anchorage for small vessels.

Principal mark

2.146

1 **Landmark:**

Two chimneys (6°15′N, 57°23′W) of a sugar factory at Albion standing 9 miles ESE of Saint Andrew Point; the W and larger chimney is 44 m (146 ft) high. The chimneys are radar conspicuous at 23 miles.

Passage directions

(continued from 2.131)

2.147

1 From the vicinity of 6°20′N, 56°55′W, off the entrance to Corentyn River, the offshore route leads 31 miles NW to a position about 10 miles NE of Berbice Light (red metal framework tower, white band, on wooden platform) (6°26′N, 57°27′W), situated in the outer approaches to Berbice River. The light-structure of Berbice Light was reported to be in a state of disrepair in 1996.

2 Although there are no specific dangers, the coast between the mouths of Corentyn River and Berbice River is not accurately charted, making soundings the best guide.

(Directions continue, for New Amsterdam at 2.166 and for the offshore route NW at 2.182)

Corentyn River

Chart 99 plans A, B and C of Corentyn River

General information

2.148

1 **Description.** Corentyn River, known to the Dutch as Corantijn Rivier, forms the international boundary between Suriname and Guyana. Vessels which can cross the bar can berth at Skeldon (5°53′N, 57°08′W) (2.151), about 5 miles inside the entrance, or proceed up river as far as the village of Wakay (5°17′N, 57°14′W), in Suriname, about 51 miles above Skeldon. The bends in the river are wide and should not be difficult for a vessel of 2000 grt.

2 **Depths.** The river entrance is fronted by a bar which partly dries. Vessels with a maximum draught of 4·7 m (15 ft) can enter at HWS, and of 3·7 m (12 ft) can enter at HWN; in 1978, these draughts gave a clearance of about 0·3 m (1 ft) under the keel. From December to February, a heavy sea frequently prevents vessels drawing more than 2·7 m (8½ ft) from entering owing to the risk of hitting the bottom.

3 **Pilotage.** A pilot may be obtained from Georgetown (2.198) or from Paramaribo (2.88), in Suriname; pilotage is compulsory for vessels exceeding 50 grt. The pilot boards in the vicinity of COR–N Light-buoy (6°02′N, 57°01′W).

Local knowledge. The channels in the river are subject to frequent changes and buoys are moved accordingly. Mariners should not enter the river without local knowledge.

4 **Tidal streams.** In the mouth of Corentyn River the in-going tidal stream sets SW whilst the out-going stream sets N. In the rainy season, the out-going stream attains rates from 3 to 3½ kn and its influence is felt 10 or 12 miles offshore; the edge of the stream is distinctly marked by discoloured water.

It has been reported (1988) that at spring tides a stream of 4 to 5 kn, setting at right-angles to the direction of Skeldon Pier (5°53′N, 57°08′W), 6 miles within the entrance, may be experienced.

5 **Approach.** The river is best approached from a position about 10 miles NE of Bluffpunt (5°57′N, 57°04′W) 2 hours before HW.

Major light:

Aero light (radio mast, obstruction lights) (5°57′N, 57°00′W) exhibited from Nieuw Nickerie.

Directions

(continued from 2.131)

2.149

1 **Caution.** During daylight it has been reported (1985) that the buoys marking the channel are difficult to see against the background of trees and tropical vegetation.

Track. From seaward, in the vicinity of 6°20′N, 56°55′W, the track leads SSW until the alignment (210½°) of Bluffpunt (5°57′N, 57°04′W) with the NW extremity of Papegaaien Eiland, 4¾ miles SSW, can be seen. Thence continue along the leading line until a position is reached close NNE of COR–R Light-buoy (safe water) (6°02′N, 57°01′W).

2 Then the line of bearing 218½° of Skeldon Chimney (5°52′·7N, 57°08′·7W) leads SW through the fairway and over the bar, passing:

Clear of COR–R Light-buoy, thence:
About 1 mile NW of Bluffpunt.

3 When within the river, attention should be paid to the in-going tidal stream to avoid the drying bank which

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extends 2 miles N from Papegaaien Eiland (5°51′·0N, 57°06′·5W). For details of the islands and channels farther up river, above Skeldon (5°53′N, 57°08′W) (2.151), the chart is the best guide.

4 **Useful marks:**

Wreck (6°01′·4N, 57°08′·8W), stranded on drying mud flats on the W shore of the river entrance; reported (1985) to give a good radar response at up to 20 miles.

Beacon (5°59′·7N, 57°08′·9W) standing near the coast on the W side of the river entrance.

5 Radio mast (red obstruction lights) (5°58′·9N, 57°09′·2W).

Radio mast (red obstruction light) (5°52′·7N, 57°08′·6W) at Skeldon.

The W entrance point (5°58′·1N, 57°01′·0W) of Nickerie Rivier.

6 Light (white metal framework tower) exhibited from Springlands Wharf (5°53′·5N, 57°08′·0W).

Light exhibited from Skeldon Pier (5°52′·6N, 57°08′·3W).

Anchorage

2.150

1 Good anchorage can be obtained in Corentyn River from its mouth to Bisschop Eilanden (5°28′N, 57°16′W).

Skeldon

2.151

1 **Description.** Skeldon (5°53′N, 57°08′W) is situated on the W side of the river, about 6 miles SW of Bluffpunt the E entrance point. The port was used in 1997 by 9 vessels with a total of 43 782 dwt.

Berths:

Springlands Wharf, situated at the N end of the town, can handle vessels 70 m in length.

Skeldon Pier, 1 mile S of Springlands Wharf, has a depth of about 5 m at its head.

2 **Other facility.** Deratting Exemption Certificates issued at Springlands Wharf.

Communications. A ferry service connects Springlands Wharf with Nieuw Nickerie (2.139).

NEW AMSTERDAM

General information

Charts 2687, 2784

Position

2.152

1 The town and harbour of New Amsterdam (6°15′N, 57°31′W) stands on the E bank of Berbice River 4 miles S of Saint Andrew Point. Berbice River is approximately 300 miles long, of which 175 miles is navigable; Canje River (2.176), at New Amsterdam, is its main tributary.

Function

2.153

1 New Amsterdam, with a population of about 20 000, handles the export of bauxite and is a trans-shipment port for up river settlements.

Approach and entry

2.154

1 Berbice River is approached from the NE through a channel, over a bar, SW of Berbice Light, and entered W of Saint Andrew Point (6°19′N, 57°31′W), which can be identified at a distance of about 5 miles.

Traffic

2.155

1 In 1997 the port was used by 108 vessels with a total of 732 230 dwt.

Port Authority

2.156

1 Port Authority of New Amsterdam, Guyana National Shipping Corporation, 5/9 Lombard Street, Georgetown, Guyana.

Limiting conditions

Controlling depths

2.157

1 It was reported in 1995 that the approach channel for Berbice River had been dredged to 8·0 m (26 ft) along the leading lines, from approximately 5 miles NE of Berbice Light to 6°19′·5N, 57°31′·4W. However the approach and entry channels and the river are subject to silting; depths encountered may be less than charted.

Vessels with draughts of up to 4·0 m (13 ft) can ascend the river for 45 miles, to Fort Nassau, those drawing 3·7 m (12 ft) for 105 miles and those drawing 2·1 m (6½ ft) for about 175 miles.

Tidal levels

2.158

1 At New Amsterdam there is a mean spring range of about 2·5 m and a mean neap range of about 1·3 m. A tide gauge was reported (1985) to be situated 1 cable offshore of Crab Island (6°17′N, 57°31′W). For further information on tides see *Admiralty Tide Tables*.

Arrival information

Outer anchorage

2.159

1 Vessels waiting for the tide can anchor 1 mile NE of Berbice Light (6°26′N, 57°27′W).

Submarine cables

2.160

1 Two submarine cables, which are laid across Berbice River abreast New Amsterdam, are marked at their landing places by diamond-shaped boards with the word "CABLE" in black. Anchorage is prohibited within 2½ cables on either side of the cables. For further information on submarine cables see 1.42.

Pilotage

2.161

1 Pilotage is compulsory with pilots being obtained from Georgetown. The pilot boarding position is close NE of the outermost light-buoy off Demerara River, in the vicinity of 6°57′N, 58°04′W. Send ETA at least 12 hours in advance and include the draught.

2 For further details see the *Admiralty List of Radio Signals Volume 6 (5).*

Tugs

2.162

1 Tugs are available and are used for mooring alongside the transhipment terminal (2.169).

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Harbour

General layout

2.163

1 There is a transhipment terminal in the entrance to the river along with several berths along the E bank of the river from New Amsterdam (6°15′N, 57°31′W) to Everton, 3½ miles S. There is also a commercial berth at Blairmont (6°15′N, 57°32′W) on the W bank.

2 Silting takes place along the frontage of New Amsterdam, but vessels may safely lie aground, the bottom being soft mud.

Hazards

2.164

1 **Fishing stakes.** Numerous fishing stakes have been reported extending up to 3 miles N of Saint Andrew Point (6°19′N, 57°31′W), some of which encroach the approach channel. They have also been reported in the Berbice River off New Amsterdam and Ithaca. Mariners are advised to navigate with caution in their vicinity.

2 **Fishing vessels.** Numerous unlit small fishing vessels may be encountered in Berbice River and its approaches.

Tidal streams

2.165

1 Off the mouth of Berbice River the in-going tidal stream sets SW, although it has been reported to set SE at a position 1 mile N of Berbice Light (6°26′N, 57°27′W). The out-going stream sets N.

2 In 1996 it was reported that about 1 hour before HW a strong SSE set was experienced in the vicinity of the transhipment vessel (6°18′·6N, 57°31′·4W), moored in the entrance to the river.

3 At Everton (6°11′·5N, 57°31′·7W) the out-going stream has a rate of 4 to 5 kn, and the in-going stream a rate of 1 kn.

Directions for entering harbour

(continued from 2.147)

General remarks

2.166

1 **Channel.** The approach channel NE of Berbice Light is marked by buoys. South-west of Berbice Light the channel was reported in 1996 to be marked by posts about 1 mile apart, with an estimated width of 90 m between the posts. Many of the posts marking the channel are unlit; they have retro-reflective tape secured to them to assist detection by searchlight.

2 **Caution.** In 1997 it was reported that the navigational aids marking the channel were in a poor state of repair. The leading lights were visible but the vertical displacement had been reduced to such an extent that on approach the leading lights appeared to be one light.

Track

2.167

1 From a position about 10 miles NE of Berbice Light (6°26′N, 57°27′W) (2.147), situated in the outer approaches to Berbice River, the track leads SW, into a marked channel, and thence to a position close SE of Berbice Light, at the beginning of the following approach leading line.

2 **Approach leading lights:**

Front light (white metal framework tower on wooden platform) (06°20′·8N, 57°31′·4W).

Rear light (similar structure) (8 cables from front light).

The alignment (217°) of these lights leads SW through the channel, passing (with positions relative to Berbice Light):

3 SE of an obstruction (2¼ miles SW) and a dangerous wreck, thence:

SE of an area of foul ground (4½ miles SW).

The track then leads to a position close NNE of the front approach light and on to the entrance leading line.

Entrance leading lights:

Front light (black and white triangle on pile) (6°21′·7N, 57°31′·4W).

4 Rear light (pile) (9 cables from front light).

The alignment (003°), astern, of these lights leads S, passing (with positions from the front entrance light):

W of Saint Andrew Point (2 miles SE), fringed by a drying bank, thence:

Close W of a transhipment terminal (3 miles S) (2.169), thence:

5 E of a dangerous wreck (4¾ miles S), lying 4½ cables W of Crab Island, thence:

W of another dangerous wreck (6¾ miles S), the position of which is approximate, fronting New Amsterdam.

The track then continues S to Everton (10¼ miles S) (2.171) in mid-channel. Above Everton local knowledge is essential.

Berths

Anchorages

2.168

1 Secure anchorage can be obtained anywhere W of Crab Island (6°17′N, 57°31′W), or off the town of New Amsterdam, avoiding the wrecks off Crab Island and New Amsterdam, the track of the ferry between the town and Rosignol, and the submarine cables (2.160).

Transhipment terminal

2.169

1 On the E side of the entrance to Berbice River, N of Crab Island, there is a transhipment terminal (6°18′·6N, 57°31′·4W) used for the export of bauxite and for topping up vessels which have loaded at Everton (2.171). The terminal consists of the bulk carrier MV *Bulk Venturer* moored with its bow facing S. There is a loading basin alongside the transhipment vessel dredged to 10 m (33 ft) and close S of it a turning basin, diameter 440 m, dredged to 7·0 m (23 ft).

2 Vessels, from seaward, drop the port anchor in the turning basin and swing round and then proceed N to berth starboard side alongside the bulk carrier. The two mooring buoys moored S of the terminal, off Crab Island, are used by barges.

Berths between New Amsterdam and Everton

2.170

1 Berths in the vicinity of New Amsterdam are as follows (positioned from the town hall (6°14′·8N, 57°31′·3W)):

Wharf at Stanley Town (1 mile S), 91 m in length. The berth can be used by vessels drawing up to 4·0 m (13 ft), grounding on soft mud.

2 Oil jetties at Heath Burn (2¾ miles S); depths from 4·9 to 5·5 m alongside these berths at LW.

Pier at Blairmont (1 mile WNW), where molasses is loaded.

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Everton
2.171

1 **Berth.** The bauxite loading berth at Everton (6°11′·5N, 57°31′·7W), about 3 miles S of the town of New Amsterdam, is 475 m in length with a depth of 7·6 m alongside. The average loading rate is 500 tons an hour. Vessels berth starboard side to.

2 **Caution.** Shifting ship for loading purposes at Everton should be done at slack water, otherwise the strong current (2.165) will push the vessel off the berth.

Port services

Repairs
2.172

1 There is a floating dry dock at New Amsterdam; capacity 600 dwt.

Other facilities
2.173

1 Hospital in New Amsterdam; Deratting and Deratting Exemption Certificates issued.

Supplies
2.174

1 Fuel available from the oil jetties at Heath Burn (2.170). Fresh water and fresh provisions are also available.

Communications
2.175

1 Communication by sea is maintained with Georgetown and by river craft with settlements along the Berbice River; a ferry service connects New Amsterdam with Rosignol, 1½ miles NW. The nearest airport is Timehri International, 144 km distant.

Small craft

Canje River
2.176

1 **Description.** Canje River flows into Berbice River near the S end of Crab Island (6°17′N, 57°31′W) at New Amsterdam and is navigable by small craft for about 50 miles to the first rapids; a creek connects it with Corentyn River (2.148).

Controlling depth. Vessels with draughts up to 5·5 m (18 ft) can navigate up to the bridge at New Amsterdam; above the bridge the draught is reduced to 4·3 m (14 ft).

2 **Vertical clearance.** Canje River is spanned by overhead power cables, with a vertical clearance of 32 m (105 ft), in the vicinity of a swing bridge.

Berth. There is a small wooden pier, about 11 m long, on the E bank of the river, 2½ miles above New Amsterdam at a sugar plantation. At this point the river is about 65 m wide.

NEW AMSTERDAM TO GEORGETOWN

General information

Charts 572, 2687, 527

Route
2.177

1 From a position about 10 miles NE of Berbice Light (6°26′N, 57°27′W) the offshore route leads NW for 44 miles, keeping well offshore, to the vicinity of 7°03′N, 57°55′W, in the outer approaches to Georgetown.

Topography
2.178

1 Between the mouth of Berbice River and Mahaica River, 33 miles NW, the low coast is fringed with trees and the only identifiable feature is the radio mast at the village of Mahaicony (6°34′·5N, 57°48′·5W). From the mouth of Mahaica River to the mouth of Demerara River, 16 miles NW, the coast remains low and has no remarkable features except for Greenfield Beacon (2.181), near Belfield, and Clonbrook Holm Light (2.181); a number of chimneys are visible above the tree-tops.

Depths
2.179

1 In 1993 less water than charted was reported off this part of the coastline.

Tidal streams
2.180

1 Tidal streams for a position 14 miles ENE of Mahaicony River are given in the tables for station E on Charts 527 and 572.

Principal marks
2.181

1 **Landmarks:**

Greenfield Beacon (6°44′N, 57°56′W), with an elevation of 107 m (100 ft), showing well above trees.

Chimney of Château Margot (6°49′N, 58°04′W), a particularly good landmark when approaching Georgetown from the E; it is of red brick and tall, easily distinguished from other chimneys in the vicinity, most of which appear silvery.

2 **Major lights:**

Clonbrook Holm Light (yellow metal framework tower, white base, 26 m in height) (6°44′N, 57°57′W), exhibited 5 cables NW of Greenfield Beacon.

Sparendaam Aero Light (6°49′N, 58°05′W) exhibited from a radio mast with an elevation of 107 m (350 ft); the mast is not easy to distinguish.

Directions
(continued from 2.147)

2.182

1 From a position about 10 miles NE of Berbice Light (6°26′N, 57°27′W) the track leads NW, passing (with positions relative to Clonbrook Holm Light (6°44′N, 57°57′W)):

NE of an isolated shoal (27 miles ESE) with a depth of 10·0 m (33 ft) over it, thence:

2 NE of the coastal bank, with depths of less than 10·0 m (33 ft) over it, which extends up to 11 miles offshore, between Berbice River and Demerara River. A wreck (6 miles ENE), with a depth of 3·7 m (12 ft) over it, lies on the bank. Thence:

3 NE of a dangerous wreck (11 miles NE), the position of which is approximate.

The track then leads to the vicinity of 7°03′N, 57°55′W.

Useful mark:

Radio mast (6°34′N, 57°48′W) standing in the village of Mahaicony.

(Directions continue, for Georgetown at 2.207, for Essequibo River at 2.239 and for the offshore route NW at 2.238)

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Small craft

Abary River
2.183

1 Abary River (6°33′N, 57°45′W), 5 miles SE of Mahaicony River, is navigable at HW by vessels drawing up to 2·4 m (8 ft).

Mahaicony River
2.184

1 Mahaicony River (6°36′N, 57°48′W), which flows into the sea 1½ miles N of the village of Mahaicony, can be entered at HW by small craft with draughts of 1·5 m (5 ft).

Mahaica River
2.185

1 Mahaica River (6°43′N, 57°55′W) is navigable at HW by vessels with draughts up to 2·4 m (8 ft).

GEORGETOWN AND DEMERARA RIVER

General information

Charts 527, 533, 519

Position
2.186

1 Georgetown (6°49′N, 58°10′W) is situated on the E side of the mouth of the Demerara River.

Function
2.187

1 Georgetown, which had a population of about 275 000 in 1991, is the capital and principal commercial centre of Guyana. The principal exports are sugar, rice, molasses, bauxite, gold, timber, shrimps and rum. Manufactured goods, petroleum products, chemicals, grain, fertilisers and cement are imported.

Topography
2.188

1 The land E and W of the mouth of Demerara River is low and flat. The kurida or mangrove trees which fringe the coast are of uniform height. The several chimneys of the sugar estates are mostly of the same shape and character.

Port limits
2.189

1 The port limit is defined seaward by the arc of a circle with a radius of 1 mile, centred at Georgetown Lighthouse (6°49′·5N, 58°09′·9W), and on the S side by an E/W line across the river 1½ miles S of the lighthouse.

Traffic
2.190

1 In 1997 the port was used by 915 vessels with a total of 4 273 589 dwt.

Port Authority
2.191

1 Transport and Harbours Department, Battery Road and Fort Street, Kingston, Georgetown, Guyana.

Limiting conditions

Controlling depths
2.192

1 A mudflat, with depths of less than 5·0 m (16 ft) over it, extends 10 miles NE from the mouth of Demerara River. The mudflat and bar fronting the river are liable to change. A channel, dredged to a depth of 6·9 m (22½ ft) in 1990, leads through the mudflat and bar into the harbour of Georgetown. However, depths in the channel may also be liable to change; for the latest information consult the local Port Authority.

2 The bottom is mud to a depth of 18·0 m (59 ft) or more. The upper layer of this mud is known locally as "sling mud"; it is from 0·6 to 1·2 m (2 to 4 ft) thick and is of a very soft, almost liquid consistency. Vessels can force a passage through this mud even though drawing 0·3 m (1 ft) or more than the actual depth of water.

Bridge
2.193

1 A pontoon bridge (6°46′N, 58°11′W), situated 2 miles S of Vreed En Hoop, has two central retraction sections which provide an opening 77 m wide for ocean-going vessels.

Tidal levels
2.194

1 The following tidal levels are applicable to Georgetown and its approaches:

In the vicinity of the outer light-buoy (6°57′N, 58°04′W) there is a mean spring range of about 2·1 m and a mean neap range of about 1·1 m.

2 At Georgetown there is a mean spring range of about 2·5 m and a mean neap range of about 1·2 m.

For further information on tides see *Admiralty Tide Tables*.

Arrival information

Notice of ETA required
2.195

1 Vessels should send their ETA, along with draught, at the pilot boarding position 12 hours in advance through Demerara Coast Radio Station.

Outer anchorage
2.196

1 An area for vessels in quarantine lies NE of the outermost light-buoy (6°57′N, 58°04′W). When anchoring, care is necessary to avoid the obstructions at its SW end.

Prohibited anchorage
2.197

1 Anchoring is prohibited within an area extending ENE across the river from the ferry pier at Vreed En Hoop (6°48′·5N, 58°10′·7W).

Pilotage
2.198

1 Pilotage is compulsory and is available 24 hours. The pilot boards close NE of the outermost light-buoy (6°57′N, 58°04′W). All pilot vessels have a black hull and white superstructure, with the word "PILOT" in white on a black background.

Tugs
2.199

1 Tugs are available.

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a *Georgetown Light*

Georgetown from N (2.186)

(Original dated 2002)

(Photograph – mv Logos II)

Prohibited area

2.200

1 Navigation is prohibited within an area off the E side of the river entrance due to fishing stakes. Buoys (white can) mark the NE, NW and SW ends of the area. The buoys are often reported missing.

Quarantine

2.201

1 A vessel with an infection on board should anchor in the quarantine anchorage (2.196) and await the arrival of the Port Health Officer. The ship's master should advise the Port Authority by special message through the coast radio station, in order that the attendance of the Port Health Officer can be arranged without delay.

Customs

2.202

1 The Customs Boarding Officer boards each vessel entering the port of Georgetown close seaward of the harbour entrance. Masters are particularly warned that it is forbidden to lower a boat, or communicate with the shore or with other vessels, or to allow any person or thing to leave the ship until the Customs Boarding Officer has granted permission.

Harbour

General layout

2.203

1 The main dry cargo wharves are situated along the E bank of the river fronting the town, from close inside its

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entrance to the Demerara Sugar Terminal, 2 miles S. The principal oil berths are located on the E bank about 4 miles S of Georgetown, above the pontoon bridge (2.193).

Piracy

2.204

1 There have been 12 reported attacks (2002) on merchant vessels by armed pirates in the Georgetown area. For further information see 1.7.

Natural conditions

2.205

1 **Tidal streams.** For tidal streams in the outer approaches to Demerara River, see tables A to E on Chart 527. On the bar the tidal streams are SW-going up to 1½ kn and NE-going up to 2¾ kn. At the mouth of the river, the tidal streams attain a rate of about 3 kn at springs and even more on the out-going stream during freshets.

2 Within the river, the in-going stream attains a rate of 2½ kn in the dry season and continues to flow on the surface for more than 1 hour after HW; the out-going stream attains a rate of 3¼ kn at springs. At neaps, the maximum rate of both streams is about half the springs rate. The average duration of the out-going stream is 7 hours 10 minutes.

3 A peculiarity of the tidal streams is an occasional SE-going set across the harbour from Best Groyne (6°49′·0N, 58°10′·6W); this is known locally as the Scapy or Jack Tide, and usually occurs at the end of the in-going stream at springs. The effect is to press vessels against the wharves, and then it is occasionally difficult for vessels to leave them. When this stream does occur it is only of short duration, usually about ¾ hour, after which vessels can proceed without difficulty.

4 **Climatic table.** See 1.167 and 1.170.

Principal marks

2.206

1 **Landmarks** (positioned from Georgetown Light (6°49′·5N, 58°09′·9W)):

Chimney of Château Margot (5¾ miles ESE) (2.181).
Two dish aerials (1 mile E).
Hotel (1½ cables ENE).
Spire of Saint George's Cathedral (6½ cables S).
Clock tower (8½ cables S), red pointed.

2 **Major lights:**

Clonbrook Holm Light (6°44′N, 57°57′W) (2.181).
Sparendaam Aero Light (6°49′N, 58°05′W) (2.181).
Georgetown Light (white octagonal tower, red stripes, 30 m in height), standing near the E entrance point of Demerara River.

Directions for entering harbour

(continued from 2.182)

General information

2.207

1 **Approach.** Owing to the scarcity of landmarks along the low coast and to the extensive shallow banks fronting it soundings may be of use as a guide when bound for Georgetown. The nature of the bottom should be fine dark sand; if it is mud, a vessel is too far W.

2 Within about 35 miles of the coast, the sea becomes discoloured and patches of a dark suspicious hue will frequently be encountered, but they indicate no shoal depths; the outer limit of the discoloured area alters with the seasons. It has been observed that in the rainy season the sea has a reddish tinge between Demerara River and Mahaicony River, 25 miles SE.

3 **Caution.** In 1990 it was reported that the lights and positions of the light-buoys and beacons marking the dredged channel leading into Demerara River cannot be relied on.

From seaward to Georgetown

2.208

1 From the vicinity of 7°03′N, 57°55′W the track leads SW, passing (with positions relative to Georgetown Lighthouse (6°49′·5N, 58°09′·9W)):

SE of a dangerous wreck (18½ miles NE), thence:
SE of another dangerous wreck (13½ miles NE). It was reported in 1997 that there was an obstruction in position 7°00′·1N, 58°04′·1W, 1¼ miles SW of the dangerous wreck. Thence:

2 Through the pilot boarding area (10 miles NE) at the SW end of the quarantine anchorage (2.196), keeping well clear of two obstructions which are the remains of former light-beacons. They are marked on their W side by a light-buoy (safe water). A dangerous wreck and a stranded wreck lie, respectively 4 cables and 6 cables WNW of the obstructions.

3 The track then continues SW to the beginning of the entrance channel leading line.

Front light (white metal framework tower) (6°49′·8N, 58°10′·5W).
Rear light (white metal framework tower, red top) (8½ cables from front light).

4 The alignment (225°) of these lights leads SW through the channel marked by light-buoys, passing (with positions relative to Georgetown Lighthouse):

NW of an obstruction (6¼ miles NE), thence:
SE of a dangerous wreck (2¾ miles NNE), thence:
SE of a stranded wreck (2¼ miles NE).

5 Thence when a position is reached about 7½ cables NNW of Georgetown Lighthouse, in the vicinity of No 9 Light-buoy (starboard hand), the track leads S into the harbour, passing:

E of the front leading light (7 cables NW), and:
W of the light-beacon (red round hut on black piles) (3 cables N) situated close N of Fort Groyne.

6 For vessels bound for the berths above the pontoon bridge (2.193) the track continues S along the alignment (189°) of an inner set of leading lights (6°46′·2N, 58°10′·6W) until within about 1 mile of the bridge. Thence the track, marked by light-buoys (lateral), leads SSW through the bridge.

Useful mark:

7 Light (white framework tower) exhibited from the head of Best Groyne (6°49′·0N, 58°10′·6W). A dangerous wreck lies 3 cables NNE of the head of the groyne and is covered by the red sector of the light.

(Directions continue for Linden at 2.218)

Berths

Anchorages

2.209

1 Off the wharves at Georgetown there are five anchor berths, marked A to E on the chart. They have a least depth of 6 m (19½ ft) and good holding ground of soft mud.

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Dry cargo berths

2.210

1 There are eight principal wharves along the river frontage with lengths from 59 to 228 m, and depths from 4·9 to 6·1 m alongside. As the bottom is soft mud alongside the wharves, vessels can safely take the ground at LW. Ro-Ro facilities are available. Vessels work cargo, except for bulk sugar, with their own gear.

2 **Caution.** There are stranded wrecks off Ministry of Works and Transport Wharf, Caribbean Molasses Co. Ltd Wharf and Guyana Rice Board Wharf.

Oil berths

2.211

1 The following oil berths are situated in the Georgetown area:

Rome Terminal (Shell) at Houston (6°47′·3N, 58°10′·5W). A wooden T–shaped jetty about 35 m in length, with a depth of 5·6 m alongside; used for the discharge of petroleum products including LPG.

Guyoil Providence Terminal. This is a wooden jetty situated 6 cables S of the pontoon bridge on the E bank; length 50 m with a depth of 3·8 m alongside.

2 Ramsburg, 1 mile S of the pontoon bridge. This is the principal oil terminal for Georgetown, consisting of two berths. Vessels up to 137 m in length can berth at the Texaco Terminal, a small T–shaped pier consisting of wooden pilings and a platform, with an alongside depth of 5·5 m. The Esso Terminal, 2½ cables upstream of Texaco, is of similar construction with a depth of 4·8 m alongside.

Port services

Repairs

2.212

1 Repairs carried out at Guyana National Engineering Corporation dry dock (6°48′·3N, 58°10′·2W); accommodates coastal vessels up to 63 m in length.

Other facilities

2.213

1 Deratting Exemption and Deratting Certificates issued; hospital facilities available.

Supplies

2.214

1 Fuel, fresh water and provisions are available.

Communications

2.215

1 There are scheduled air services at Timehri International Airport, 30 km S of Georgetown.

Harbour regulation

2.216

1 To summon the fire brigade the following signals are to be used by vessels in the harbour:

A continuous ringing of the bell, or;

Continuous short blasts on the whistle or fog horn.

Demerara River above Georgetown

Chart 519

General information

2.217

1 **Description.** Demerara River is said to rise in about latitude 5°N, whence it flows N nearly parallel with Essequibo River for 200 miles to its mouth. The river is about 5 cables wide at its mouth; at Sandhills Anchorage, 24 miles upstream, it is about 2¼ cables wide; at Linden, 32 miles farther upstream, it is about 137 m wide; and at Seba, 83 miles from Georgetown, it is about 55 m wide.

2 **Vessel size.** Demerara River is navigable by vessels of 22 000 dwt, with a draught of up to 6·5 m, as far as the bauxite terminal at Linden (2.221), about 56 miles from Georgetown. The draught depends on depths in the channel (2.192) off Georgetown and in some reaches of the river. Coasting vessels of shallow draught can proceed 45 miles above Linden.

3 **Pilotage.** From Georgetown to Linden pilotage is not compulsory, but it is advisable due to bars and shoals. Ships cannot pass at some bends.

Speed. In the river the speed of a vessel is limited to 10 kn.

Prohibited area. Anchorage is prohibited in an area where submarine cables are laid across the river between 1 and 1¾ cables S of Golden Grove (6°42′N, 58°11′W).

4 **Tidal** influence extends about 100 miles up river to the first rapids at Malali.

Directions

(continued from 2.208)

2.218

1 There are no specific directions for navigating the river as local knowledge is essential. Leading lights indicate the fairway in places, and other lights are exhibited as far as Linden. Transit of the river is best made by day due to fog and mist which occur frequently after midnight.

Anchorages

2.219

1 **Golden Grove and Coverden.** Anchorage can be obtained off Golden Grove (6°42′N, 58°11′W) on the E side of the river 5 miles above Georgetown, and off Coverden, 9 miles above Golden Grove.

Sandhills Anchorage. Vessels may also obtain anchorage at Sandhills Anchorage (6°28′N, 58°19′W), off a sandy ridge 21 m (69 ft) high which terminates near the W bank of the river.

Atkinson Wharf

2.220

1 Atkinson Wharf (6°31′N, 58°16′W), on the E bank of the river 18 miles above Georgetown, is an oil terminal serving Timehri International Airport. The wharf has a T–shaped head and can accommodate vessels 114 m in length with a draught not exceeding 4·5 m.

Linden

2.221

1 **Position and function.** Linden (Mackenzie) (6°00′N, 58°18′W) is an important bauxite ore terminal operated by Guyana Mining Enterprise. The town has a population of about 30 000.

Port Authority. Transport and Harbours Department, Battery Road and Fort Street, Kingston, Georgetown, Guyana.

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Tidal levels. At Linden there is a mean spring range of about 1·9 m and a mean neap range of about 1·0 m. For further information on tides see the *Admiralty Tide Tables*.

2 **Tugs** are not available.

Berths:

Two bauxite berths for vessels up to 173 m in length. Loading rates for metal grades are 800 tons an hour and for calcinated bauxite 350 tons an hour.

Alumina berth 1 mile N of the bauxite berths; loading rate 400 tons an hour. The berth is also used for discharging general cargo and caustics. The maximum allowable beam for a vessel is 25·9 m.

3 **Repairs.** Minor repairs undertaken.

Other facility. Hospital in town.

Supplies. Fuel and fresh water available.

GUYANA — ESSEQUIBO RIVER

GENERAL INFORMATION

Charts 527, 533, 2782, 2783

Area covered

2.222

1 This section covers the Essequibo River and its approaches, and the lower part of Mazaruni River. It is arranged as follows:

Essequibo River — approaches and entry (2.231).
Essequibo River — NW part (2.245).
Essequibo River — Hog Island to Bartica (2.258).

Description

2.223

1 Essequibo River, the largest in Guyana, rises on the S boundary of the country and is at least 600 miles long; it is joined from the W, about 45 miles from its mouth, by Mazaruni River which rises near the W boundary. Cuyuni River joins Mazaruni River near its mouth and has its source in the E part of Venezuela.

2 The town of Bartica (6°24′N, 58°38′W) (2.264) stands on the point where Essequibo and Mazaruni Rivers meet. In Potari River, which enters Essequibo River from W about 14 miles above Bartica, are the magnificent Kaiteur Falls with a drop of 268 m (879 ft). Vessels able to cross the bar can reach Bartica and ascend Mazaruni River to D'Urban Island, situated 50 miles from the sea and 1 mile below the first rapids where tidal influence ends.

3 In Essequibo River, tidal influence extends to Aritaka 16½ miles above Bartica. The river has been ascended for about 230 miles, but the rapids and cataracts are numerous and dangerous.

Shoals and sandbanks

2.224

1 Owing to the shifting nature of the shoals and sandbanks in Essequibo River, and in its estuary which extends 20 miles seaward, frequent changes in depths are liable to occur and navigational aids are moved as necessary. The sands on both sides of the channels are steep-to and should be approached with care.

2 Guts close inshore, with shoal water at each end, are often found. Sandbanks, steep-to on their N sides, are characteristic of the river between Mamarikuru Bank (6°37′N, 58°35′W) and Lamun Island, situated just above Bartica. On the falling tide, rips occur over these steep-to edges, but there is little or no sign of them on the rising tide.

3 The disturbance of the surface caused by a rock just under water is distinct, but requires local knowledge to be recognised with certainty; some disturbances appear to be caused by a difference in the level of the bottom, not necessarily dangerous to navigation.

Navigation

2.225

1 Navigation of the river is generally not difficult, but in the wet season, frequent squalls obscure the marks and then it is usually necessary to anchor until they have passed. In certain lights, the ends of the islands in the river are extremely difficult to make out; the utmost care is needed when using them for fixing a vessel's position.

Dense bush and forest almost invariably cover the land on both sides of the river, and the islands, within a few miles of the entrance.

Caution

2.226

1 Navigational aids in Essequibo River and its approaches are being amended to the IALA Maritime Buoyage System (Region B). In 1993 it was reported that numerous channel buoys were missing and, others were replaced by buoys with a shape differing from that charted.

Pilotage

2.227

1 Pilotage is compulsory for Essequibo River. A pilot is obtained from Georgetown, giving 24 hours notice of a vessel's ETA off the outermost light-buoy (6°57′N, 58°04′W) of Demerara River where the pilot is embarked.

Tidal heights and times

2.228

1 Due to seasonal changes in the level of Essequibo River, HW and LW in the river are highest in June and lowest in November. The maximum difference in the mean level may amount to more than 0·9 m.

2 The times of HW and LW are affected by changes in the mean level of the river. In November, when the level is low, HW at Bartica is up to 30 minutes later, and LW up to 20 minutes earlier, than predicted. In July, when the level is high, HW is up to 20 minutes earlier, and LW up to 20 minutes later, than predicted. The amount of the seasonal changes in both time and height may be assumed to decrease regularly from Bartica to the sea.

Anchorage

2.229

1 In Essequibo River it is almost impossible to find a lee as the wind follows the sinuosities of the line of the banks below the level of the forest.

Submarine cables

2.230

1 Anchorage is prohibited within 2½ cables either side of four submarine cables which exist across Essequibo River; see 2.236, 2.249, 2.264 and 2.265. The landing places of the cables are marked by white diamond-shaped boards with the word "CABLE" in black.

2 For further information on submarines cables see 1.42.

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ESSEQUIBO RIVER — APPROACHES AND ENTRY

General information

Charts 527, 533, 2782

Routes

2.231

1 For the approaches and entry to Essequibo River the following routes are described:

An offshore route (2.238) which leads NW from the vicinity of 7°03′N, 57°55′W, in the outer approaches to Georgetown (2.186), across the entrance to Essequibo River for 36 miles, to the vicinity of 7°32′N, 58°16′W, about 16 miles NE of Devonshire Castle Flats.

2 A route leading through Ship Channel (6°57′N, 58°17′W) (2.239), the principal entrance to Essequibo River lying between Leguan Island and the coast of Demerara, from the pilot station (6°57′N, 58°04′W) off Georgetown to the S end of Hog Island (6°49′N, 58°32′W). The distance covered is about 52 miles.

3 West Channel (7°05′N, 58°26′W) and Middle Channel, separated by Wakenaam Island, are secondary entrances NW of Ship Channel. Middle Channel and the N part of West Channel are not described as their use has been discontinued. A route through the S part of West Channel, giving access to Supenaam River and Adventure, is described at 2.245.

Topography

2.232

1 The entrance to Essequibo River is encumbered by Leguan Island (6°55′N, 58°25′W), Wakenaam Island and Tiger Island. The mainland coast on the E side of the entrance to the river is low-lying and built up in many places. The mainland coast on the NW side, from Adventure Stelling (7°05′N, 58°29′W) to Devonshire Castle Flats, 16 miles N, is also low and is fringed for most of its length by trees up to 21 m (70 ft) high; several buildings on this part of the coast show up well in the morning sun. A seawall, partly of concrete and often lying behind trees, lines the coast.

Depths

2.233

1 Ship Channel is fronted by a bar of hard mud mixed with sand, over which the least depth in the fairway is 2·1 m (7 ft). This will give a depth of 5·0 m (16½ ft) at HWS and 4·2 m (14 ft) at HWN.

Tidal levels

2.234

1 The following tidal levels are applicable to the approach and entry of Essequibo River:

In the vicinity of Bluejacket Banks (6°57′N, 58°15′N) there is a mean spring range of about 2·5 m and a mean neap range of about 1·2 m.

2 At Parika Stelling (6°52′N, 58°25′W) there is a mean spring range of about 2·6 m and a mean neap range of about 1·4 m.

For further information on tides see *Admiralty Tide Tables*.

Tidal streams

2.235

1 For tidal streams in the approach to Essequibo River, see tables for stations A, B, C, D and F on Chart 527. In the mouth of the river, the tidal streams may attain a rate of 3 kn at springs.

Submarine cable

2.236

1 A submarine cable is laid across Ship Channel at the NE end of Middle Ground (6°54′N, 58°24′W); see also 2.230.

Principal marks

2.237

1 **Landmarks:**

Two chimneys standing at Uitvlugt (6°52′N, 58°18′W) on the mainland.

Trees on the E end of Leguan Island (6°55′N, 58°25′W); they are appreciably higher and have flatter tops than others in the vicinity.

2 Enterprise Stelling (6°55′N, 58°24′W), a pier at La Bagatelle on Leguan Island.

Parika Stelling (6°52′N, 58°25′W), a pier on the mainland 3½ miles SSW of La Bagatelle.

Chimney (44 m (145 ft) high) (7°16′N, 58°29′W) of a rice mill at Anna Regina; it is visible at a distance of 15 miles in clear weather.

3 Radio tower (obstruction lights, 60 m (196 ft) high), standing close SE of the previously mentioned chimney; not always identifiable.

Major light:

Georgetown Light (6°49′·5N, 58°09′·9W) (2.206).

Directions for the offshore route

(continued from 2.182)

2.238

1 From the vicinity of 7°03′N, 57°55′W the track leads NW across the approaches to Essequibo River, passing:

NE of dangerous wreck (7°05′N, 58°00′W), the position of which is a approximate, thence:

2 NE of a wreck (7°07′N, 58°03′W), with a depth of 4·9 m (16 ft) over it, thence:

NE of another dangerous wreck (7°11′N, 58°06′W), the position of which is approximate.

3 The track then leads to the vicinity of 7°32′N, 58°16′W NE of Devonshire Castle Flats. A stranded wreck (7°21′N, 58°27′W), the position of which is approximate, lies on the flats; a light-buoy (green can) is moored close N of the wreck. Another wreck, with a depth of 2·4 m (8 ft) over it, lies 3 miles NNE of the stranded wreck.

(Directions continue for the offshore route at 2.272)

Directions for entering Essequibo River

(continued from 2.182)

From seaward to Modder Bush Bank

2.239

1 From the vicinity of 7°03′N, 57°55′W the track leads SW following the directions given at 2.208 until the pilot boarding position is reached in the vicinity of the outermost light-buoy (6°57′N, 58°04′W) of Demerara River. After embarking the pilot the track then leads NW, passing (with positions relative to Tuschen Groyne Light (6°53′N, 58°21′W)):

2 SW of an obstruction (18 miles ENE) reported in 1997, in the vicinity of 7°00′·1N, 58°04′·1W, thence:

SW of a dangerous wreck (17¾ miles NE), the position of which is approximate.

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3 Thence the track passes NE of Essequibo Pile (12 miles NE), marked on its W side by a light-buoy (port hand), taking care to allow for the tidal stream which, on the rising tide, is SW-going. After rounding the pile the track leads SW through Ship Channel, passing (with positions relative to Tuschen Groyne Light):

4 SE of a single pile beacon (8 miles NE) marking the SE side of Leguan Bank which extends ENE from Leguan Island, thence:

NW of a pile (7 miles NE) standing on Bluejacket Banks. A light-buoy (port hand) is moored close N of the pile; a patch which dries lies on these banks 1½ miles SSW of the pile. Thence:

5 SE of Dauntless Bank (3¾ miles NNE), a drying bank lying close off the E end of Leguan Island, and:

NW of Boerasirie Bank (2½ miles E); the W end of the bank is marked by No 9 Light-beacon (white topmark on pile). Thence:

6 Between the SE coast of Leguan Island and Middle Ground; the shallowest part of Middle Ground is marked by Middle Ground Light (white framework tower on a four pile platform) (2 miles NW). Thence:

Close SE of Belfield Bank (4¾ miles W), thence:

NW of the N side of Naamryck Shoal (5½ miles W), which is marked by No 8 Light-buoy (port hand), and then on to the following leading line.

2.240

1 **Leading beacons:**

Front beacon (6°53′·8N, 58°25′·5W), standing on the SE edge of Belfield Bank.

Rear beacon (1¼ miles NE of the front beacon). A notch on the skyline of the trees behind the rear beacon should be noted for convenience when returning down river as the beacon is difficult to distinguish.

2 The alignment (047°), astern, of these beacons leads SW between Naamryck Shoal and the SW end of Leguan Island, and thence SE of Modder Bush Bank (8¼ miles WSW), marked by light-buoys, to a position 2 miles SSW of the SW extremity of Leguan Island.

Useful marks:

No 5 Light-beacon (white topmark on pile) (6°54′N, 58°13′W).

3 Light (white hut on four piles) exhibited from the head of Tuschen Groyne (6°53′N, 58°21′W).

(Directions continue for a route SW of Leguan Island to Supenaam River at 2.250)

Modder Bush Bank to the south end of Hog Island

2.241

1 From the position 2 miles SSW of the SW extremity (6°52′·4N, 58°28′·4W) of Leguan Island the track continues to lead SW, passing (with positions relative to the S end (6°43′N, 58°34′W) of Hog Island):

Between the E coast of Hog Island and Fort Island Spit (6½ miles NNE), which extends 1 mile NNE from the N end of Fort Island, thence:

2 Midway between Dukalaba Islands (3½ miles NNE) and the E coast of Hog Island.

The track then gradually closes the coast of Hog Island and leads SSW, passing:

WNW of Pedder Shoal (1½ miles NNE), marked on its W side by No 10 Buoy, thence:

3 Between the S end of Hog Island and Worm Bank (4 cables ESE); the bank is marked on its W side by No 12 Buoy.

The track then leads to a position about 5 cables S of the S end of Hog Island.

(Directions continue, for Bartica at 2.260, for a route to Supenaam River passing S and W of Hog Island at 2.251, and for Weri Weraikuru Creek at 2.253)

Side channels

Parika Stelling

2.242

1 The coast of Demerara, on the E side of Essequibo River, can be reached by a channel lying between the SE side of Naamryck Shoal and a tongue of the shore bank, with a least depth of 0·3 m (1 ft) over it, off Parika Stelling (6°52′N, 58°25′W).

Fort Island

2.243

1 A vessel of light draught, having crossed from the main channel in the vicinity of Modder Bush Bank (6°51′N, 58°29′W) (2.240), can continue upstream on this side and then pass close off Fort Island Stelling (6°47′N, 58°31′W), which is conspicuous. After passing through a group of islands, the vessel can again close the E bank of the river near Aliki and rejoin the main channel off Lau Lau Crossing Beacon (6°39′N, 58°34′W) (2.260).

2 There is a least depth of 2·1 m (7 ft) along this route. Local knowledge is essential.

Anchorage

2.244

1 Good anchorage can be obtained anywhere in Ship Channel. The strong tidal streams, however, raise a confused sea which is dangerous for boats, especially in the vicinity of Bluejacket Banks (6°57′N, 58°15′N).

ESSEQUIBO RIVER — NORTH-WEST PART

General information

Charts 527, 2782

Routes

2.245

1 The following routes are described which give access to the loading places along the NW part of Essequibo River:

Routes to Supenaam River (6°58′N, 58°31′W) (2.256) and the coast N, passing S and W of Leguan Island (6°55′N, 58°25′W), and S and W of Hog Island (6°49′N, 58°32′W).

2 Route to Weri Weraikuru Creek (6°43′N, 58°36′W), passing S of Hog Island.

Draughts

2.246

1 Vessels, with a draught allowing entry to Essequibo River, can reach loading berths almost anywhere along the NW bank of the river between Supenaam River (6°58′N, 58°31′W) and Weri Weraikuru Creek (6°43′N, 58°36′W). Vessels drawing up to 3·7 m (12 ft) bound for Supenaam River may use the route (2.250) which leads S and W of Leguan Island; vessels with deeper draughts up to 5·0 m (16½ ft) use the route (2.251) S and W of Hog Island.

Tidal levels

2.247

1 At Wakenaam (6°57′N, 58°29′W), on the W coast of Wakenaam Island, there is a mean spring range of about

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2·6 m and a mean neap range of about 1·5 m. For further information on tides see *Admiralty Tide Tables*.

Local knowledge

2.248

1 The coasts of the islands and mainland W of Hog Island and Leguan Island are almost devoid of objects which can be identified by a stranger, but, in the narrow channels, the ends of the islands are easily distinguishable. Local knowledge is required.

Submarine cable

2.249

1 A submarine cable is laid between Aurora Stelling (7°01′N, 58°29′W) and Wakenaam Stelling, 4½ miles S. For further information see 2.230.

Directions for the routes to Supenaam River and the coast north

(continued from 2.240)

South and west of Leguan Island to Wakenaam Island

2.250

1 From a position 2 miles SSW of the SW extremity (6°52′·4N, 58°28′·4W) of Leguan Island the track initially leads W for a short distance rounding the light-buoy, marking the S end of Modder Bush Bank, and thence N, passing (with positions relative to the SW extremity of Leguan Island):

2 W of Modder Bush Bank (1 mile SSW), thence:
Through the fairway between Leguan Island and Hog Island taking care to avoid the dangerous wreck (7 cables N) in the middle, marked by a buoy (green can), thence:
E of the end of a spit which extends NE from Chalmers Point (1¼ miles NNW), the NE extremity of Hog Island. The end of the spit is marked by a light-beacon (white daymark on five piles) and a buoy.

3 The track then rounds the end of the spit and leads WSW closing the N coast of Hog Island to avoid Palmyra Bank, and thence passes between a beacon (2 miles NW) at the SW end of this bank and some beacons standing midway along this coast.

The track then leads NW, closing the S end of Wakenaam Island almost to the overhanging bushes, and thence W, passing N of a beacon (2¾ miles NW) standing on the middle of Sting Ray Shoal.

4 Thence the track leads to a position about 7 cables NW of the SW point (3 miles NW) of Wakenaam Island.

Useful mark:

Light (metal framework structure, 2 m in height) (6°53′N, 58°32′W) exhibited from the NW side of Hog Island.

(Directions continue at 2.252)

South and west of Hog Island to Wakenaam Island

(continued from 2.241)

2.251

1 From a position about 5 cables S of the S end of Hog Island (6°49′N, 58°32′W) the track leads initially NNW for a short distance and thence N, passing (with positions relative to the S end of Hog Island):

W of the S end of Hog Island, thence:

E of Kukuritikuru Island (5 cables NW), thence:

2 Between Gibbs Shoal (1¾ miles N) and the W coast of Hog Island. Keep near the W side of Hog Island until the S end of Little Truli Island (6 miles N) is seen between Akuraikuru Island and Liberty Island. Thence:

3 In mid-channel between Akuraikuru Island (3½ miles N) and Liberty Island (5¼ miles N).

The track then leads NNE, passing (with positions relative to the light (6°53′N, 58°32′W) on the NW side of Hog Island):

4 Between Liberty Island (2½ miles SSW) and Little Truli Island (2 miles SW); keep in the deep-water close to the E side of Little Truli Island. Thence:
Between Weithers Bank (1¼ miles SW) and the NW coast of Hog Island, thence:

5 WNW of Sting Ray Shoal (7 cables NNE).

The track then leads to a position about 7 cables NW of the SW point of Wakenaam Island.

Wakenaam Island to Supenaam River and the coast north

(continued from 2.250 and 2.251)

2.252

1 **South-west end of Wakenaam Island to Wakenaam Stelling.** From the position about 7 cables NW of the SW point of Wakenaam Island, the track leads NNE, passing between Great Truli Island and Wakenaam Island, keeping WNW of Tupper Banks, until abreast the light (metal framework on roof) at Wakenaam Stelling (6°57′N, 58°29′W). Tupper Banks is marked by a beacon on their SE side and by a buoy (can, black and white stripes).

2 **For vessels with draughts of 3·7 m or less.** From a position abreast Wakenaam Stelling the track then leads NW towards Supenaam River (2.256), taking care to avoid the 1·8 m (6 ft) patches lying up to 1 mile NE and N of Great Truli Island.

3 For a vessel making for the coast N of Supenaam River, follow the alignment (321°) of a set of leading beacons (6°59′N, 58°30′W), NW across the SW end of Good Hope Shoal on the rising tide, and pass close SW of a light-buoy (starboard hand) moored 1½ cables SE of the leading beacons.

4 The track then leads N into the channel between Tiger Island and the mainland, which is about 4 cables wide; the N approach to this channel has depths of less than 1·2 m (4 ft) in it and is flanked by drying sandbanks. The route from the S into the channel between Tiger Island and the mainland gives access to Aurora, Hibernia and Adventure (7°05′N, 58°29′W) (2.257).

5 **For vessels with draughts up to 5·0 m.** From a position abreast Wakenaam Stelling the track continues NNE, keeping near the W side of Wakenaam Island to avoid Belle Plaine Bank (7°00′N, 58°28′W). When the alignment (289°) of Aurora Stelling (7°01′N, 58°29′W), at Hibernia, with the S extremity of Tiger Island is reached the track then leads around the buoy (black, spherical) marking the N end of Belle Plaine Bank, and thence SSW, passing:

6 WNW of Belle Plaine Bank, thence:
ESE of the beacon on Good Hope Shoal (6°59′N, 58°29′N), which dries.

The track then leads SW to Supenaam River (2.256), taking care to avoid the wrecks on each side of the mouth.

7 **Useful mark:**

Chimney (6°58′N, 58°28′W) standing SE of Marionville Stelling on Wakenaam Island.

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Directions for the route south of Hog Island to Weri Weraikuru Creek

(continued from 2.241)

2.253

1 From a position about 5 cables S of the S end of Hog Island (6°49′N, 58°32′W) the track leads initially NNW until a little more than half-way between the S ends of Hog Island and Kukuritikuru Island, to avoid the N end of Grit Shoal.

2 The track then leads SW, passing NW of Grit Shoal. Thence the track rounds the S end of South Kamakuru Island at a distance of ½ cable, and leads NNW towards the loading berth at Weri Weraikuru Creek (6°43′N, 58°36′W). The berth should be approached at or near HW.

Small craft channels

South-west of Leguan Island

2.254

1 Small craft can cross the N end of Modder Bush Bank (6°51′N, 58°29′W), SW of Leguan Island, by a passage, with a depth of 2·1 m (7 ft) in it. The passage is marked by a beacon (white pile) standing 6 cables S of the SW point of Leguan Island, and by a light-buoy (red, spherical), moored close SW of the beacon.

Moses Channel

2.255

1 Moses Channel, which is 1 cable wide with a least depth of 2·1 m (7 ft) in it, lies between a bank, with depths of less than 1·8 m (6 ft) over it, extending NNE from Good Hope Shoal and a similar bank extending 5 cables S from Tiger Island. The fairway lies SW of a beacon (7°00′·6N, 58°28′·9W) and a buoy (red, spherical) moored 2½ cables SSE of it.

Loading place and pier

Supenaam River

2.256

1 Supenaam River (6°58′N, 58°31′W), entered from the S part of West Channel, 3½ miles SW of Tiger Island, is a loading place for timber. There is a depth of 5·2 m (17 ft) within the river's entrance. Vessels should be towed stern first to a wharf or stelling on the NE bank of the river. There is another loading place 3 cables SW of the mouth of Supenaam River.

Adventure

2.257

1 At Adventure (7°05′N, 58°29′W), standing on the mainland 1 mile SW of the N point of Tiger Island, there is a pier. A ferry plies between the pier and Parika Stelling (6°52′N, 58°25′W) (2.237) in Ship Channel.

ESSEQUIBO RIVER — HOG ISLAND TO BARTICA

General information

Charts 2782, 2783

Route

2.258

1 From a position about 5 cables S of the S end of Hog Island (6°49′N, 58°32′W) the route leads generally S, for 20½ miles, through a narrow channel which crosses back and forth between both the E and W banks of the river, to an anchorage off Bartica (6°24′N, 58°38′W) (2.264). The channel, although tortuous, is marked in places by buoys and beacons, and from 5 miles below Bartica by lights.

Tidal levels

2.259

1 At Stampa Island (6°34′N, 58°35′W), close off the E bank of Essequibo River, there is a mean spring range of about 2·5 m and a mean neap range of about 1·6 m. For further information on tides see *Admiralty Tide Tables*.

Directions

(continued from 2.241)

Hog Island to Stampa Island

2.260

1 From a position about 5 cables S of the S end of Hog Island (6°49′N, 58°32′W) the track leads initially SSW, passing (with positions relative to the S end of Hog Island):

Between Grit Shoal (1¼ miles SSW) which dries, lying on the W side of the main channel, and Bissy Bank (1¼ miles SSE), which was reported to be an island in 1993, thence:

2 Close WNW of Fish Bank (2¼ miles S), extending 2 cables N from the N Lau Lau Island.

The track then passes between the middle and N of Lau Lau Islands (2½ miles S), favouring the NE side of this narrow passage, and then passes E of a beacon standing 3 cables SSE of the N point of the middle Lau Lau Island, keeping 1½ cables off this island.

3 Thence, when Lau Lau Crossing Beacon (4 miles S), standing on the E bank of the river, bears 130°, the track leads SE towards the beacon on the alignment (310°), astern, of leading beacons (6°39′·5N, 58°34′·8W). The track then leads S, keeping within the main channel close to the E bank of the river, whilst passing E of Mamarikuru Bank, which dries in places, to a position close W of Lanaballi (7 miles S).

4 From this position the track then leads SSW, passing (with positions relative to Stampa Island (6°34′N, 58°35′W)):

ESE of the bank fronting the E side of Mamarikuru Islands (2¼ miles NNW), thence:

WNW of the NW end of a spit extending 8 cables N from Stampa Island, and:

5 ESE of the SE edge of Saxakalli Shoals (1¼ miles NW), which dry in places and are steep-to on their SE side.

The track then leads to a position about 7 cables NW of Stampa Island.

Stampa Island to Two Brothers Islands

2.261

1 From the position about 7 cables NW of Stampa Island (6°34′N, 58°35′W) the main channel of Essequibo River crosses from the E bank to the W bank, passing between Saxakalli Shoals and the NW extremity of Stampa Island Shoal; Stampa Island Shoal is reported to be extending N, NW and W. The track then leads generally S, passing (with positions relative to Stampa Island):

2 Close E of the N end of Pairuwa Islands (1¾ miles WSW), thence:

Between the NE end of Timanda Bank (2 miles SW) and Stampa Island Shoal, thence:

Between the middle of Timanda Bank and Pigeon Island Bank (1¼ miles SSW), thence:

3 W of Irlem Rock (2 miles SSW), avoiding a 2·1 m (7 ft) patch 1½ cables W of the rock. Another dangerous rock lies 2 cables S of Irlem Rock.

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The track then leads to a position about 5 cables NNE of Swarte Hoek (3 miles SSW) (2.263), and thence SE and SSE, to re-cross the river, passing (with positions relative to Sail Rock Light (6°29′·3N, 58°35′·5W)):

NE of the NE extremity (1½ miles N) of Swarte Hoek Bank, a large bank covering much of the middle of the river, and:

4 SW of the S part of Pigeon Island Bank on which Pigeon Island (2¼ miles N) lies. Pigeon Island, covered in trees, is distinct in certain lights, but is sometimes difficult to identify. Thence:

5 Clear of a rock (8 cables NNE), with a depth of 3·0 m (10 ft) over it, lying 3½ cables WNW of Ampa Point.

Thence the track leads generally S, passing (with positions relative to Sail Rock Light):

Between Ampa Point (8 cables NE) and a rock which dries lying on the SE part of Swarte Hoek Bank, thence:

6 Between Sail Rock, from which a light (beacon) is exhibited, and a rocky patch, with a depth of 3·4 m (11 ft) over it, lying 2 cables E of Sail Rock. Sail Rock, on which stands a tree, is conspicuous and easily identified; a quarry, situated at Dalli 4 cables ESE of Sail Rock is also conspicuous. Thence:

7 Close W of two beacons standing on the drying reef which extends N from Dalli Island (3 cables SE); the reef is steep-to on its W side.

The track then leads to a position close W of Two Brothers Islands (6 cables SSE), lying on a shallow bank; the islands are joined by a bridge.

Two Brothers Islands to Bartica

2.262

1 From the position close W of Two Brothers Islands (6°28′·7N, 58°35′·4W) the track continues S, passing (with positions relative to Sail Rock Light (6°29′·3N, 58°35′·5W)):

Midway between Makauria Island and Chou Chou Rock Light (concrete pillar) (1¼ miles SSW). Chou Chou Rock, on which stands a tree, lies on the NE part of Hastings Ridge ¾ cable WSW of Chou Chou Light; other rocks lie within 3 cables NE of it. Thence:

2 Between the NE extremity of Ridley Tongue (1¾ miles S) and the shallow bank extending S from Makauria Island.

The track then leads SE over Colin Crossing, in a least depth of 5·2 m (17 ft), and thence S keeping 2 cables off the E bank of the river to avoid Kujarou Bank (2½ miles S).

3 When the beacon (6°26′·4N, 58°36′·8W) on the N point of Calf Island bears 275° the track leads W, with the beacon on the E bank of the river, astern, bearing 095°, to a position at the beginning of Rattlesnake Passage leading line, passing (with positions relative to Rattlesnake Rock Light (6°25′·8N, 58°36′·8W)):

S of Kujarou Bank (1¼ miles NE), thence:

4 N of Kujarou Rock (5 cables ENE), from which a light (concrete pillar) is exhibited, marking the N end of Anderson Bank.

Rattlesnake Passage Leading Lights:

Front light (white rectangular daymark) (6°24′·8N, 58°37′·5W), standing on the E end of Swamp Island.

Rear light (radio mast, obstruction lights) (500 m from front light).

5 From a position 6½ cables NNE of Rattlesnake Rock Light the alignment (218°) of these lights leads SSW, passing (with positions relative to Rattlesnake Rock Light):

WNW of the 5·5 m (18 ft) contour line of Anderson Bank (3 cables E), thence:

Close ESE of Rattlesnake Rock, from which a light (concrete pillar) is exhibited, thence:

6 Close ESE of Georgetown Rock (1 cable SSW), a dangerous rock, thence:

ESE of a patch (2 cables SW), with a dangerous rock on it.

When a position is reached 3 cables SSW of Rattlesnake Rock the track then leads S to the anchorage (2.264) off Bartica, passing E of Longden Rock (8½ cables SSW). Longden Rock lies on the NE side of Bartica Grove Bank, with depths of less than 3·0 m (10 ft) over it; the bank extends 7 cables N from the shoreline fronting Bartica.

7 **Useful mark:**

Hotel standing beside the river at the NE end of the town of Bartica (6°24′N, 58°38′W).

(Directions for Mazaruni River are given at 2.266)

Minor harbours

Swarte Hoek

2.263

1 Swarte Hoek (6°31′N, 58°36′W), a prominent point on the W bank of Essequibo River, has a timber loading berth and is steep-to except close N and S of the point. A dangerous rock lies 1 cable NE of the point.

Vessels loading timber moor with head up river, the port anchor let go offshore and a kedge on the port quarter; wires are then made fast to trees on the shore.

Bartica

2.264

1 **Description.** Bartica (6°24′N, 58°38′W), a large town, stands on the point at the confluence of Essequibo and Mazaruni Rivers. Vessels with draughts up to 4·7 m (15 ft) can reach Bartica.

Tidal levels. At Bartica there is a mean spring range of about 2·1 m and a mean neap range of about 1·4 m. For further information on tides see *Admiralty Tide Tables*.

2 **Submarine cable.** A submarine cable is laid across Essequibo River from Bartica. For further information see 2.230.

Anchorage. There is an anchorage for vessels NE of the hotel, shown as conspicuous on the chart, in depths up to 12 m (39 ft). Cargo is handled by barge from the anchorage.

3 **Berths.** Small wooden jetties and landing slips are situated along the shores of Bartica.

Facility. There is a hospital in the town.

Supplies: provisions available in small quantities; no fuel or fresh water.

Communications. An airstrip serves the town.

4 **Small craft.** Off the point, forming the N side of Bartica, lies Swamp Island (6°24′·8N, 58°37′·5W) the E of two islets lying on the shallow S part of Bartica Grove Bank. A boat channel leads close round the point from Bartica to Mazaruni River and is marked at each end by a beacon.

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Mazaruni River

General information

2.265

1 **Description.** Mazaruni River is entered between Bartica Point (6°24′·7N, 58°37′·9W) and shoals 4 cables NW, on which lie Almanack Islands and Wallace Rock, 6 cables NNW of Bartica Point. Navigation from the entrance to the river is simple as far as abreast Mazaruni Prison (6°24′·2N, 58°39′·5W). Above Mazaruni Prison, the river is dangerous without local knowledge, but is navigable for about 5 miles to within 1 mile of Tetruba Falls where the tidal influence is lost except for rise and fall.

2 **Depths.** There is a least depth of 2·7 m (9 ft) in the channel off Saint Edward's Mission (6°22′·2N, 58°41′·9W), but this may increase to 5·8 m (19 ft) at HWS in the high river season.

3 **Submarine cable.** A submarine cable is laid ESE across Mazaruni River from the vicinity of Mazaruni Prison (6°24′·2N, 58°39′·5W). For further information see 2.230.

Landmarks:

Kalakoon House (6°23′·5N, 58°39′·1W), with an elevation of 44 m (144 ft), standing on the SE side of Mazaruni River.

4 Mazaruni Prison (6°24′·2N, 58°39′·5W) standing on the NW bank of the river; with its tower 32 m (105 ft) high, it is visible from the vicinity of Makauria Island (6°28′·1N, 58°35′·3W) (2.262).

Directions

2.266

1 From a position 3 cables SSW of Rattlesnake Rock (6°25′·8N, 58°36′·8W) the track leads initially WSW, passing close N and W of Basra Rock (6°25′·0N, 58°37′·9W). Thence the line of bearing 215° of Kalakoon House (6°23′·5N, 58°39′·1W) leads SW, passing SE of the shoals between Almanack Islands and Mazaruni Prison, until a position about 8 cables NE of the house is reached.

2 The track then continues WSW, passing (with positions relative to Kalakoon House):

SSE of Mazaruni Prison (8 cables NNW), thence:

NNW of Hesper Rock (6 cables NW), thence:

SSE of a dangerous rock (8 cables NW), with a depth of 1·2 m (4 ft) over it, thence:

3 NNW of Foam Rock (9 cables W), thence:

SSE of a group of dangerous rocks (1¼ miles W).

The track then leads SW, passing the entrance to Cuyuni River. A rock, which dries 1·5 m (5 ft), lies off the mouth of Cuyuni River 6 cables ENE of Kartabo Point (2½ miles WSW), the S entrance point of the river.

4 Above the mouth of Cuyuni River are many rocks, some of which dry; a recommended route is shown on the chart. The channel has been swept to a depth of 2·7 m (9 ft) for an average width of 305 m and all dangers discovered are shown on the chart.

Mazaruni Prison

2.267

1 At Mazaruni Prison (6°24′·2N, 58°39′·5W) there is a dry dock. Small repairs can be affected. A shoal, which dries 0·1 m (½ ft), lies off the entrance to the dry dock and restricts the draught of vessels which can pass over it at HW.

Small craft

2.268

1 The shoals off Grass Islands, opposite Bartica (6°24′N, 58°38′W) (2.264), and Anderson Bank to the N, almost prevent further progress up Essequibo River. However, vessels with draughts up to 2·0 m (6 ft) can ascend as far as Saint Mary's about 10 miles above Bartica.

GUYANA — ESSEQUIBO RIVER TO PUNTA PLAYA

General information

Charts 572, 517

Route

2.269

1 From the vicinity of 7°32′N, 58°16′W, NE of Devonshire Castle Flats, the offshore route continues NW, for about 142 miles, to the vicinity of 9°06′N, 60°00′W off the mouth of Río Orinoco, 34 miles N of Punta Playa (8°33′N, 60°01′W). Punta Playa marks the boundary of Guyana with Venezuela.

Topography

2.270

1 From Devonshire Castle Flats (7°22′N, 58°29′W) to the mouth of Pomeroon River, 22 miles NW, the coast is low and wooded, without prominent features. Cozier Point lies 5 miles ESE of the mouth of Pomeroon River; Cozier Creek and Chandler Creek, situated 5½ and 9 miles, respectively, SE of the point, are difficult to identify. Somerset-Berks Canal (7°25′N, 58°33′W) lies 13 miles SE of Cozier Point.

2 From the mouth of Pomeroon River to Punta Playa, 93 miles NW, the coast, which continues low and wooded, has no prominent features. This coast is imperfectly known and constantly altering; it is broken only by Waini River and by a number of creeks which dry out.

Punta Playa, situated near the middle of the N side of Isla Corocoro, is low and swampy; the island is bounded S by Río Barima and E by Morawhanna Passage. A beacon marking the boundary between Guyana and Venezuela stands on Punta Playa.

Depths

2.271

1 The coastal banks, consisting of shallow flats of mud, sand and shells, extend a considerable distance offshore, out of sight of land. Without local knowledge, no vessel should approach within a depth of 11 m.

Directions

(continued from 2.238)

2.272

1 From the vicinity of 7°32′N, 58°16′W the track leads NW, well offshore, passing:

NE of a dangerous wreck, reported in 1997 to lie between latitudes 7°46′·5N and 7°48′·6N, and longitudes 58°28′·7W and 58°30′·5W. Two other dangerous wrecks lie 7 miles farther inshore, off the entrance to Pomeroon River. Thence:

2 Clear of an isolated shoal (8°05′N, 58°38′W), depending on draught, reported in 1993 to have a depth of 17·1 m over it, thence:

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NE of an area between longitudes 59°04′W and 59°22′W in which lie many dangerous wrecks, thence:

3 NE of an isolated dangerous wreck (8°45′N, 59°45′W), lying 20 miles NE of Punta Playa (2.270). A stranded wreck also lies 7½ miles WNW off Punta Playa.

The track then leads to the vicinity of 9°06′N, 60°00′W off the mouth of Río Orinoco.

(Directions continue, for Río Orinoco at 3.19 and for the offshore route NW at 4.9)

Pomeroon River and approaches

Chart 572

General information

2.273

1 **Description.** The entrance to Pomeroon River (7°36′N, 58°45′W) is about 1½ cables wide. On the E side of the entrance the trees on Pomeroon Point are high and even, but those on the W entrance point are low and irregular; the river entrance cannot be seen from the E.

A beach 1 mile W of the entrance is sandy near the HW line, but elsewhere in the area the foreshore consists of soft black mud; the shore down to the LW line is fouled by fallen tree trunks due to coastal erosion.

2 **Depths.** Off the river mouth depths are subject to seasonal changes due to the increased flow of water in the rainy period; they are also affected by the volume of traffic, as vessels tend to plough a way through the mud. In the entrance to the river there are depths of about 4·0 m, increasing 15 miles up river to 18·0 m.

The river is accessible to vessels with a draught up to 2·4 m between 1 hour either side of HW.

3 **Tidal levels** for the Pomeroon River are as follows:

At the entrance there is a mean spring range of about 1·8 m and a mean neap range of about 0·6 m.

At Charity (2.275) there is a mean spring range of about 1·6 m and a mean neap range of about 0·6 m.

For further information on tides see *Admiralty Tide Tables*.

Directions

2.274

1 **Entry.** There is no channel leading to the entrance of the river. However, when approaching from seaward, pass close N and W of two lights (pile structures), situated 3½ miles NNE and 1½ miles NNW of the mouth of Pomeroon River, in order to avoid extensive drying mudflats to the E and the coastal bank to the W.

2 **Useful marks:**

Light (white daymark) (7°40′·1N, 58°47′·6W) exhibited from the S side of Moruka River; the mouth is not easy to identify owing to trees.

Light (white daymark) exhibited from the W entrance point of Pomeroon River.

3 **River.** Vessels navigating the river at HW should do so at a moderate speed to avoid breaking down the dams of piled mud which surround the estates and protect them from flooding.

Settlements

2.275

1 **General information.** Small settlements exist along the thickly wooded banks of Pomeroon River. Coconuts are grown for copra, the main product of the area. Limited supplies can be obtained from the many small shops which line the river banks but fresh water is not readily obtainable.

A wharf or stelling, situated at Tuchen on the E bank of the river 2 miles from its mouth, can accommodate vessels up to 30 m in length with draughts of less than 1·5 m. There is a similar wharf about 3 miles farther up river at Diamond, also on the E bank.

2 **Charity**, a small village, is situated on the E bank of the river about 21 miles from its mouth; it is the limit of navigation for the fortnightly Pomeroon ferry, which has a draught of 2·4 m. There is a concrete wharf at the village.

A large range of supplies are obtainable at the village and it is also connected to Georgetown by seaplane and road. There is a police station at the village.

Small craft

2.276

1 Waini Beach (7°44′N, 58°50′W) and Moruka Beach, 5 miles SE, form landmarks for vessels of light draught which can approach within 5 miles of the coast and enter Pomeroon River. These beaches, which are difficult to see except in the forenoon, are composed of shells.

2 Landing on the open beach should not be attempted except at HW and in very fair weather due to the surf.

Waini River and Morawhanna Passage

Chart 517

General information

2.277

1 **Description.** Waini River, flows into the sea W of Waini Point (8°24′N, 59°49′W), which is thickly wooded and can be seen at a distance of about 12 miles. The mouth of the river may be identified from its position in relation to the hills 46 m high at Cumacka, situated about 17 miles S of Waini Point. The hills are the only ones of any elevation for many miles along this coast; they appear as a hummock and are usually visible at dawn.

2 Waini River connects with Morawhanna Passage, about 4 miles within its mouth; the passage gives access to Río Barima (3.19), Aruka River and Kaituma River.

Controlling depths:

Waini River is accessible at HWS by vessels with a draught of 3·0 m; vessels with a draught up to 3·7 m have crossed the bar by ploughing through the mud.

Morawhanna Passage has depths from 15 to 30 m in its navigable channel.

3 **Local knowledge** is required.

Tidal levels. At the entrance to Waini River there is a mean spring range of about 1·2 m and a mean neap range of about 0·6 m. For further information on tides see *Admiralty Tide Tables*.

4 **Tidal streams.** There is a difference of 2 hours between the tide at the mouth of Waini River and that in Río Barima at Morawhanna (8°17′N, 59°46′W). When the tidal stream begins to set out of Morawhanna Passage into Waini River, the stream up Río Barima flows with it, so that, until the tide in Río Barima begins to fall, the level at Morawhanna remains stationary.

5 The out-going stream in Morawhanna Passage has a rate of up to 3 kn; the in-going stream has a rate between 1½ to 2½ kn.

On the rising tide, the stream is SW-going across the mouth of Waini River from 1½ to 2 hours after the tide in

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Morawhanna Passage has begun to fall. On the falling tide, the stream sets straight out of Waini River.

Directions

2.278

1 **Inward bound.** Waini Point Light (red and white framework tower on four piles) (8°28′N, 59°48′W) marks the approach to the river. There are no specific directions for entering Waini River but attention is drawn to the following (with positions relative to Waini Point Light):

A dangerous wreck (18 miles N).

2 A patch (10 miles N), with a depth of 4·9 m over it.

A shoal (4 miles N), with a depth of 0·6 m over it; marked on its W side by a light-buoy (red and yellow stripes).

A mudflat extending 4 miles N from Waini Point.

3 Within Waini River the fairway is marked by lights. For vessels bound for Port Kaituma (2.280), the track leads through Morawhanna Passage, which is entered about 4 miles S of the entrance to Waini River, for 7 miles to the E end of Río Barima.

4 Thence a vessel can proceed up Río Barima for about 15 miles to its junction with Kaituma River and continue up the latter river to Port Kaituma. A vessel which can cross the bar should have no difficulty in reaching Port Kaituma, providing that care is taken on bends and especially at river junctions where violent eddies are to be expected.

5 **Outward bound.** A vessel bound outward through Morawhanna Passage should leave Morawhanna (8°17′N, 59°46′W) at the time of LW in Río Barima, for by then the level in the passage will have risen nearly half its height and the depths over the flats in the mouth of Waini River will be sufficient.

Anchorage

2.279

1 There is an anchorage in a depth of 6 m, over soft mud, with Waini Point bearing between 175° and 180°, distant about 7 miles.

Settlements and port

2.280

1 **Morawhanna** (8°17′N, 59°46′W) stands at the junction of Morawhanna Passage and Río Barima. Deratting can be carried out at Morawhanna.

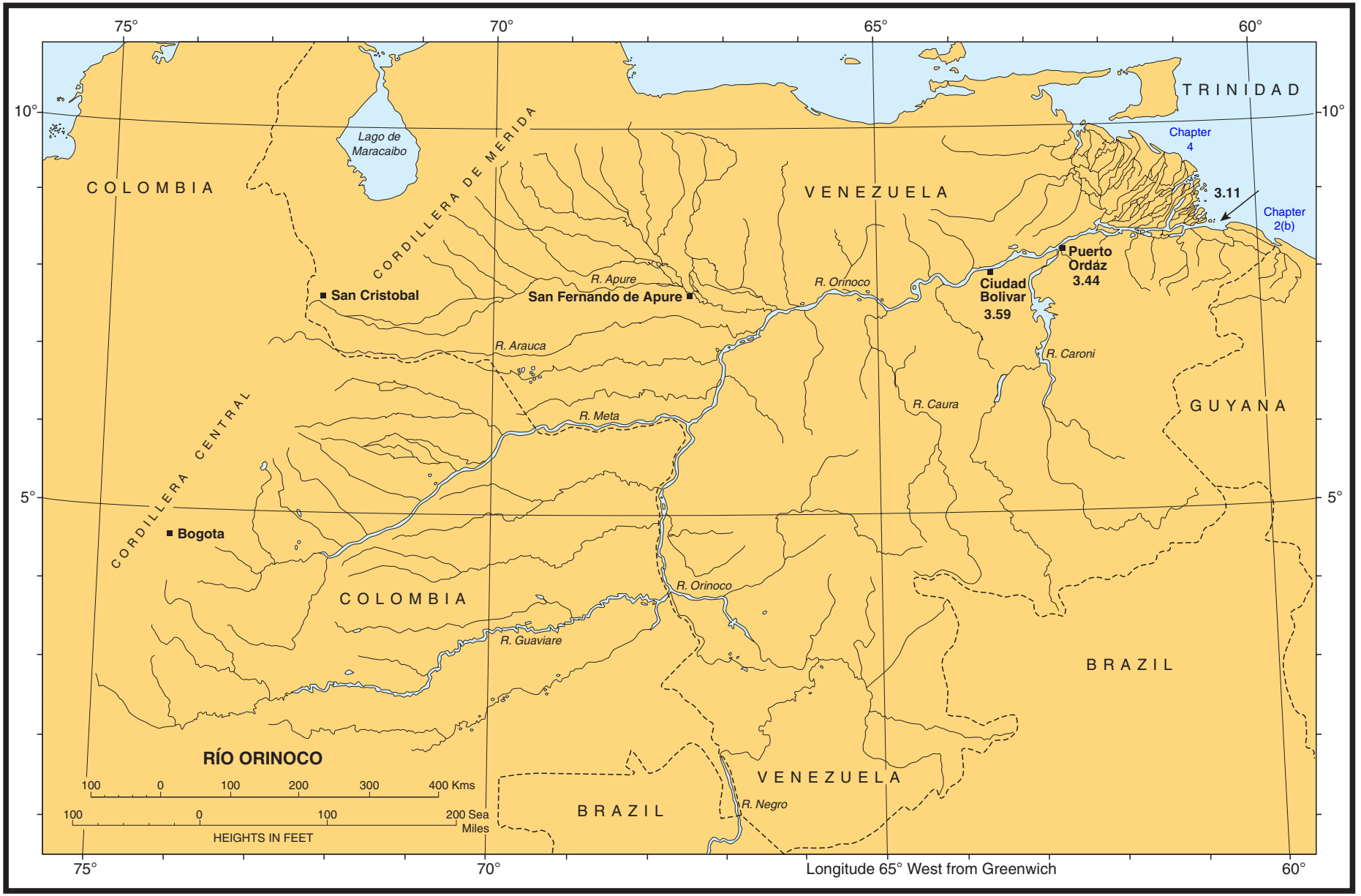
Mabaruma is a small settlement about 2 miles up Aruka River from its junction with Río Barima; it has regular communication by sea with Morawhanna and Georgetown. There is a hospital at the settlement.

2 **Port Kaituma.** This port, which is situated in Kaituma River 61½ miles from the Waini Bar, exports manganese. It contains a single berth which can handle vessels up to 3500 dwt.

Fresh water is available and there are medical facilities at Matthews Ridge Hospital.

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CHAPTER 3

RÍO ORINOCO

GENERAL INFORMATION

Charts 3322, 517

Scope of chapter

3.1

1 This chapter describes the waters of Río Orinoco from Boca Grande (9°06′N, 60°00′W) to Ciudad Bolívar (8°08′N, 63°33′W) (3.59). Boca Grande is the principal mouth of Río Orinoco at the SE end of the delta of Río Orinoco and gives access to the iron ore ports of Palúa (3.38), Puerto Ordaz (3.44) and Puerto Matanzas (3.50), and the oil terminal at Punta Cuchillo (3.39). A brief description is also given of the upper reaches above Ciudad Bolívar. It is arranged as follows:

2 Boca Grande (3.11).
Isla Tercera to Puerto Matanzas (3.22).
Puerto Matanzas to Ciudad Bolívar (3.55).
Upper reaches of Río Orinoco (3.64).

For a description of the NW entrance to Río Orinoco through Río Pedernales (10°01′N, 62°06′W) see 4.287.

Description

3.2

1 Río Orinoco, probably about 1500 miles long, rises in the little explored mountain system of Sierra de Parima in approximate position 2°18′N, 63°15′W. This great river is navigable by vessels of light to moderate draught as far as Ciudad Bolívar; small craft can reach Atures Rapids 845 miles above Punta Barima (8°36′N, 60°25′W).

2 The coast of Venezuela from Punta Barima to Río Pedernales (10°01′N, 62°06′W), 150 miles NW, comprises the delta of Río Orinoco. The apex of the delta is at Punta La Pastora (8°43′N, 62°06′W).

Pilotage

3.3

1 For vessels of 200 m LOA or more pilotage is compulsory through South Channel, the dredged channel through Boca Grande (3.11) also known as New Barima Channel, starting at No "0·1" Light-buoy (8°56′N, 60°11′W); the pilot boards by helicopter. For vessels of less than 200 m LOA pilots are not required for the dredged channel but are compulsory for the passage of Río Orinoco; they board in the vicinity of No "28" Light-buoy (8°36′N, 60°31′W), 5 miles W of Punta Barima.

2 Vessels are not allowed to enter the dredged channel without permission from the pilot or Puerto Ordaz Port Radio. When approaching the channel from seaward, contact should be made with the port radio station at Puerto Ordaz (8°21′N, 62°43′W), which controls all pilotage and traffic communications in Río Orinoco. The vessel will then be given instructions either to enter the channel or to anchor at least 1 mile seaward of No "0·1" Light-buoy and wait for an outward bound vessel to clear the channel.

3 After receiving permission from Puerto Ordaz Port Radio to enter the dredged channel, a vessel should inform the pilot station 1 mile ESE of Punta Barima on VHF Channel 16 of the time of passing No "0·1" Light-buoy and of the ETA off the pilot station, giving the vessel's position every 1 hour until the pilot is embarked, if not already on board, W of Punta Barima.

4 For further details see *Admiralty List of Radio Signals Volume 6 (5)*.

Quarantine

3.4

1 Pratique may be obtained by radio to Puerto Ordaz after picking up the pilot. For details see *Admiralty List of Radio Signals Volume 1 (2)*.

Dredger signals

3.5

1 Dredgers working in the channel through the bar in Boca Grande use the *International Code of Signals*; within the river they use the following signals which are peculiar to Río Orinoco:

(1) Approaching vessel sounds 1 long and 3 short blasts.

2 (2) Dredger in reply sounds:
a) 1 short blast — vessel to steer to starboard and keep the dredger on the port bow.
b) 2 short blasts — vessel to steer to port and keep the dredger on the starboard bow.
c) 2 long and 2 short blasts — vessel must not pass the dredger.

3 (3) The dredger's signal must be acknowledged by the vessel ("R" of the *International Code of Signals* may be used).

(4) If two vessels are approaching the dredger from opposite directions, the dredger will answer the outward bound vessel first.

Natural conditions

3.6

1 **Water levels.** The depths in the branches of Río Orinoco change with the seasons and, during the greater rains of the mountainous parts of the interior, from April to July, the N part of the delta W of the mouth of Caño Mariusita (9°37′N, 61°13′W) is inundated.

2 The seasonal rise of Río Orinoco and its tributaries begins immediately after the vernal equinox and reaches its greatest height in late August. In September, the water level begins to fall steadily and is at its lowest generally in March. Local rains cause small variations.

3 At Barrancas (8°42′N, 62°12′W), the maximum rise is about 9·1 m. Above Barrancas, the normal rise is estimated to be about 15·2 m, varying according to the width of river, the number of tributaries, and the distance from the sea. At Ciudad Bolívar, the average annual rise is about 12·8 m.

4 At high river, tidal influence is not felt above Curiapo (8°35′N, 61°00′W). At low river, a tidal effect can be observed throughout the waterway, diminishing progressively upstream; the maximum tidal range recorded at Puerto Ordaz is 0·5 m. Any rise and fall of tide has little or no effect on the river current.

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5 **Current.** The rate of the current varies with the water level, being strongest at high river and weakest at low river. In general, the rate of current increases progressively with distance from the mouth, but this pattern is affected by the width and shape of the river as well as by bottom gradient. A rate of 6 kn has been recorded, but it is normally 3 to 4 kn.

6 In places there are strong eddies or counter-currents of which the pilots take advantage when ascending the river.

Regulations

3.7

1 The following regulations apply:

Anchoring in the dredged channel, through Boca Grande, and in the narrow and dredged channels of the river or close to a bend, is not allowed.

Vessels entering Río Orinoco must carry only clean ballast.

2 Vessels must display the Venezuelan flag at all times after arrival off Boca Grande.

Outward bound vessels have right of way, both in the approach channels and in Río Orinoco.

For other regulations concerning vessels entering Venezuelan territorial waters, see 1.47.

Charts

3.8

1 Chart 3322, panels B, C, D and the plan of Puerto Ordaz are intended for general guidance and planning purposes only. Depths, buoyage and navigational lights shown on these panels are not corrected by Notice to Mariners and should not be relied on.

2 There are no British Admiralty charts available for Río Orinoco and its tributaries above Puerto Matanzas. Mariners intending to navigate the Río Orinoco must consult the appropriate local authorities for the latest information.

Navigation

3.9

1 **General remarks.** The waterway through the Río Orinoco is open to shipping 24 hours a day and except for the dredged channels, two-way simultaneous traffic can be handled. Navigation of the river in winter can be difficult because of strong currents and floating debris. Squalls, which blow upstream as night approaches, are dangerous to small craft.

2 **River bed.** A feature of Río Orinoco is that the bottom consists of a layer of very soft mud, virtually in suspension and partly mobile, which is known locally as *calambrina*. The consistency of this mud is such that it shows on most echo sounders, but the depth shown depends partly on the frequency of transmission.

3 The *calambrina* is more pronounced in summer, when rainfall in the interior is very high, bringing down much sediment in the river. The existence of this phenomenon and its mobility makes it difficult to calculate the actual depth of water in the channel.

4 Mariners are warned that the *calambrina* may severely hinder the passage of a vessel over the bar, particularly in summer. Vessels drawing more than 7·5 m are likely to have to force a passage through a layer of mud 1·0 m or more thick with a consequent loss of speed of up to 50%.

Table of approximate distances in sea miles

3.10

	Place	*Distance from Punta Barima*
1	Boca Grande (No "0·1" Light-buoy) (8°56′N, 60°11′W)	–27
	Punta Barima (8°36′N, 60°25′W)	0
	Punta Yatica (8°37′N, 60°43′W)	+15
2	Curiapo (8°35′N, 61°00′W)	33
	Vuelta Diablo (8°32′N, 61°32′W)	71
	Sacupana (8°35′N, 61°39′W)	81
	Punta La Pastora (junction with Caño Macareo) (8°43′N, 62°06′W)	111
3	Pueblo de Barrancas (8°42′N, 62°12′W)	116
	Punta Cabrian Anchorage (8°35′N, 62°15′W)	123
	Los Castillos (8°31′N, 62°24′W)	134
	Paradero Oil Berth (8°25′N, 62°37′W)	149
4	San Félix (8°22′N, 62°40′W)	153
	Palúa (8°22′N, 62°42′W)	155
	Puerto Ordaz (8°21′N, 62°43′W)	157
	Punta Cuchillo Oil Terminal (8°20′N, 62°48′W)	166
5	Puerto Matanzas (8°17′N, 62°51′W)	169
	Paso del Rosario	190
	Paso de Panapana	197
	Ciudad Bolívar (8°08′N, 63°33′W)	212
	Muitaco	274
6	Quanare	291
	Boca del Inferno	303
	Río Caura (junction)	312
	Mapire	319
	Pueblo de Caicara (7°23′N, 66°30′W)	377
7	Río Arauca (junction)	437
	Río Meta (junction)	497
	Puerto Ayacucho	629
	Atures Rapids	845

BOCA GRANDE

General information

Charts 3322, 517

Route

3.11

1 From the vicinity of 9°06′N, 60°00′W off the mouth of Río Orinoco, 34 miles N of Punta Playa (8°33′N, 60°01′W), the route leads generally SW to the vicinity of No "0·1" Light-buoy (8°56′N, 60°11′W), thence through a dredged channel, known as either South Channel or New Barima Channel, over the bar, to a position about 1½ miles SSW of Isla Tercera (8°39′N, 60°35′W).

2 The dredged channel is 30 miles long and 122 m wide, although it was reported in 1993 to be generally about

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90 m wide. An auxiliary or natural channel, known as North Channel and shown on Chart 3322, was reported in 1990 to no longer exist.

Topography

3.12

1 The main branch of Río Orinoco is entered between Punta Barima (8°36′N, 60°25′W), the W extremity of Isla Corocoro, and Isla Tercera 10 miles WNW. The N coast of Isla Corocoro (2.270) from Punta Sabaneta (8°38′N, 60°24′W) to Punta Playa, 24 miles E, is swampy and thickly wooded.

2 The delta of Río Orinoco N of Isla Tercera to Isla Barril (9°05′N, 60°41′W) and Isla Cidras, 28 miles N, consists of the numerous mouths of the more minor branches of Río Orinoco, and is low-lying. Isla Bongo, with a mast standing on its NW side, lies off these mouths 11 miles N of Isla Tercera.

3 Within the mouth of Río Orinoco, between Punta Barima and Isla Tercera, both banks of the river are lined by trees about 43 m high and are intersected by numerous creeks.

Caution

3.13

1 The coast in the vicinity of Boca Grande is very difficult to distinguish and sounding should be continuous when approaching the mouth of Río Orinoco from N; it has been reported that vessels have taken the ground while still out of sight of land. Depths of 20 m (11 fm) or less are found as much as 20 miles from the nearest land. No landmarks are visible, as a rule, before a vessel is in shallow water. The bottom is soft grey mud.

2 The bar extends about 20 miles seaward, and in bad weather there is a heavy and dangerous sea over it; discoloured water also makes the steep-to coastal banks invisible. The prevailing NE winds raise a steep sea in depths less than 18 m (59 ft).

Controlling depths

3.14

1 The South Channel is maintained at a depth sufficient for a vessel of the maximum draught authorised by the Port Captain at Ciudad Bolívar. This maximum draught is subject to the draught assigned to a vessel on its maximum fresh water loadline. The authorised draught is about 10·1 m (33 ft) in the low river season, December to May, and reaches a peak of about 13·1 m (43 ft) at high river in late August.

2 The authorised draught is promulgated daily, together with the controlling depths in the bar channel and in dredged parts of the river, in Spanish and English. In 2002 heavy silting was reported between the buoys marking miles 21·1 and 22·5, and again in the vicinity of mile 26·7.

Tidal levels

3.15

1 At Isla Tercera (8°39′N, 60°35′W) there is a mean spring range of about 2·0 m and a mean neap range of about 1·4 m. For further information see the *Admiralty Tide Tables.*

Current and tidal streams

3.16

1 In the approach to Boca Grande, the Guiana Current is NW-going with a rate from 1 to 3 kn. Between the discoloured river water and the sea water, there is a distinct line which moves with the tides. At HW the line is in depths between 7 and 9 m (23 and 29 ft); at LW the line is found further seaward in depths between 11 and 14 m (36 and 46 ft).

2 The tidal streams, for a short distance offshore, run for about 6 hours each way. Allowance for the NW-going set should be made when crossing the bar.

Aids to navigation

3.17

1 **General remarks.** The channel leading into Río Orinoco is marked by light-beacons and light-buoys, and in places by leading lights, in accordance with IALA Maritime Buoyage System (Region B). These aids have numbers denoting their distance in miles from the seaward end of the dredged channel at 8°56′·0N, 60°11′·2W, which is close seaward of No "01" Light-buoy.

2 Lights in line for the use of dredgers exhibit yellow lights and mark the edges of channels. Leading lights indicate the centre of the dredged channel over the bar and exhibit lights from column structures; the structures are painted white, but are reported to be difficult to distinguish by day:

Front lights have black and white triangular (points up) topmarks.

Rear lights have light-grey triangular (points down) topmarks.

3 **Caution.** Mariners are advised that the positions and characteristics of the light-beacons and buoys marking the channel may not be as charted. Obstructions may also exist where beacons have been destroyed; the channel is not recommended for deep draught vessels at night. Up to date information should be obtained from Puerto Ordaz Port Radio.

Other aids to navigation

3.18

1 **Racons:**

Delta del Orinoco Light-buoy (8°57′N, 60°09′W).

No "0·1" Light-buoy (8°56′N, 60°11′W).

Directions

(continued from 2.272)

3.19

1 From the vicinity of 9°06′N, 60°00′W, 34 miles N of Punta Playa (8°33′N, 60°01′W), the track leads SW, passing (with positions relative to No "0·1" Light-buoy (8°56′N, 60°11′W)):

SE of a dangerous wreck (7 miles N), thence:

2 NW of a wreck (3½ miles ENE), the position of which is approximate, thence:

NW of Delta del Orinoco Light-buoy (safe water) (2¼ miles NE), thence:

Either side of No "0·1" Light-buoy (safe water).

3 The track then leads through the dredged channel, the marks for which are described at 3.17, to a position about 7 miles W of Punta Barima (8°36′N, 60°25′W), in the vicinity of No "30·0" Light-buoy. Punta Barima, on which stands a disused lighthouse (yellow iron framework tower, 30 m (100 ft) high), is the N entrance point of Río Barima; trees partly obscure the lighthouse.

4 Thence the track leads W and NW for a farther 5½ miles to a position about 1½ miles SSW of Isla Tercera (8°39′N, 60°35′W), which is covered with trees.

Navigation of the dredged channel over the bar presents no difficulty except in the vicinity of a dredger working, when extreme care is needed; for dredger signals see 3.5.

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5 **Useful mark:**

It was reported in 1984 that Isla Barril (9°05′N, 60°41′W) (3.12) and Isla Cidras gave good radar responses at 20 to 25 miles.

(Directions continue at 3.28)

Anchorages and landing places

Anchorages

3.20

1 There is good temporary anchorage off the entrance to the dredged channel over the bar. Off Punta Barima, anchorage with good holding ground can be obtained by vessels of appropriate draught with the disused lighthouse bearing 100°, distant 4 miles.

Landing places

3.21

1 Boats can effect landings close within the mouths of Río Barima (8°35′N, 60°25′W) and Río Amacuro, 4½ miles SW, on their NE banks.

ISLA TERCERA TO PUERTO MATANZAS

General information

Chart 3322

Route

3.22

1 From a position about 1½ miles SSW of Isla Tercera (8°39′N, 60°35′W) the route follows the fairway through the Río Orinoco generally W, for 102 miles to Punta La Pastora (8°43′N, 62°06′W), and thence generally SW for a farther 58 miles to Puerto Matanzas (8°17′N, 62°51′W).

Ports of Ciudad Guayana

3.23

1 The ports and terminals along the Río Orinoco from Paradero Oil Terminal (3.36), 7½ miles NE of Puerto Ordaz (8°21′N, 62°43′W) (3.44), to Puerto Matanzas (3.50), 8½ miles SW, are known collectively as the Ports of Ciudad Guayana. Ciudad Guyana, itself, consists of Puerto Ordaz and San Félix, with a combined population of about 550 000.

Pilotage

3.24

1 For details of embarking a pilot see 3.3. A vessel must maintain continuous radio watch during passage of Río Orinoco. The pilot stations at Punta Barima and Puerto Ordaz provide VHF RT communication along the whole route and can communicate with Palúa and Puerto Matanzas.

2 The position of the vessel, as given by the pilot from the mileage references (3.17) on the navigational aids, must be reported hourly on the hour to Puerto Ordaz. Continuous radio information concerning the positions of other vessels in the river by these references will be received.

3 The river pilot is relieved off a port by a docking pilot.

Grounding

3.25

1 Reports of grounding in the river have increased in recent years (1984–1986); these are attributed to continuous silting of the dredged channels. In addition, ship's reports indicate that the channel buoyage is unreliable.

2 Vessels running aground usually suffer no damage, except in the vicinity of mile 105 (8°34′N, 61°36′W) where the bottom is rock. However the cost of tugs, which have to come from Puerto Ordaz, is excessively high. In addition vessels running aground at the beginning of the low river season (December to May) may encounter further difficulties.

Submarine pipeline

3.26

1 A submarine pipeline is laid across the river, 8 cables SW of Punta Cuchillo (8°20′N, 62°48′W) in the vicinity of Punta Cuchillo Oil Terminal (3.39); the use of anchors near the pipeline is prohibited. Triangular daymarks on both banks mark the landing places of the pipeline.

Aids to navigation

3.27

1 From its entrance SE of Isla Tercera the river is marked by light-beacons and light-buoys, in accordance with IALA Maritime Buoyage System (Region B), and in places by leading lights. In addition to the numbered light-buoys, dredged channels in narrow and intricate parts of the river are further marked in places by light-buoys; such channels are indicated on the chart by double-pecked lines.

Directions

(continued from 3.19)

Isla Tercera to Punta La Pastora

3.28

1 From a position about 1½ miles SSW of Isla Tercera (8°39′N, 60°35′W) the track follows the buoyed channel, generally W, passing:

Close S of Isla Cangrejo (8°39′N, 60°39′W), an island close W of Isla Tercera, which appears as a bluff and is easy to identify, thence:

2 Close N of Punta Yatica (8°37′N, 60°43′W); No "41·7" Light-beacon (black and white tripod) stands close off the point. Thence:

N of Islas Papagayos (8°36′N, 60°56′W).

The track then leads SW, passing:

SE of Curiapo (8°35′N, 61°00′W), a settlement consisting of a few stone buildings and Indian huts, thence:

3 NW of Isla Diego Pérez (8°32′N, 61°00′W).

The track then turns again to lead W, passing:

N of Isla Horqueta Pequeña (8°28′N, 61°14′W), within 8 miles W of which there are three sharp bends, thence:

S of the entrance to Caño Paloma (8°29′N, 61°25′W).

The track then leads WNW, passing (with positions relative to Sacupana (8°35′N, 61°39′W)):

4 Around Vuelta Diablo (9¼ miles ESE), another sharp bend, thence:

SSW of the W entrance (5 miles E) to Río Grande, thence:

SSW of Isla Santa Elena (6 cables ENE), thence:

5 NNE of Sacupana, a settlement, thence:

SSW of the entrance (4½ miles NW) to Caño Araguao, a minor branch of the Río Orinoco which reaches the sea in the vicinity of Isla Baroco Sanuco (9°16′N, 60°46′W). A village stands on the E entrance point of Caño Araguao. Thence:

6 NNE of the entrance (8 miles WNW) to Caño Santa Catalina; the settlement of Santa Catalina is situated on the SE bank of this branch, 3½ miles within the entrance. Thence:

NNE of Isla Portuguesa (9 miles WNW), thence:

NNE of Isla Tres Caños (20 miles WNW), and:

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7 SSW of the entrance (21 miles WNW) to Caño Araguaito; this branch of the Río Orinoco connects with Caño Araguao.

The track then leads to a position about 1 mile WSW of Punta La Pastora (28½ miles WNW) (3.2), the E entrance point of Caño Macareo. Consejo, a small settlement, stands 4 miles ESE of Punta La Pastora.

Punta La Pastora to Puerto Matanzas

3.29

1 From the position 1 mile WSW of Punta La Pastora (8°43′N, 62°06′W) the track turns and leads generally SW, passing (with positions relative to the W end of Isla Tapatapa (8°32′N, 62°27′W)):

NW of the N end of Isla Varadero (16½ miles ENE), thence:

2 NW of Isla Chivera (17 miles NE). On the NW bank, opposite Isla Chivera, stands Pueblo de Barrancas (3.33), with the settlements of El Apostadero and Los Barrancos NE of it and El Saladero, another small settlement, close SW. Thence:

3 NW of Punta Cabrian (14¼ miles ENE), where there is an anchorage (3.34), thence:

SE of Playa Iguana (12 miles ENE) and an islet SW of it, thence:

Between Cerro Sorondo (7 miles ENE), a small but steep and prominent hill on the N bank, and Cerro Corocito, a square and densely wooded hill on the S bank. There is a settlement at Cerro Sorondo. Thence:

4 NW of Los Castillos (4¾ miles E), a large settlement situated on a spur of the hills near the S bank of the river; it was the original capital of the Spanish province of Guayana, and two forts stand on hills near it. Los Castillitos is a village on the opposite bank N of Los Castillos.

Thence the track leads W for about 7 miles, passing S of Isla Tapatapa, and then turns SW again, passing (with positions relative to Punta Aramaya (8°27′N, 62°36′W)):

5 Between Punta Piedra San Roque (6¾ miles NE), from which No "167·2A" Light (red and white tripod) is exhibited, and Isla Mucura, thence:

Close NW of Punta Aramaya (black and white tripod) from which No "174·1" Light (black and white tripod) is exhibited, thence:

6 SE of No "175·0" Light (red and white tripod) (1 mile WSW), exhibited from a rock close NW of the fairway, thence:

Close NW of Islas Sur de Aramaya (1½ miles SW), a group of rocks from which No "175·9" Light (black and white tripod) is exhibited.

7 The track then leads through the anchorage (5 miles SW) N of San Félix (3.37) and thence W towards the N bank of the river, passing N of Islote Fajardo (6½ miles SW). Thence the track leads NW to pass N of Isla Amana (9¾ miles WSW), and then SW, passing (with positions relative to Punta Cuchillo (8°20′N, 62°48′W)):

8 Close NW of Punta Cuchillo where there is an oil terminal (3.39). In the channel from Islote Fajardo to Punta Cuchillo the eddies are very strong. Thence:

SE of Isla Pancho Cierto (2 miles SW).

The track then leads to a position close NW of the berths at Puerto Matanzas (3¾ miles SW) (3.50).

(Directions continue for the passage to Ciudad Bolívar at 3.58)

Side channel

San Félix, Palúa and Puerto Ordaz approach

3.30

1 A buoyed and dredged channel, branching SW from the main channel provides access to San Félix (3.37), Palúa (3.38) and Puerto Ordaz (3.44). The centre of the channel is indicated by leading lights:

Front light (8°23′·5N, 62°38′·6W) (tripod).

Rear light (9½ cables NE from front light) (triangular daymark on metal framework tower).

2 From a position about 4½ miles SW of Punta Aramaya (8°27′N, 62°36′W) the track leads SW, passing:

NW of the terminal at San Félix, thence:

SE of Islote Fajardo, thence:

NW of Palúa, thence:

SE of the E part of Isla Fajardo.

3 The track then leads S into Río Caroni. Puerto Ordaz is situated on the W side of the entrance to Río Caroni. Río Caroni is of considerable depth, but it is only navigable as far as cataracts about 4 miles from its mouth.

Anchorages and harbour

Isla Tercera to Punta La Pastora

3.31

1 All vessels needing to anchor in the section between Isla Tercera (8°39′N, 60°35′W) and Punta La Pastora (8°43′N, 62°06′W) must do so as close as possible to the N bank of the river. Emergency anchorage must be taken in such a way as to avoid obstructing the fairway.

El Apostadero

3.32

1 Anchorage can be obtained N of the fairway 1½ miles E of El Apostadero (8°43′N, 62°10′W), a small settlement situated on the N bank of Río Orinoco.

Pueblo de Barrancos

3.33

1 Pueblo de Barrancos (8°42′N, 62°12′W) is situated on the NW bank of Río Orinoco, 116 miles above the mouth of the river. Barrancas has a considerable trade in cattle; the port has depths of about 8 m (26 ft).

Punta Cabrian

3.34

1 Anchorage can be obtained near the NW bank of the river 6 cables NNE of Punta Cabrian (8°35′N, 62°15′W) in depths of more than 18 m (59 ft).

Punta Aramaya

3.35

1 Anchorage can be obtained in deep water at all stages of the river 5 miles SW of Punta Aramaya (8°27′N, 62°36′W). Vessels anchor here if waiting to berth alongside at San Félix, Palúa or Puerto Ordaz.

River terminals

Paradero Oil Terminal

3.36

1 **Position and function.** Paradero Oil Terminal, also known as Puerto Lagoven, handles petroleum products. It is situated at Paradero on the SE side of the river, about 2 miles SW of Punta Aramaya (8°27′N, 62°36′W).

Port Authority. Instituto Nacional de Puertos, Port Captain's Office, Ciudad Bolívar, Venezuela.

2 **Berth.** The berth consists of a pontoon which can accommodate vessels up to 50 000 tons.

Communications. Airport at Puerto Ordaz.

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San Félix

3.37

1 **Position and function.** San Félix (8°22′N, 62°40′W), an important town, is situated on the SE bank of Río Orinoco, 3½ miles NE of Puerto Ordaz. The port handles general cargo, containers, aluminium and grain.

Traffic. In 1997 the port was used by 19 vessels with a total of 102 445 dwt.

2 **Port Authority.** Port Authority of San Félix, Instituto Nacional de Puertos, Calle Veracruz con Calle Cali, Las Mercedes, Caracas, Venezuela.

Directions for entering harbour. The berth at San Félix is accessed via the channel described at 3.30.

3 **Berth.** A floating wharf, 123 m long, is moored 150 m from the river bank. It can accommodate vessels with draughts up to 8·5 m under low river conditions.

Other facility. Hospital at Puerto Ordaz.

Supplies: fuel oil supplied by barge; fresh water.

Communications. Airport at Puerto Ordaz.

Palúa

3.38

1 **Position and function.** Palúa (8°22′N, 62°42′W), situated on the S bank of Río Orinoco 1½ miles WSW of San Félix, is an ore-loading port owned by a mining company. It is a port of entry.

Traffic. In 1997 the port was used by 45 vessels with a total of 1 863 300 dwt.

2 **Port Authority.** CVG Ferrominera Orinoco CA, Division Pao Palúa, San Félix, Edo Bolívar, Venezuela.

Maximum size of vessel handled. Vessels up to 100 000 dwt with draughts of 13·1 m at high river or 9·7 m at low river can be handled.

Tugs are available and there use is compulsory.

3 **Directions for entering harbour.** The terminal is accessed via the channel described at 3.30. An approach channel then leads S off the main channel to the berth; the centre line of this channel is indicated by leading lights (8°21′·9N, 62°41′·6W) (triangular daymarks) situated on and near the loading wharf.

4 A tug and a docking pilot will meet a vessel after passing San Félix and before reaching the approach channel; the vessel is berthed port side to. When unberthing, a vessel proceeds upstream to a turning area 7½ cables W of the wharf, assisted by a tug.

5 **Berths:**

Steel loading wharf with a berthing length of 241 m. The ore loader has a capacity of 4000 tonnes per hour.

Pontoon, moored E of the wharf; length 122 m with a depth of 4·9 m alongside at low river. It is used for loading and unloading general cargo.

6 **Repairs.** Minor emergency repairs undertaken by the mining company.

Other facilities: medical facilities available; hospital at Puerto Ordaz.

Supplies: fuel oil supplied by barge; fresh water available in limited quantities; fresh provisions obtainable locally.

Communications. Airport at Puerto Ordaz.

Punta Cuchillo Oil Terminal

3.39

1 **Position and function.** This oil terminal situated on the SE side of the river, about 1 mile SW of Punta Cuchillo (8°20′N, 62°48′W), exports crude oil originating from Campo Morichal.

Traffic. In 1997 the terminal was used by 74 vessels with a total of 4 352 348 dwt.

Port Authority. Roqueven SA, Punta Cuchillo, Edo Bolívar, Venezuela.

2 **Maximum size of vessel handled.** The terminal can accommodate tankers displacing up to 47 000 tons.

Tugs are available and there use is compulsory for berthing and unberthing. There is a natural turning basin 6½ cables wide off the terminal.

Submarine pipeline. See 3.26.

3 **Berth.** The terminal consists of a T–shaped platform 20 m in length, with two breasting and two mooring dolphins; the platform is joined to the shore by a narrow roadway. There is a depth of 12·2 m alongside at low river, when the current is negligible; at high river, the current in midstream attains a rate of up to 6 kn.

4 **Repairs.** Small repairs can be carried out.

Other facilities: medical assistance arranged in an emergency; hospital at Puerto Ordaz.

Supplies: fuel and fresh water supplied by barge; provisions available in small quantities.

Communications. Airport at Puerto Ordaz.

Port of Interalumina

3.40

1 **Position and function.** Port of Interalumina is situated at mile 192·8, close SW of Punta Cuchillo Oil Terminal. Bauxite and alumina are exported; caustic soda is imported.

Berth. The berth, 360 m long, with a minimum depth of 12· 1 m alongside, consists of a marginal steel pier connected to the bank by a bridge 300 m long. Two ships can be handled simultaneously.

Alcasa

3.41

1 **Position and function.** Alcasa, situated between Port of Interalumina and Rocas Los Caribes (8°18′·5N, 62°49′·2W), serves an aluminium plant. Coke, coal and alumina are imported.

Berth. The berth consists of two pontoons, 92 m in length, with two mooring dolphins.

Supplies. Fuel can be supplied by barge.

Vencemos Terminal

3.42

1 **Position and function.** Vencemos Terminal, used for unloading bulk cement, is situated close SW of Rocas Los Caribes (8°18′·5N, 62°49′·2W).

Berth. The berth consists of a pontoon, 50 m in length, with a minimum depth of 7 m alongside. Vessels moor to buoys.

Venalum Terminal

3.43

1 **Position and function.** Venalum Terminal (8°17′·7N, 62°50′·0W) is situated on the S bank of the river at mile 194·4. General cargo and alumina are imported; aluminium ingots exported.

Berth. The terminal consists of a quay 404 m long, with a depth of 12 m alongside at low river.

Puerto Ordaz

Chart 3322, plan of Puerto Ordaz

General information

3.44

1 **Position.** Puerto Ordaz (8°21′N, 62°43′W) is situated on the W side of a natural basin in Río Caroni at its junction with Río Orinoco.

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Function. The port contains an important iron ore loading terminal, operated by CVG Ferrominera Orinoco.

2 **Traffic.** In 1997 the port was used by 198 vessels with a total of 7 621 421 dwt.

Port Authority. CVG Ferrominera Orinoco CA, 399 Caracas Aptdo, Puerto Ordaz, Edo Bolívar 8015, Venezuela.

Limiting conditions

3.45

1 **Maximum size of vessel handled.** Vessels up to 100 000 dwt, with a maximum length of 290 m and a beam of 39 m, can use the port.

Arrival information

3.46

1 **Anchorage.** Vessels waiting to berth alongside should anchor either in the area (3.35) N of San Félix or about 6 cables N of the W end of the wharf at Puerto Ordaz; the latter anchorage is seasonal, suitable only at high river.

Pilotage is compulsory.

Tugs are available and are compulsory.

Directions for entering harbour

3.47

1 Puerto Ordaz is approached through a dredged and buoyed channel described at 3.30. A tug and a docking pilot will meet a vessel and also assist in unberthing. The width of the turning area within the basin varies from 487 m to a maximum of 609 m at high river. Buoys are moved as necessary to give the largest navigable area afforded by the river level.

Berths

3.48

1 At Puerto Ordaz there is a steel wharf, 575 m in length with a depth of 12·1 m alongside, containing three berths. Vessels are normally loaded to the maximum draught authorised. The loader has a capacity of 6000 tons an hour, but the average rate is 4800 tons an hour.

Port services

3.49

1 **Repairs.** Minor emergency repairs undertaken.

Other facility. There is a hospital at Puerto Ordaz.

Supplies: fuel supplied by barge; fresh water obtainable from the wharf; fresh provisions in small quantities.

Communications. Airport at Puerto Ordaz.

Puerto Matanzas

General information

3.50

1 **Position and function.** Puerto Matanzas (8°17′N, 62°51′W), also known as Port of Sidor, is situated on the S bank of the river. It serves a steel works which imports iron ore and limestone; steel in various forms is exported.

Traffic. In 1997 the port was used by 246 vessels with a total of 4 785 816 dwt.

2 **Port Authority.** Capitania de Puerto de Manzanas, Calle Orinoco, Ciudad Bolívar Edo Bolívar, Venezuela.

Limiting conditions

3.51

1 **Maximum size of vessel handled.** Vessels up to approximately 30 000 dwt and 132 m in length are handled. It has been reported (1986) that vessels with draughts up to 12.5 m during high river and 8·5 m at low river, can be berthed.

Arrival information

3.52

1 **Anchorage.** Vessels awaiting a berth can anchor about 1 mile downstream from the port.

Pilotage is compulsory. The docking pilot boards by day or night.

Tugs are available and compulsory for vessels of more than 2000 grt.

Berths

3.53

1 The port consists of a quay 1037 m in length, with eight berths.

Port services

3.54

1 **Repairs.** Minor repairs effected.

Other facilities: Deratting and Deratting Exemption Certificates issued; hospital.

Supplies. Fuel, fresh water and provisions are available.

Communications. Airport at Puerto Ordaz.

PUERTO MATANZAS TO CIUDAD BOLÍVAR

General information

Charts – see 3.8

Route

3.55

1 From a position close NW of the berths at Puerto Matanzas (8°17′N, 62°51′W) the route follows the fairway through the Río Orinoco generally WSW, for 43 miles, to Ciudad Bolívar (8°08′N, 63°33′W).

Topography

3.56

1 A notable feature along the river from Puerto Matanzas to Ciudad Bolívar is Cerro Guarampa or Saddle Peak, a black volcanic rock 61 m high and covered with cactus, situated on the N bank 17 miles from San Félix (8°22′N, 62°40′W). Guarampus Rocks, the W-most of which is wooded, lie off Cerro Guarampa.

2 Another feature is Punta Conejo, surmounted by three circular rocks, 15 m high, situated on the N bank of the river 23 miles above Cerro Guarampa.

Pilotage

3.57

1 See 3.3 and 3.24.

Directions

(continued from 3.29)

3.58

1 **Caution.** The directions which follow, are confined to a description of the main characteristics of the river between Puerto Matanzas and Ciudad Bolívar.

Bars in Río Orinoco. Between Puerto Matanzas and Ciudad Bolívar, the main stream of the river is barred in several places, the principal of which are Paso del Rosario and Paso de Panapana; the depths in the passes vary from year to year and cannot be depended upon. In 1964, it was reported that the passage to Ciudad Bolívar was governed by the state of the river over the rocks at Paso de Panapana, and there are several months of the year when vessels cannot make the passage.

2 **Paso del Rosario.** Situated 37 miles above San Félix (8°22′N, 62°40′W), Paso del Rosario is rocky and very dangerous at low river, where the depth is not more than

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2·7 m (9 ft). The current, which cannot be stemmed until within the pass, attains a rate of nearly 5 kn and sets towards rocky shoals on the N side of the pass. Paso del Rosario appears to be about 2 cables wide, as HMS *Wistaria*, with a displacement of 1060 tons, passed at least 1½ cables N of Isleta Rosario in 1922.

3 On passage up river, in December 1939, HMS *Dundee*, with a displacement of 1060 tons, approached Paso del Rosario from close to the S bank of the river, turning so as to leave Isleta Rosario to port when about 2 cables from the islet; the islet was passed at a distance of 64 m, after which the fairway tended towards the N bank. On passage down river, HMS *Dundee*, when drawing 2·9 m (9½ ft) touched ground about 1 cable E of Isleta Rosario.

4 **Paso de Panapana.** This pass, situated 15 miles below Ciudad Bolívar, is considered to be the shoalest part of this section of the river. Paso de Panapana lies between a rock 15 m high with submerged rocks close E of it, on one side, and sandbanks on the other side. The dangers in Paso de Panapana are unmarked and this part of the river must be passed in daylight.

5 At low river, vessels with a draught exceeding 2·7 m (9 ft), bound for Ciudad Bolívar have to trans-ship cargo to smaller vessels or lighters at San Félix. In March, the draught for Paso de Panapana is almost always limited to 2·6 m (8½ ft).

Ciudad Bolívar

General information

3.59

1 **Position.** Ciudad Bolívar (8°08′N, 63°33′W), formerly known as Angostura, stands on the S bank of Río Orinoco, at an elevation of 58 m, 212 miles above the river mouth. A cathedral stands in the city which is visible at a distance of 10 miles from down river.

2 **Function.** It is the principal port for the upper part of Río Orinoco and a distribution centre for the whole river basin. The city is the capital of Estado Bolívar and had a population of 103 728 in 1971.

3 The port exports cattle, hides, diamonds, gold and balatá; imports include construction materials, general cargo and foodstuffs.

Port Authority. Capetania Puerto de Ciudad Bolívar, Calle Orinoco, Ciudad Bolívar, Venezuela.

Limiting conditions

3.60

1 **Controlling draught.** Ciudad Bolívar can be reached, at high river, by vessels with a draught of 5·18 m (17 ft). However see 3.58 regarding depths in the river above Puerto Matanzas.

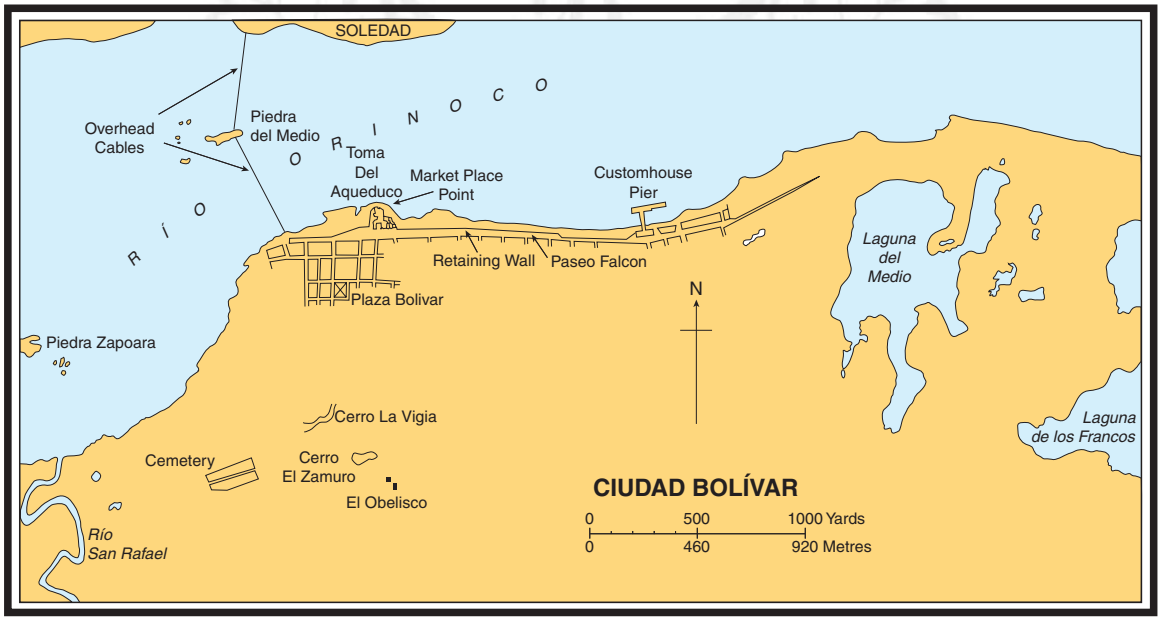
2 **Vertical clearance.** Telegraph wires span the river from Market Place Point (8°09′N, 63°33′W) at Ciudad Bolívar to Piedra del Medio, on which stands a telegraph wire support 31 m in height, and thence to the N bank of the river at Soledad. At high river there is a least vertical clearance of 28 m under the wires.

Harbour

3.61

1 **General remarks.** The width of the river at Ciudad Bolívar between Market Place Point and the rocks off Soledad, on the opposite bank, is about 3½ cables at mean level; above and below these narrows, the river is about 1¾ miles wide in places. Mean level occurs in early December, and from about August until then the current in the narrows attains its maximum rate of about 5 kn in mid-stream.

2 Close above Market Place Point and in mid-stream lies Piedra del Medio, a rocky islet which is steep-to and just awash at the mean level of high river. The rock is grey in colour and when the river falls to its lowest level in March,



Río Orinoco - Ciudad Bolívar (3.59)

(Courtesy of Defense Mapping Agency, Hydrographic/Topographic Center, Washington)

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it stands some 18 m above water; it is useful for judging the height of the river.

3 **Climatic table.** See 1.167 and 1.171.

Berths

3.62

1 **Anchorage.** The river at Ciudad Bolívar is deep and the anchorage area is therefore restricted. Close offshore, there are depths of 33 m (18 fm) at mean river level. Vessels usually anchor near the E part of the city.

2 HMS *Wistaria*, length 81·6 m, lay at a single anchor, in a depth of 13 m (42 ft), 2 cables E of Market Place Point and 1½ cables offshore. Abreast this position, the current runs downstream along the shore, but there is a counter-current a little W of it. Although this anchorage is out of the main stream, there was sufficient current to prevent the vessel swinging more than 4 points during brief squalls which come up river, accompanied by heavy rain, especially between 1600 and 1700.

3 **Alongside berths:**

Floating stage off the Muelle Naval Pier (8°09′·0N, 63°32′·3W). It is 90 m in length, with depths alongside of 9·1 m at high river and 4·8 m at low river. Berthing is not difficult; a vessel approaches the stage stemming the current whilst keeping a careful watch for the counter-current which is not strong.

4 Three berths alongside, or close to, the river bank for local traffic; cargo is worked by means of temporary gangways rigged to the bank. Vessels may not take the ground as the river bed is both steep and uneven.

No regular landing places exist; boats go alongside anywhere at the city.

Port services

3.63

1 **Repairs:** small repairs carried out; three floating docks.
Other facility. There is a hospital in the city.
Supplies: fuel oil is not available; fresh water and provisions obtainable.
Communications. Airport, situated 1½ km S of Ciudad Bolívar, provides scheduled services to Caracas.

UPPER REACHES OF RÍO ORINOCO

General information

Charts – see 3.8

Description

3.64

1 From Ciudad Bolívar (8°08′N, 63°33′W) the upper reaches of Río Orinoco lead generally WSW to their junction with Río Apure, 165 miles above Ciudad Bolívar. The river then leads S to its junction with Río Guaviare and thence SE to its source in Sierra de Parima, on the border of Brazil.

2 The principal tributaries of Río Orinoco are the Caroní (3.30), Caura (3.68), Apure (3.69), Arauca (3.70), Meta (3.71) and Guaviare (3.72). The best navigation season for these rivers is from June to August, when they are at their maximum height. Navigation is, however, possible as early as mid-May or as late as mid-October.

Pilotage

3.65

1 See 3.3 and 3.24.

Vertical clearance

3.66

1 Puente Angostura, the fourth largest suspension bridge in the world outside the USA, spans the river 3¼ miles upstream from Ciudad Bolívar. The central span is 712 m wide, with a least vertical clearance of 40 m above the highest water level. The N and S buttresses of the central span are marked by red lights and the middle of the span is marked by two green lights, visible both up and down-stream from the bridge.

2 The navigable channel extends for about 2 cables S of the N buttress, with depths ranging from 10 m (33 ft) at the edges of the channel to 20 m (11 fm) in the centre.

Directions

3.67

1 There are no specific directions for the upper reaches of Río Orinoco. However, attention is drawn to one notable feature, that of Boca del Inferno, which is a deep rocky pass 1½ cables wide about 91 miles above Ciudad Bolívar; the eddies in the pass are very dangerous, especially at high river.

2 Local knowledge is essential.

Tributaries

Río Caura

3.68

1 Río Caura, joining the main river from S about 100 miles above Ciudad Bolívar, is navigable by craft with draughts of less than 2·1 m (7 ft) for 95 miles.

Río Apure

3.69

1 Río Apure, the most important tributary, enters Río Orinoco from NW a short distance up river from Pueblo de Caicara (Caycara) (7°23′N, 66°30′W), 165 miles above Ciudad Bolívar. It is navigable throughout its length by craft drawing 0·9 m (3 ft) or 1·2 m (4 ft); those drawing up to 1·5 m (5 ft) can only reach San Fernando de Apure.

2 Craft from Ciudad Bolívar, drawing 1·8 m (6 ft) or 2·1 m (7 ft), can proceed only as far as the mouth of Río Apure.

Río Arauca

3.70

1 Río Arauca joins the main river from W about 60 miles above Pueblo de Caicara (3.69); although narrow and tortuous, it is navigable by boats up to the Colombian frontier.

Río Meta

3.71

1 Río Meta also joins the Río Orinoco from W, about 120 miles above Pueblo de Caicara; it is navigable by launches drawing 0·9 m (3 ft) or 1·2 m (4 ft) as far a Barrigón. In July 1942, during a great rise in Río Meta, the depth at Orocué was estimated at 4·6 to 6·1 m (15 to 20 ft); in late September, the depth in the same place was 1·8 to 2·4 m (6 to 8 ft).

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Río Guaviare

3.72

1 Río Guaviare enters the main river from W on the Venezuela Colombia frontier above Río Meta; in the dry season, it has depths varying from 0·3 m (1 ft) in the wide and sandy stretches to 2·4 and 3·0 m (8 and 10 ft) in the narrowest places.

2 The lower part of Río Guaviare is navigable throughout the year; farther up river, it is restricted in various parts and, when the water rises in the wet season, passage through the narrows is very difficult and dangerous.

Harbours

Muitaco

3.73

1 Muitaco is a village about 62 miles up river from Ciudad Bolívar (8°08′N, 63°33′W). Quanare is situated 17 miles farther up river.

Mapire

3.74

1 Mapire is situated on the N bank of the river about 107 miles above Ciudad Bolívar. At this village, the river is about 8 cables wide and has depths of about 14 m (46 ft).

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NOTES

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Chapter 4 - Trinidad and Tobago



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CHAPTER 4

BOCA GRANDE TO PUNTA PEÑAS INCLUDING THE GULF OF PARIA AND TRINIDAD AND TOBAGO

GENERAL INFORMATION

Charts 493, 517

Scope of chapter

4.1

1 This chapter describes the NE coastal waters of Venezuela, from Boca Grande (9°06′N, 60°00′W), the principal mouth of Río Orinoco, to Punta Peñas (10°44′N, 61°51′W), 146 miles NW, and includes the Gulf of Paria, along with the coastal waters of Trinidad and Tobago. The chapter is arranged as follows:

2 Boca Grande to Gulf of Paria passing between Trinidad and Venezuela (4.4).
East and N coasts of Trinidad (4.31).
Gulf of Paria (4.68).
Tobago (4.305).

Ports and anchorages

4.2

1 The principal ports in Trinidad, the S island of the West Indies lying between Tobago and the NE coast of Venezuela, are as follows:

Chaguaramas Bay (10°41′N, 61°39′W) (4.96).
Port of Spain (10°39′N, 61°31′W) (4.116), the capital of Trinidad and Tobago.

2 Lisas Point Ports (10°23′N, 61°30′W) (4.166).
Claxton Bay Marine Terminal (10°21′N, 61°28′W) (4.151).
Pointe-à-Pierre (10°19′N, 61°28′W) (4.188).
Brighton Harbour (10°15′N, 61°38′W) (4.158).
Point Fortin (10°11′N, 61°42′W) (4.215).

3 The only good anchorages are off the W coast of Trinidad, which forms the E side of Gulf of Paria (4.68); they are secure for all types of vessels owing to the regularity of the breezes and the almost complete immunity from hurricanes. There are no navigable rivers in Trinidad.
The principal port for Tobago is Scarborough (4.322).

4 Along the coast of Venezuela, within the Gulf Of Paria, the principal ports are:

Puerto de Güiria (10°34′N, 62°18′W) (4.256), the pilot station for Río San Juan and Río Pedernales.
Caripito Oil Terminal (10°09′N, 63°02′W) (4.278).
Puerto Pedernales (9°59′N, 62°15′W) (4.290).

Rescue

4.3

1 For information on search and rescue services for Trinidad and Tobago see 1.63; for Venezuela see 1.62. For details see *Admiralty List of Radio Signals Volume 5.*

BOCA GRANDE TO GULF OF PARIA PASSING BETWEEN TRINIDAD AND VENEZUELA

GENERAL INFORMATION

Charts 493, 517

Area covered

4.4

1 This section covers the coast of Venezuela from Boca Grande (9°06′N, 60°00′W) to Serpent's Mouth, the S entrance to Gulf of Paria, 132 miles NW. It includes a description of the S coast of Trinidad from Galeota Point (10°08′N, 61°00′W) to Punta del Arenal, 56 miles W, and is arranged as follows:

Boca Grande to Galeota Point (4.5).
Galeota Point to Punta del Arenal (4.10).

BOCA GRANDE TO GALEOTA POINT

General information

Charts 493, 1480, 517

Route

4.5

1 From the vicinity of 9°06′N, 60°00′W, off the mouth of Río Orinoco, the offshore route leads NW for about 78 miles to a position S of Galeota Point (10°08′N, 61°00′W).

Topography

4.6

1 From Boca Grande to Punta Mariusa (9°45′N, 61°25′W) the low coast is formed by the delta of Río Orinoco; the land is of a uniform elevation and may usually be seen at a distance of about 15 miles. Between Punta Araguapiche (9°30′N, 60°57′W) and Punta Baja, 1¾ miles NW, lies the common mouth of Caño Araguao Sisi and Caño Guiniguina which are branches of Río Orinoco.

2 Caño Mariusita, entered 16 miles WNW of Punta Baja, is the SE mouth of Río Mariusa, and Caño Mariusa, 14 miles farther NW, is the NW mouth of Río Mariusa. The land between these mouths is inundated during the wet season, April to July.

Marine exploitation

4.7

1 For information on the oil and gas fields off Galeota Point (10°08′N, 61°00′W) see 4.35.

Principal mark

4.8

1 **Major light:**

Galeota Point Light (white metal framework tower, 9 m in height) (10°08′N, 61°00′W), exhibited from a position 3¼ cables N of the point.

Directions

(continued from 2.272)

4.9

1 From the vicinity of 9°06′N, 60°00′W the track leads NW, passing (with positions relative to Galeota Point (10°08′N, 61°00′W)):

NE of a dangerous wreck (82 miles SE), thence:
NE of an obstruction (74 miles SE), thence:

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NE of another dangerous wreck (59 miles SE), fronting the coast in the vicinity of Isla Tobeima, thence:

2 NE of a dangerous wreck (42 miles SE) lying to the E of Punta Araguapiche; another dangerous wreck lies closer inshore, 9½ miles ESE of Punta Araguapiche. Thence:

SW of Cassia Gasfield and Kiskadee Gasfield (29 miles ESE); there are several production platforms in these fields. Thence:

3 NE of a dangerous wreck (30 miles SSE) the position of which is approximate, thence:

SW of Ibis Gasfield (18 miles ESE), containing a single production platform.

4 The track then leads to a position about 12 miles S of Galeota Point. This point forms the SE extremity of Trinidad and lies at the end of a narrow promontory, 64 m high, which is joined to the main island by a low isthmus; the seaward side of the promontory consists of white cone-shaped cliffs appearing as islands from a distance.

5 A shoal bank extends up to 7½ cables from Galeota Point, from which a light (4.8) is exhibited; as the current sets towards the point, it should be given a wide berth. A group of grey oil tanks and a flare-structure stand 5 cables N of the point.

(Directions continue, for a route along the S coast of Trinidad at 4.16 and for a route along the E coast of Trinidad at 4.37)

GALEOTA POINT TO PUNTA DEL ARENAL

General information

Charts 481, 493

Route

4.10

1 From a position S of Galeota Point (10°08′N, 61°00′W) the route leads W, for 55 miles between the N coast of the delta of Río Orinoco and the S coast of Trinidad, to a position about 2½ miles S of Punta del Arena (10°03′N, 61°56′W).

Topography

4.11

1 **Venezuela.** From Punta Mariusa (9°45′N, 61°25′W), the E entrance point of Caño Mariusa (4.6), to Serpent's Mouth the coast continues to be low-lying and of uniform elevation, interrupted in places by branches of the Río Orinoco. Between Punta Bombeador (9°54′N, 61°40′W) and Punta Tolete, 34 miles WNW, the coast is densely wooded and there are extensive mudflats.

2 **Trinidad.** The S coast of Trinidad is bordered by hills which are considerably lower than the range near the N coast; the greatest elevation, 304 m (997 ft), is attained at the summit of Trinity Hills (10°07′N, 61°07′W).

3 The coast between Gran Cayo Point (10°07′N, 61°04′W) and Cape Casa Cruz, 6½ miles WSW, is backed by a range of hills, of which Trinity Hills is a part; the coast is steep, rocky and unapproachable. Between Cape Casa Cruz and Moruga Point, 6 miles W, the coast is generally steep but there are several sandy beaches, separated by projecting points fringed with rocks. The hills gradually decrease in elevation.

4 Between Moruga Point (10°05′N, 61°16′W) and Taparo Point, 21 miles W, the coast is up to 45 m high and covered in low scrub, with occasional outcrops of yellow sandstone which are distinctive; there are small cliffy points at intervals. On the heights above Palo Seco Bay, 2½ miles ENE of Taparo Point, stand some prominent houses.

5 From Islote Point (10°05′N, 61°47′W) to Punta del Arena, 9 miles WSW, the coast is low and sandy except for some mud and clay cliffs at Galfa Point (10°04′N, 61°50′W).

Marine exploitation

4.12

1 Uncharted oil production structures may be encountered off the S coast of Trinidad and in the approaches to Serpent's Mouth. For further information on marine exploitation see 1.13.

Current

4.13

1 In the channel between Trinidad and the mainland of Venezuela, S of Galeota Point, the W–going current attains a rate from 1½ to 2 kn, increasing to 3 kn as it approaches Serpent's Mouth. For information on currents off Punta del Arenal see 4.294.

Principal marks

4.14

1 **Landmark:**

Beacon (grey, 3 m in height) (10°04′N, 61°52′W) standing close NE of the summit of Green Hill; the hill is surmounted by a clump of coconut palms.

2 **Major lights:**

Galeota Point Light (10°08′N, 61°00′W) (4.8).

Boca Grande Transhipment Terminal (GRP tower, 3 m in height) (9°57′N, 61°35′W).

Taparo Point Light (10°03′N, 61°38′W).

3 Punta del Arenal Light (white metal framework tower) (10°03′N, 61°56′W).

Other aid to navigation

4.15

1 **Racon:**

Boca Grande Transhipment Terminal (9°57′N, 61°35′W).

For details see *Admiralty List of Radio Signals Volume 2*.

Directions

(continued from 4.9)

General remarks

4.16

1 When proceeding towards the S entrance to the Gulf of Paria, it is advisable to keep on the Trinidad side of the channel to avoid the delta of Río Orinoco which has been imperfectly surveyed and off which uncharted shoals may exist. The land of the delta may usually be seen at a distance of about 15 miles.

2 Having passed Galeota Point, vessels should skirt the S coast of Trinidad at a distance of about 3 miles in depths from 18 to 27 m (60 ft to 15 fm). There is no danger until Despatch Reef (10°04′N, 61°43′W), in Herine Bay, is approached; the water will occasionally change colour, particularly when in the vicinity of Erin Point (10°03′N, 61°39′W), where the depths decrease to about 11 m (36 ft).

Track

4.17

1 From a position S of Galeota Point (10°08′N, 61°00′W) the track leads W, passing (with positions relative to Galeota Point):

S of Galeota Oil Terminal (2½ miles SSW) (4.19); a light is exhibited from a wellhead about 1 mile NW of the terminal. Thence:

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S of Cape Casa Cruz (10¾ miles WSW), thence:

2 S of Moruga Point (16¼ miles WSW). Rocks, awash, extend 6 cables off the mouth of Moruga River close W of Moruga Point; boats can find a way between these rocks to a smooth landing within. Thence:

S of La Lune Point (19 miles WSW), from which a light is exhibited, thence:

3 S of a shoal (25 miles WSW), with a depth of 5·1 m (17 ft) over it, lying 1¾ miles SW of Negra Point, thence:

N of Boca Grande Transhipment Terminal (36 miles SW) (4.29), from which a light (4.14) is exhibited and a racon transmits.

The track then continues W, passing (with positions relative to Taparo Point (10°03′N, 61°38′W)):

4 S of Taparo Point from which a light (4.14) is exhibited, thence:

N of Punta Bombeador (9¼ miles S), a salient point on the E side of the entrance to Caño Macareo (4.30), thence:

Clear of a shoal (6¼ miles SW), with a depth of 7·3 m (24 ft) over it, thence:

5 S of Despatch Reef (5¾ miles W); a volcanic islet is sometimes formed on the reef, but, in 1938, there was a least depth of 0·6 m (2 ft) over it, and there was no islet. Thence:

S of a wellhead (6½ miles W) from which a light is exhibited, thence:

6 S of Islote Point (9 miles WNW), which consists of clay and mud cliffs about 9 m high; the point is fringed with rocks and boulders. Thence:

S of a dangerous wreck (16¾ miles WSW) lying off Icacos Point. Icacos Point, a promontory forming the SW end of Trinidad, is low and flat with few distinguishing features; it is bordered by a beach of white sand and is fringed with tall coconut palms.

7 The track then leads to a position about 2½ miles S of Punta del Arenal (17¾ miles W), the SW extremity of Icacos Point, from which a light (4.14) is exhibited.

Useful marks

4.18

1 (positioned from Quoin Cliff (10°05′N, 61°41′W)):

Quoin Cliff, which is red and wedge-shaped.

La Fabiana (2 miles NE), a flat-topped hill.

Red Cliff (2 miles W).

White Cliff (3 miles W).

(Directions continue for the S entrance to Gulf of Paria, in reverse, at 4.297 and 4.298)

Galeota Oil Terminal

General information

4.19

1 **Position and function.** Galeota Oil Terminal is situated 2½ miles SW of Galeota Point (10°08′N, 61°00′W) in an open roadstead. The terminal is used for exporting crude oil.

Traffic. In 2000 12 vessels visited the terminal.

Port Authority. Amoco Trinidad Oil Co, PO Box 714, Port of Spain, Trinidad and Tobago.

Limiting conditions

4.20

1 **Maximum size of vessel handled.** Tankers up to 250 000 dwt can be handled.

Tidal levels. For information on tidal levels see Guayaguayare Bay (4.25).

Arrival information

4.21

1 **Port operations.** Tankers are normally berthed by day only; if arriving at night, or if the buoy is occupied, they should anchor at least 1 mile SW of the buoy.

Port radio. A radio station is operated by Amoco Trinidad. For further details see *Admiralty List of Radio Signals Volume 6 (5).*

2 **Notice of ETA required.** An ETA should be sent 72, 24 and 12 hours in advance through North Post Coast Radio Station.

Prohibited anchorage. Anchoring is prohibited within 1 mile of the SBM and within 5 cables of a submarine pipeline laid NNE from the buoy to the shore.

3 **Pilotage** is compulsory. The pilot and mooring master board between 3 and 4 miles SW of Galeota Point. For further details see *Admiralty List of Radio Signals Volume 6 (5).*

Tugs are available.

Directions

4.22

1 A vessel bound for the terminal should pass well E and S of the gas and oilfields, situated E and SE of Galeota Point, and should approach the SBM from SW with Galeota Point Light (4.8) bearing 040° to 050°.

Berth

4.23

1 The terminal consists of a SBM, from which a light is exhibited, moored in a depth of 29 m (16 fm). Oil is loaded through a 42 inch pipeline connected to the shore and ballast water can be pumped ashore through a 16 inch line.

Port services

4.24

1 **Repairs.** No facilities available; as a vessel must maintain a state of constant readiness, engine repairs can not be undertaken.

Other facilities: Deratting Exemption Certificates issued; limited medical facilities nearby; hospital at Port of Spain two hours away by car.

2 **Supplies:** fuel oil and fresh water are only available from Port of Spain by barge; limited quantities of provisions available.

Communication. Piarco International Airport, 77 km distant.

Bays and anchorages along the south coast of Trinidad

Guayaguayare Bay

4.25

1 **Description.** Guayaguayare Bay (10°08′N, 61°01′W) is entered between White Islets, consisting of three rocks lying close off the SW side of Galeota Point, and Gran Cayo Point 4 miles WSW. The bay is sandy and shallow, and its W part is encumbered with shoals. Galeota Oil Terminal (4.19) fronts the approach to the bay.

Tidal levels. Mean spring range about 1·2 m; mean neap range about 0·5 m. For further information see the *Admiralty Tide Tables.*

2 **Local knowledge** is required for entering the bay.

Anchorage. Small vessels may obtain anchorage in the E part of Guayaguayare Bay, in a depth of 8 m (26 ft), about 7½ cables WSW of White Islets and with the S

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extremity of Galeota Point bearing 065°. The holding ground is good.

Berth. There is a boat jetty, which is used by Galeota Oil Terminal, on the E side of the bay; it projects WSW from the shore with a depth of 4 m alongside its outer end. A light is exhibited from the head of the jetty.

Moruga Point to Taparo Point

4.26

1 Vessels can anchor anywhere off the coast between Moruga Point (10°05′N, 61°16′W) and Taparo Point, 22 miles W, in depths from 11 to 15 m (36 to 48 ft), over mud and sand, avoiding the shoal, with a depth of 5·1 m (17 ft) over it, lying 1¾ miles SW of Negra Point.

Taparo Point to Punta del Arena

4.27

1 None of the bays between Taparo Point (10°03′N, 61°38′W) and Punta del Arenal, 17¾ miles W, affords any shelter from the prevailing ESE wind, but the holding ground is good and anchorage may be obtained anywhere along the coast.

Herine Bay

4.28

1 **Description.** Herine Bay (10°04′N, 61°42′W), also known as Erin Bay, is entered between Erin Point and Islote Point, 8 miles W. Despatch Reef (4.17) encumbers the approach to the bay and dangerous rocks lie 3 cables SW and 1¼ miles WSW of Quoin Cliff (10°05′N, 61°41′W).

2 **Tidal levels.** Mean spring range about 1·7 m; mean neap range about 0·8 m. For further information see the *Admiralty Tide Tables.*

Useful marks. See 4.18.

3 **Berth.** Chatham Jetty stands at the head of Herine Bay 2¾ miles W of Quoin Cliff. A light is exhibited from the head of the jetty.

Offshore terminal

Boca Grande Transhipment Terminal

4.29

1 **Description.** Boca Grande Transhipment Terminal (9°57′N, 61°35′W) is situated 5½ miles ENE of Punta Bombeador (4.17). It consists of the former bulk carrier MV *Berge Brioni,* 227 558 dwt, acting as a storage vessel, secured to a mooring buoy. It has a self discharging boom which handles iron ore.

2 **Port radio.** A radio station operates from the vessel. For further details see *Admiralty List of Radio Signals Volume 6 (5).*

Aids to navigation. A light (4.14) is exhibited and a racon transmits from the vessel.

Minor river

Caño Macareo

4.30

1 **Description.** Caño Macareo, the entrance to which lies close W of Punta Bombeador (9°54′N, 61°40′W), joins the main channel of Río Orinoco (3.1) at Punta La Pastora 80 miles inland. In 1959, maintenance of Caño Macareo was discontinued and all navigational aids were removed, but in 1966 the channel was reported to be suitable for vessels up to 4·6 m draught.

2 **Pilotage** is compulsory.

Current. The current in the entrance to Caño Macareo attains a rate of 2 kn from December to April and 3 kn from May to November.

EAST AND NORTH COASTS OF TRINIDAD

GENERAL INFORMATION

Chart 493

Area covered

4.31

1 This section covers the coastal waters along the E and N sides of Trinidad and includes Galleons Passage, which lies between the SW end of Tobago and the NE end of Trinidad, 19 miles SW. The section is arranged as follows:

East coast of Trinidad (4.32).
East approaches to Galleons Passage (4.45).
North coast of Trinidad (4.49).

EAST COAST OF TRINIDAD

General information

Chart 493

Route

4.32

1 From a position S of Galeota Point (10°08′N, 61°00′W) the coastal route leads initially NE for about 16 miles, passing through the oil and gasfields E of Galeota Point. The route then leads N, for a farther distance of 48 miles, to the vicinity of 10°58′N, 60°50′W in Galleons Passage, about 9 miles NNE of Galera Point (10°50′N, 60°55′W).

2 A heavy surf along the E coast of Trinidad makes landing almost impracticable. There are few anchorages.

Topography

4.33

1 Between Galeota Point, the SE extremity of Trinidad, and Galera Point, 43 miles N, the coast for the first 33 miles is divided into three sandy beaches by irregular points of moderate elevation, and then for the last 10 miles the coast is rocky.

Current

4.34

1 Off the E coast of Trinidad the current is NW–going of 1 to 2 kn, obliquely to the direction of the coastline.

Marine exploitation

4.35

1 An extensive field of oil and gas production platforms exists up to 22 miles ENE and 32 miles ESE of Galeota Point (10°08′N, 61°00′W). They are prominent and are reported to be radar conspicuous. Lights are exhibited from the platforms and submarine pipelines are laid from them, landing at Galeota Point. Anchoring is prohibited within 5 cables of the pipelines.

2 For further information on oil and gasfields see 1.13; for submarine pipelines see 1.14.

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Principal marks

4.36

1 **Major lights:**

Galeota Point Light (10°08′N, 61°00′W) (4.8).

Brigand Hill Light (white metal framework tower, 11 m in height) (10°29′N, 61°04′W) exhibited from Brigand Hill, the E–most of some prominent and thickly wooded hills.

2 Galera Point Light (metal framework structure on white concrete tower, 23 m in height) (10°50′N, 60°55′W).

Directions

(continued from 4.9)

Galeota Point to Radix Point

4.37

1 From a position S of Galeota Point (10°08′N, 61°00′W) the track leads initially NE, passing (with positions relative to Galeota Point):

SE of Galeota Point (4.9) from which a light (4.8) is exhibited. The coast for 5 miles N of the point consists of cliffs 6 to 12 m high, backed by dense jungle and occasional tall palms; heavy breakers along the whole of this coast prevent landing at any time. Thence:

2 NW of a group of platforms (10 miles E) in the Poui Field, thence:

SE of East Galeota Platform (5½ miles NE). A coral patch, with a depth of 6·7 m (2 ft) over it lies 5 cables S of the platform; tide-rips can be seen over the patch on calm days. Thence:

3 Clear of Mora Platform (8½ miles ENE) and W of the platforms in Teak Field (19 miles ENE).

Thence the track leads N, passing E of Tourmaline Shoals (8½ miles NNE), extending 2½ miles offshore, encumbering the N part of Mayaro Bay (4.39), to a position between Radix Point (12 miles N), which attains an elevation of 91 m (299 ft), and the platforms in Saaman Oilfield (21¼ miles NE).

4 Radix Point is a prominent headland with high cliffs on its three sides and is bold and radar conspicuous. Foul ground, with drying and above-water rocks, up to 3 m (10 ft) high, extends as much as 1 mile E and S from the headland.

5 **Useful mark:**

Radio tower (obstruction lights) (10°14′N, 61°00′W), standing 6 miles N of Galeota Point.

Radix Point to Galera Point

4.38

1 From the position E of Radix Point (10°20′N, 60°58′W) the track continues N, passing (with positions relative to Manzanilla Point (10°31′N, 61°01′W)):

Over Manzanilla Bank (10 miles SE), with depths of 20 m (11 fm) or less over it; the bank extends about 20 miles ENE from Radix Point to a position near Darien Rock. The current causes a confused sea, with rips, over parts of the bank. Thence:

2 E of L'Ebranche Rocks (2 miles SE), consisting of three small drying rocks over which the sea always breaks. Foul ground, on which the sea usually breaks, extends 5 cables NE from these rocks and is steep-to. Thence:

E of Manzanilla Point, the N entrance point of Cocos Bay (4.40). A reef, which dries 0·3 m (1 ft) and on which the sea breaks heavily, extends 5 cables E from Manzanilla Point; two wedge-shaped rocks 5 m (16½ ft) high lie close E of the point. And:

3 W of Darien Rock (22½ miles E); a dangerous wreck lies beside the rock. A confused sea, with tide-rips, is caused in the vicinity by the NE–going tidal stream having a rate of about 1¾ kn. The rock should be given a wide berth at all times as neither soundings nor surface indications give sufficient warning of its proximity. Thence:

4 E of McMillan Rock (5½ miles N), lying 2¼ miles offshore in Matura Bay (4.41), thence:

W of Emerald Shoals (25 miles NE), consisting of coral, with a least depth of 5·5 m (18 ft) over a wreck at their N end, thence:

E of Forest Point (18½ miles NNE), fringed with rocks on which the sea breaks heavily, thence:

5 E of Neptune Rock, an awash rock on which the sea breaks lying 5 cables E of Galera Point (19½ miles NNE); vessels should pass at least 1 mile E of this rock as the current sets strongly towards it. Galera Point, from which a light (4.36) is exhibited, is rocky and covered with coconut palms; the land begins to rise about 3 miles W of the point to the mountain range backing the N coast of Trinidad. Thence:

6 W of a wreck (25¼ miles NNE), with a depth of 18·3 m (60 ft) over it.

The track then leads to the vicinity of 10°58′N, 60°50′W in Galleons Passage, about 9 miles NNE of Galera Point.

(Directions continue for the N coast of Trinidad at 4.56)

Bays and anchorages

Mayaro Bay

4.39

1 **Description.** Mayaro Bay is entered between Galeota Point (4.9) and Mayaro Point (10°19′·5N, 60°58′·3W), the SE extremity of Radix Point (4.37), 11 miles N. There is a sandy beach at the N end of the bay which is fringed with coconut palms, and there are numerous houses and beach huts. A Roman Catholic chapel stands on the coast 4 miles SSW of Mayaro Point, but is almost hidden by trees.

2 **Current.** There is a steady NW–going current of 1 to 2 kn in Mayaro Bay, along with an inshore current which is S–going and strong. The currents cause vessels at anchor to ride very uneasily.

Anchorage. Vessels can obtain anchorage in the N part of Mayaro Bay in depths from 7 to 9 m (24 to 30 ft), about 1¼ miles SE of Saint Joseph village (10°19′N, 61°00′W).

3 A vessel should approach with caution as there are few distinguishable features and the small buildings in the village are difficult to see, especially after midday. This anchorage is exposed and the sea soon rises with the wind, making it unsafe and endangering communication with the shore.

4 **Landing.** The sea is sometimes smooth enough to permit landing on a stretch of 2 or 3 miles of the coast in the vicinity of Saint Joseph village; farther S there is a heavy surf.

Cocos Bay

4.40

1 **Description.** Cocos Bay is entered between Radix Point (10°20′N, 60°58′W) (4.37) and Manzanilla Point (4.38),

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11½ miles N; its shores are low, sandy, and fringed with coconut palms. Heavy rollers extend about 5 cables offshore and make landing almost impossible. Ortoire or Guatuaro River, the largest in Trinidad, flows into the bay 1½ miles W of Radix Point.

2 **Current.** There is a steady NW–going current of 1 to 2 kn in Cocos Bay; it causes vessels at anchor to ride very uneasily.

Tidal levels. Off the entrance to Nariva River (10°24′N, 61°02′W) there is a mean maximum range of about 0·9 m and a mean minimum range of about 0·6 m. For further information see the *Admiralty Tide Tables.*

3 **Anchorage off L'Ebranche Rocks.** The best temporary anchorage for vessels of moderate size off this coast is W of L'Ebranche Rocks (4.38), about 1½ miles SSW of Manzanilla Point, in a depth of 9 m (29 ft).

Another berth lies about 1½ miles WSW of L'Ebranche Rocks in a depth of 13 m (42 ft), over mud and sand; care should be taken to avoid a rock, on which there is a noticeable swell, 5 cables WSW of these rocks.

4 **Anchorage north-west of Radix Point.** Local knowledge is required. Small vessels can obtain anchorage in a depth of 9 m (29 ft) about 1 mile offshore, with Guatuaro Point (10°20′·2N, 60°58′·0W), the NE extremity of Radix Point, bearing 155° and the W rocky bluff near the mouth of Ortoire River bearing 221°. The sea soon rises with the wind and makes communication with the shore dangerous and the anchorage unsafe, but the holding ground is good.

5 **Landing.** Usually landing can be effected inside a rocky point 5 cables E of the mouth of Ortoire River.

Small craft. Manzanilla Bay, a small sandy indentation between Manzanilla Point and the mouth of L'Ebranche River, 2 miles WSW, provides anchorage for small craft drawing less than 2·7 m (9 ft). The anchorage is protected by some rocky islets 5 m (16 ft) high near its E entrance point.

6 Local knowledge is required.

Matura Bay

4.41

1 **Description.** Matura Bay is entered between Manzanilla Point (10°31′N, 61°01′W) and Matura Point, 10 miles N; its almost straight sandy shore is lined with coconut palms, and the sea breaks with such violence on it that landing anywhere is impracticable.

2 The coastline between Matura Point and the mouth of Oropuche River, 4½ miles S, consists of low red sand cliffs; between this mouth and Manzanilla Point, it rises to a series of prominent cliffs 15 to 24 m (50 to 80 ft) high, streaked with red and white, backed by dense jungle.

3 **Anchorages.** None available.

Balandra Bay

4.42

1 **Description.** Balandra Bay (10°42′N, 61°00′W) is entered between Islet à Bateau and a point 1¼ miles SW; it has a sandy beach, at the W end of which is the mouth of a small stream. A black building with a red roof stands on the N shore of the bay.

2 **Anchorage.** Small coastal vessels may obtain anchorage in the shelter of the N shore of Balandra Bay, in a depth of 5 m (16 ft).

Local knowledge is required.

Small craft

Saline Bay

4.43

1 **Description.** Saline Bay, entered between Fronton de Saline (10°42′N, 61°01′W) and Matura Point 1¼ miles WSW, is rocky in its E part and sandy elsewhere.

Anchorage. Small craft, drawing less than 2·4 m (8 ft), can obtain anchorage with shelter, NW of a rocky islet, 12 m (39 ft) high, which lies close off Fronton de Saline.

2 **Landing** can be effected W of the mouths of two streams at the head of Saline Bay.

Local knowledge is required.

Cumana Bay

4.44

1 Cumana Bay (10°47′N, 60°56′W), entered 1½ miles SW of Forest Point (4.38), has several sandy beaches. It is the only place in the vicinity where a landing could be effected.

EAST APPROACHES TO GALLEONS PASSAGE

General information

Charts 517, 493

Landfall

4.45

1 When approaching Galleons Passage (10°58′N, 60°50′W), lying between the SW end of Tobago and the NE end of Trinidad, from the E, every opportunity should be taken of fixing a vessel's position, to ascertain the effect of current. This precaution is particularly necessary during June to October when the trade wind is less steady, for the rate and direction of the current are then extremely variable as Trinidad is approached.

Current and tidal streams

4.46

1 See 4.51 and 4.308.

Principal marks

4.47

1 **Major lights:**

Crown Point Light (11°09′N, 60°51′W) (4.319).

Galera Point Light (10°50′N, 60°55′W) (4.36).

Passage directions

4.48

1 There are no specific directions for the approach which leads to the vicinity of 10°58′N, 60°50′W in Galleons Passage, about 9 miles NNE of Galera Point (10°50′N, 60°55′W), the charts being sufficient guide. However, attention is drawn to the following off-lying shoals and banks (with positions relative to Galera Point (10°50′N, 60°55′W)):

Emerald Shoals (16 miles ESE) (4.38).

Prospector Patch (22 miles ESE), consisting of coral; there is also a patch, with a depth of 29 m (16 fm) over it, lying 10½ miles farther ESE.

2 Delaware Bank (27½ miles E); a depth of 14·6 m (48 ft) was reported in 1952 to lie 5 miles NE of Delaware Bank.

A depth (28½ miles ENE) of 24 m (13 fm), the position of which is approximate, reported in 1952.

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3 A wreck (18 miles NE), with a least depth of 18·3 m (60 ft) over it, the position of which is approximate

Another wreck (9½ miles ENE), with a least depth of 18·3 m (60 ft) over it.

(Directions continue for the N coast of Trinidad at 4.56)

NORTH COAST OF TRINIDAD

General information

Charts 493, 483, 484

Route

4.49

1 From the vicinity of 10°58′N, 60°50′W in Galleons Passage, about 9 miles NNE of Galera Point (10°50′N, 60°55′W), the route leads WSW for 53 miles along the N coast of Trinidad to the vicinity of 10°50′N, 61°44′W, 9 miles NE of Punta Peñas (10°44′N, 61°51′W).

Topography

4.50

1 A range of densely wooded mountains backs the N coast of Trinidad attaining a greatest elevation of 940 m (3085 ft) at El Cerro del Aripo (10°43′N, 61°15′W) 21 miles WSW of Galera Point. To the S of these mountains, the interior of the island is generally low and flat, with some extensive swamps and a few isolated hills.

2 The coast itself, between Galera Point and the entrance to Bocas del Dragon, 45 miles W, is rocky, steep and cliffy in places, with an occasional sandy beach. The sea breaks on it with such violence that landing is impossible except at very few places and under favourable circumstances; even then it is difficult, especially during January and February when rollers may be expected.

Currents and tidal streams

4.51

1 The E–going tidal stream to the E of the mouth of Grande Rivière (10°49′·5N, 61°03′·0W) is overcome by the W–going current between Trinidad and Tobago. Close inshore, between the mouth of Grande Rivière and Chupara Point, the E–going tidal stream makes along the coast for the last 2 hours of the falling tide, and sometimes for the whole of it.

2 The E–going tidal stream W of Chupara Point is always felt and, as Entrada Point (10°43′N, 61°40′W) is approached, its strength increases and its direction becomes more N–going. The rate of the W–going tidal stream decreases as Entrada Point is approached, but is greater in the offing than near the coast.

Submarine cables

4.52

1 Three submarine cables are laid between the SW end of Tobago, near Crown Point (11°09′N, 60°51′W), and a point on the N coast of Trinidad 2 miles W of Galera Point (10°50′N, 60°55′W). Mariners are warned not anchor within two miles of the charted routes of the cables in Galleons Passage.

2 Several submarine cables are also laid NNW from Macqueripe Bay (10°44′N, 61°37′W), near the NW end of Trinidad, into the Caribbean Sea. Mariners are advised that they should avoid anchoring, long line fishing or trawling within 1 mile of the cables.

3 For further information on cables see 1.42.

Marine exploitation

4.53

1 Orchid, Poinsettia, Hibiscus and Chaconia Gasfields have been established between 18 and 20 miles off the N coast of Trinidad. In the Hibiscus Gasfield there is a production platform (11°08′N, 61°40′W) from which a gas pipeline is laid in a S direction through Boca de Monos (10°42′N, 61°40′W) and across the Gulf of Paria to the shore close E of Point Fortin (10°11′N, 61°42′W). Anchoring is prohibited within 5 cables of the pipeline.

2 Exploration rigs and associated support vessels may be encountered in these gasfields. For further information on oil and gasfields see 1.13; for submarine pipelines see 1.14.

Principal marks

4.54

1 **Landmarks:**

Chupara Point (10°48′N, 61°22′W), the most prominent headland along the N coast of Trinidad; it is cliffy and 137 m (450 ft) high.

North Post Coast Radio Station (10°45′N, 61°34′W) with its flagstaff and radio masts. The station stands on a hill 228 m (748 ft) high 2 cables S of Pointe à Diable.

2 **Major lights:**

Crown Point Light (11°09′N, 60°51′W) (4.319).

Galera Point Light (10°50′N, 60°55′W) (4.36).

Chupara Point Light (white metal framework tower and hut) (10°48′N, 61°22′W).

Chacachacare Island Light (10°42′N, 61°45′W) (4.78).

Other aid to navigation

4.55

1 **Racon:**

Hibiscus Production Platform (11°08′N, 61°40′W).

For further details see *Admiralty List of Radio Signals Volume 2*.

Directions

(continued from 4.38 and 4.48)

Galera Point to Chupara Point

4.56

1 From the vicinity of 10°58′N, 60°50′W, about 9 miles NNE of Galera Point (4.38), the track leads WSW, passing (with positions relative to Galera Point):

SSE of Drew Bank (13½ miles N) which extends 7 miles SW from the SW end of Tobago; in 1986, less water than charted was reported on the bank. Drew Shoal, the shallowest part of Drew Bank with a depth of 6·1 m (20 ft) over it, lies near the SW end of the bank. There is usually a ripple at the edge of Drew Shoal and, when the tidal stream is running strongly, the whole NW edge of Drew Bank can be identified by a ripple. And:

2 NNW of Mormacland Bank (3½ miles N) fronting the N side of Galera Point, thence:

NNW of an isolated shoal (2¾ miles NW), with a depth of 16·8 m (55 ft) over it, fronting Reefs Point, the E entrance point of Toco Bay (4.58), thence:

3 NNW of a rock (13¾ miles W), with a depth of 2·0 m (6 ft) over it, lying 2½ cables N of Grand Matelot Point. A light is exhibited from Petite Matelot Point, 1½ miles E of Grand Matelot Point. Thence:

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NNW of Machapure Rock (22¾ miles W), the outermost danger along this part of the coast between Grand Matelot Point and Chupara Point; the rock lies 3 cables N of the E entrance point of Blanchisseuse Bay.

4 The track then leads to a position NNW of Chupara Point (26½ miles W) (4.54), from which a light is exhibited. In 1996 it was reported that Chupara Point extends about 5 cables farther S than charted.

Chupara Point to Bocas del Dragon

4.57

1 From Chupara Point (10°48′N, 61°22′W) the track continues WSW, passing (with positions relative to Saut d'Eau Islet (10°46′N, 61°31′W)):

NNW of La Vache Point (2¼ miles E), with an islet 55 m (180 ft) high close off it. The point is the extremity of a promontory separating Balata Bay (4.66), on its E side, from La Vache Bay (4.66) on its W side. Thence:

2 NNW of Saut d'Eau Islet, 113 m (370 ft) high, wooded and steep-to, from which a light is exhibited; for information on landing see 4.67. Thence:

NNW of Pointe à Diable (3¼ miles WSW); North Post Light (beacon) is exhibited from the radio station (4.54) 2 cables S of the point. Thence:

3 NNW of Corozal Point (6 miles WSW), which is fringed by an artificial reef, established in 1990, within a radius of 3 cables of the point. A disused satellite tracking aerial, 35 m in height, stands 3½ cables SSW of Corozal Point; its position is approximate. Thence:

NNW of Entrada Point (10 miles WSW), the NW extremity of Trinidad, thence:

4 NNW of the islands (between 10½ and 14 miles WSW) lying on the E side of the entrance to Gulf of Paria.

The track then leads to the vicinity of 10°50′N, 61°44′W, 9 miles NE of Punta Peñas (28¾ miles WSW).

Useful marks:

Radio tower standing close E of the 539 m summit of Morne Catherine (10°43′N, 61°38′W); there is a mast 3 cables NNW of this summit.

(Directions continue, for the N entrance to Gulf of Paria at 4.80, for the coastal route W along the N coast of Venezuela at 5.23, and for an offshore route passing N of Los Testigos at 5.14)

Anchorages

Chart 493

Toco Bay

4.58

1 **Anchorage.** Toco Bay is entered between Reefs Point (10°50′N, 60°56′W) and Trois Rocks, above water, lying close offshore 1½ miles WSW; it affords indifferent anchorage 5 cables offshore in a depth of about 16 m (52 ft) with Reefs Point bearing 086°, care being taken not to anchor within 2½ cables of the submarine cables (4.52). The bay is not recommended as an anchorage as a heavy swell rolls in.

2 **Tidal levels.** Mean maximum range about 0·8 m; mean minimum range about 0·4 m. For further information see the *Admiralty Tide Tables.*

Landing. There is a stone landing jetty in Toco Bay.

Grande Rivière Bay

4.59

1 **Anchorage.** Grande Rivière Bay (10°49′·7N, 61°03′·6W) affords temporary anchorage in a depth of about 16 m (52 ft), with the E entrance point bearing 086° and the E extremity of a sandy beach at the head of the bay bearing 166°; two rocky islets lie up to 3 cables off the W entrance point of Grande Rivière Bay. Coasting vessels anchor safely closer inshore in the E part of the bay.

2 **River.** Grande Rivière, which flows into the bay at the E end of the sandy beach, can only be entered by boats. There is usually a heavy surf.

Anchorage between Grand Matelot Point and Chupara Point

4.60

1 Anchorage can be obtained up to 1 mile off the coast anywhere between Grand Matelot Point (10°49′N, 61°09′W) (4.56) and Chupara Point (4.56), 13½ miles W, in depths up to 33 m (18 fm), over a mostly mud bottom.

Chupara Bay

4.61

1 Chupara Bay (10°48′N, 61°23′W) affords anchorage sheltered by Chupara Point, but is not recommended. A reef, on which the sea usually breaks, extends 3 cables W from the point.

Las Cuevas Bay

4.62

1 **Description.** Las Cuevas Bay (10°46′N, 61°24′W), situated 2½ miles SW of Chupara Point, affords anchorage with its E entrance point bearing 065°, distant about 3 cables, but is exposed to the prevailing NE wind.

Tidal levels. Mean maximum range about 0·6 m; mean minimum range about 0·5 m. For further information see the *Admiralty Tide Tables.*

Maracas Bay

4.63

1 Maracas Bay (10°46′N, 61°26′W), entered 4½ miles WSW of Chupara Point, has depths of 29 m (16 fm) mud, in its entrance, decreasing gradually to 16 and 9 m (52 and 29 ft) towards its head. This bay, though open N, provides a more sheltered anchorage in its SE corner than anywhere along this coast, but, being under high land, the winds experienced here are variable.

Chart 484

Macqueripe Bay

4.64

1 In fine weather, anchorage may be obtained about 2½ miles W of Macqueripe Bay (10°44′N, 61°37′W) in a depth of 44 m. This bay, which affords only slight shelter and is not considered safe, should be avoided owing to the existence of submarine cables (4.52).

Small craft

Chart 493

L'Islette

4.65

1 L'Islette (10°49′·1N, 61°07′·6W), 32 m high, is the largest of a group of four rocks lying close offshore

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1¼ miles E of Grand Matelot Point (4.56). L'Islette is joined to the coast by a small causeway which protects a boat anchorage off its W side.

Charts 483, 484

Bays in the vicinity of La Vache Point and Medine Point

4.66

1 Balata Bay, on the E side of La Vache Point (10°46′·6N, 61°28′·6W), and La Vache Bay on the W side do not afford safe anchorage, nor do Mal d'Estomac Bay and Saint Cité Bay which are entered E and W, respectively, of Medine Point (10°45′·9N, 61°30′·5W). A heavy swell rolls into these bays, and the winds are uncertain due to the proximity of high land.

Chart 483

Saut d'Eau Islet

4.67

1 Saut d'Eau Islet (10°46′N, 61°31′W) is a nature reserve and permission to land must be obtained from the Trinidad Government. The best landing is on a small rocky promontory in the middle of the S side of the islet, where a natural rock bridge joins two parts of the islet.

GULF OF PARIA

GENERAL INFORMATION

Charts 493, 483

Area covered

4.68

1 This section covers the Gulf Of Paria (10°20′N, 62°00′W) which is bounded E by Trinidad and on all other sides by the coast of Venezuela. The N and main entrance to the gulf is through Bocas del Dragon; the S entrance through Serpent's Mouth is not so deep, nor so safe, especially at night. The section is arranged as follows:

Bocas del Dragon (4.73).

2 Bocas del Dragon to Serpent's Mouth (4.85).

Bocas del Dragon to Port of Spain (4.90).

Port of Spain (4.116).

Bocas del Dragon and Port of Spain to ports in the SE part of Gulf of Paria (4.143).

Lisas Point Ports (4.166).

Pointe-à-Pierre (4.188).

3 Point Fortin (4.215).

Bocas del Dragon to Río San Juan (4.237).

Río San Juan (4.267).

Río San Juan to Serpent's Mouth (4.284).

Serpent's Mouth (4.291).

Anchoring

4.69

1 Depths are suitable for anchoring almost anywhere in Gulf of Paria, but there are many offshore oilfields with numerous obstructions and pipelines which must be avoided.

Deep draught vessels

4.70

1 Vessels of deep draught, especially those drawing more than 20 m, should when possible keep within the area defined by pecked lines on the charts. This area extends 20 miles SW from Boca Grande, thence ESE towards the coast of Trinidad between Brighton (10°15′N, 61°38′W) and Pointe-à-Pierre.

2 Within this area a route is shown on the charts for vessels which require a minimum depth of 23·5 m. For details of tidal streams on this route, see tables for stations C, D and E on Chart 483 or station A on Chart 484.

Natural conditions

4.71

1 **Current.** A branch of the Guiana Current (1.142) sets NW into Gulf of Paria through Serpent's Mouth. This current turns N into the gulf and emerges through Bocas del Dragon to rejoin the main body of the W–going Guiana Current along the N coast of Trinidad.

2 **Tidal streams.** South of Bocas del Dragon, the N entrance to the Gulf of Paria, the S–going tidal stream turns and becomes E–going along the coast of Trinidad, setting at a considerable rate through Chaguaramas Bay (10°41′N, 61°39′W) and past Diego Islands and Five Islands to Port of Spain (10°39′N, 61°31′W), where it is deflected S by the trend of the coast.

3 The N–going tidal stream between Port of Spain and Bocas del Dragon is stronger than the S–going stream, being augmented by the N–going current. Both tidal streams S of Gaspar Grande Island (10°40′N, 61°39′W) set regularly for 6 hours each way.

For current and tidal streams in Bocas del Dragon see 4.76; for Serpent's Mouth see 4.294. For details of the tidal streams in Boca de Monos (10°42′N, 61°40′W) and in the vicinity of Gaspar Grande Island see 4.83 and 4.99.

4 **Discoloration.** The water in Gulf of Paria, and for several miles outside Bocas del Dragon, appears muddy; in October it becomes reddish in colour.

Marine exploitation

4.72

1 Numerous oil platforms, wellheads and associated structures, some of which are grouped into named fields, exist in the Gulf of Paria. Unless otherwise indicated, these usually exhibit quick or flashing red lights. Such structures are subject to frequent change and may not all be charted; great care should be taken when navigating in their vicinity.

2 The largest field is Soldado Oilfield which lies up to 10 miles off the coast between Point Fortin (10°11′N, 61°42′W) and Icacos Point (10°03′N, 61°56′W), the SW end of Trinidad 14 miles WSW. Within this area there are numerous drilling platforms and associated structures, many of which exhibit lights. Many submarine pipelines connect the structures and converge on a landing place in Irois Bay (10°10′N, 61°44′W).

3 The Trinidad and Tobago authorities have declared the Soldado Oilfield a restricted area, within which navigation is prohibited to all vessels except those connected with oil field operations and small craft; anchoring, trawling and all seabed operations are prohibited. The N and W limits of the restricted area are marked by five light-buoys (special), lettered A to E, the positions of which are shown on the charts; it was reported in 2000 that the light-buoys no longer exist.

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4 For further information on oil and gasfields see 1.13; for submarine pipelines see 1.14.

BOCAS DEL DRAGON

General information

Charts 483, 484

Routes

4.73

1 Bocas del Dragon, the N and principal entrance to Gulf of Paria, lies between Entrada Point (10°43′N, 61°40′W) and Punta Peñas, the NE extremity of Venezuela, 10½ miles WNW. There are four navigable channels leading through the entrance as follows:

2 Boca Grande (4.80). This is the W–most channel and the widest separating Chacachacare Island (10°41′N, 61°45′W) from the mainland of Venezuela and is for deep draught vessels. From the vicinity of 10°50′N, 61°44′W, 9 miles NE of Punta Peñas (10°44′N, 61°51′W), the route leads SSW for 12 miles through Boca Grande to a position about 3 miles SW of the SW extremity of Chacachacare Island.

3 Boca de Navios (10°42′N, 61°44′W) (4.81), which lies between Chacachacare Island and Huevos Island.

Boca de Huevos (10°42′N, 61°42′W) (4.82), lying between Huevos Island (10°42′N, 61°43′W) and Monos Island.

Boca de Monos (10°42′N, 61°40′W) (4.83), the E–most channel, separating Monos Island from the NW end of Trinidad.

Topography

4.74

1 The E side of Bocas del Dragon is encumbered by Monos Island, Huevos Island and Chacachacare Island. Monos Island is 287 m high and thickly wooded; its NW side is formed of bold cliffs up to 244 m high. Huevos Island, the central and smallest of the islands, is divided by Boca Sin Entrada into two parts, connected by a narrow neck of sand which dries; the island is thickly wooded and attains an elevation of 207 m near the NE end of its S part. For a description of Chacachacare Island see 4.84.

2 The W entrance point of Bocas del Dragon is formed by Promontorio de Paria (10°44′N, 61°52′W), Punta Peñas being the E extremity; the promontory is joined to the mainland by a narrow isthmus, and from a distance NW or SE it resembles an island. Between Punta Peñas and Punta Garcitas, 4½ miles SW, there are some red cliffs.

Depths

4.75

1 Boca Grande, which is about 6 miles wide, is mostly deep. Vessels of deep draught, especially those drawing more than 20 m, should keep within the area (4.70) shown on the chart SE of Maralie Shoal (10°41′·5N, 61°48′·4W) (4.80).

Natural conditions

4.76

1 **Flow.** In Boca Grande, from July to October, the S–going tidal stream runs for about 4 hours at springs, but its rate seldom exceeds ½ kn as the N–going current is then at its maximum, being augmented by the water from Río Orinoco, swollen by the rains in the interior; during this period, the N–going tidal stream combined with the N–going current runs for 8 hours at a rate from 2 to 3 kn.

2 From November to June, the tidal streams have more effect as the current is then much reduced, but they are always liable to interruption due to local conditions and the state of the rivers which flow into Gulf of Paria. See table for station A on Chart 484 for details of tidal streams.

Tide-rips. Strong tide-rips occur in the middle of Boca Grande about 4 miles W of the SW extremity of Chacachacare Island (10°41′N, 61°45′W).

Pilotage

4.77

1 Pilotage is not compulsory for Bocas del Dragon, but it can be arranged, if required, by application to the pilot's office or ship's agent at Port of Spain, giving at least 48 hours notice of ETA. Messages should be routed through North Post Coast Radio Station (4.54).

Principal marks

4.78

1 **Major lights:**

Chacachacare Island Light (white concrete tower, 15 m in height) (10°42′N, 61°45′W) exhibited from the summit of the N end of the island.

Isla Patos Light (10°38′N, 61°52′W) (4.87).

Other aid to navigation

4.79

1 **Racon:**

Islas Patos (10°38′N, 61°52′W).

For further details see *Admiralty List of Radio Signals Volume 2*.

Directions

(continued from 4.57)

Boca Grande

4.80

1 From the vicinity of 10°50′N, 61°44′W, 9 miles NE of Punta Peñas (10°44′N, 61°51′W), the track leads SSW, passing (with positions relative to Chacachacare Island Light (10°42′N, 61°45′W)):

ESE of Punta Peñas (6 miles WNW), on the E side of Promontorio de Paria (4.74); a rock awash, which is always marked by breakers, lies 3½ cables ENE of Punta Peñas. Thence:

2 WNW of Cabresse Point (3½ cables W), the NW end of Chacachacare Island (4.84), thence:

ESE of Maralie Shoal (3¼ miles WSW), thence:

WNW of Diamond Rock (2 miles SSW), a patch of coral lying 3 cables W of the SW point of Chacachacare Island; it is steep-to and should be given a wide berth. A light-buoy (W cardinal) is moored close W of Diamond Shoal.

3 The track then leads to a position about 3 miles SW of the SW point of Chacachacare Island. Bolo Rocks lie on foul ground close off the SW point of Chacachacare Island; this point consists of a sheer cliff 126 m high, facing W and sloping S to the sea.

4 **Clearing line.** The alignment (036°) of Chacachacare Island Light (10°42′N, 61°45′W) (4.78) with a light (white rectangle on white metal framework tower, 8 m in height), 3½ cables SW, clears NW of Diamond Rock, but only by about 1¼ cables.

(Directions continue, for a through route to Serpent's Mouth at 4.89, for a coastal route to Port of Spain at 4.95, for routes to the ports and terminal on the SE side of Gulf of Paria at 4.149 and 4.150, and for a route to Río San Juan at 4.241)

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Side channels

Boca de Navios

4.81

1 **Description.** Boca de Navios (10°42′N, 61°44′W), the channel between Chacachacare Island (4.84) and Huevos Island (4.74), has a least width of 7 cables between Point de Cabras (10°41′N, 61°43′W) and Point Girod, the SE extremity of Chacachacare Island.

2 **Flow.** In Boca Navios, the S–going tidal stream seldom exceeds a rate of 1 kn, though under the E side of Chacachacare Island it is always appreciable; the N–going tidal stream combined with the N–going current attains a rate from 2½ to 3½ kn.

3 **Directions.** There are no specific directions for Boca de Navios the channel being deep and clear of dangers.

Useful mark:

Point de Cabras Light.

Boca de Huevos

4.82

1 **Description.** Boca de Huevos (10°42′N, 61°42′W), sometimes known as Umbrella Channel, lies between Huevos Island and Monos Island (4.74). It is about 7½ cables wide.

2 **Flow.** In Boca de Huevos, the S–going tidal stream seldom overcomes the N–going current except under the E side of Huevos Island. The N–going tidal stream combined with the N–going current attains a rate from 3 to 4 kn and, in the rainy season from May to December, even as much as 5 kn. See table for station B on Chart 484 for details of tidal streams.

3 **Directions.** There are no specific directions for Boca Huevos the channel being deep and clear of dangers. However, attention is drawn to a spit, with a depth of 4·9 m over it, which extends 1 cable SW from Cape Cola (10°41′N, 61°42′W), the SW extremity of Monos Island.

Charts 479, 484

Boca de Monos

4.83

1 **Description.** Boca de Monos (10°42′N, 61°40′W), the channel between Monos Island (4.74) and the E–most part of Trinidad is deep and has a least width of 2 cables in the fairway.

Flow. In the channel, the S–going tidal stream is weakened by the N–going current; the N–going tidal stream combined with the current attains a rate from 2 to 3 kn. The eddies off the points in this channel are strong and irregular.

2 See table for station A on Chart 479 for details of tidal streams. See also 4.99 for information on a tidal surge which sometimes occurs in the channel.

Prohibited anchorages:

A gas pipeline (4.53) is laid in a S direction through Boca de Monos; anchoring is prohibited in its vicinity.

3 Anchoring is prohibited, due to the existence of submarine cables, within an area indicated on the chart across the S part of Boca de Monos.

Anchoring and fishing are also prohibited in Têteron Bay at the SE end of Boca de Monos.

4 **Directions.** From a position about 5 cables N of Entrada Point (10°43′N, 61°40′W) the track leads S, passing (with positions relative to Entrada Point):

W of Entrada Point, thence:

E of Le Chapeau (4 cables SW), the largest of a group of rocks on the W side of the N end of the fairway. A light is exhibited from Le Chapeau. Thence:

5 W of an islet (6½ cables S), lying off the N entrance to Scotland Bay, thence:

E of Blanchette Point (1½ miles S), the E entrance point of Morris Bay; a patch, with a depth of 2·1 m over it, lies nearly 1 cable S of the point. Thence:

6 W of Têteron Rock (1¾ miles S), fronting Delgada Point. A light (white metal structure on a concrete base) is exhibited from the rock; it was reported in 2000 that the light had been replaced by a light-buoy.

The track then leads SSW out into the Gulf of Paria.

7 **Small craft:**

Scotland Bay (10°42′·0N, 61°39′·9W). Anchorage is obtainable at the head of the bay in a depth of about 10 m. The bay is generally deep but shallows abruptly at its head.

Morris Bay (10°41′·7N, 61°40′·8W). There is good anchorage towards the head of this bay which is situated on the E side of Monos Island.

8 Grand Fond Bay (10°40′·9N, 61°41′·1W). Anchorage can be obtained by small craft in the bay, on the S side of Monos Island, care being taken to avoid submarine cables which are landed at the head of the bay.

Adjacent island

Chart 484

Chacachacare Island

4.84

1 **Description.** Chacachacare Island (10°41′N, 61°45′W), which is thickly wooded, is divided into two parts by a low sandy isthmus, on the W side of which is La Tinta Bay with rocky shores; on the E side of the isthmus lies Chacachacare Bay. The island was a former leper colony but the buildings are now abandoned and are in a derelict state.

2 The NE coast of the island between La Lue Point (10°42′N, 61°45′W) and Point Girod, 1½ miles SE, rises abruptly to elevations up to 240 m; at Point Girod it is composed of prominent red cliffs.

Measured distance. On the S side of Chacachacare Island there is a measured distance:

3 West limit. Two beacons (front beacon consists of a pole surmounted by a white diamond; rear beacon a pole surmounted by a white cross) standing 2 cables NE of the SW point of Chacachacare Island.

4 East limit. Two beacons (front beacon consists of a pole surmounted by a white diamond; rear beacon is a bare pole) standing 1 cable WNW of Point Romain.

Distance 1859 m (6100 ft).

Running track. The course is 090° or 270°.

5 **Anchorage.** Vessels may obtain anchorage in Chacachacare Bay, which deeply indents the SE side of Chacachacare Island. The bay is entered between Point Girod and Point Romain, 8 cables SW; when approaching from S, a vessel should close Point Romain until within the bay as a strong current sets NE across the entrance.

6 The anchorage, shown on the chart, is suitable for vessels of moderate size in depths from 27 to 36 m and is clear of dangers, but care is necessary to avoid a submarine cable which is landed at the head of Perruquier Bay (10°41′·1N, 61°45′·3W).

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7 Small craft may obtain anchorage in the coves forming the head of Chacachacare Bay. Caution is needed as the bottom shelves abruptly resulting in the distance between a suitable anchorage position and going aground being less than 100 ft.

8 **Alongside berth.** On the S side of Perruquier Bay there is a landing stage which is used for servicing Chacachacare Lighthouse (4.78).

BOCAS DEL DRAGON TO SERPENT'S MOUTH

General information

Charts 493, 483, 481

Route

4.85

1 From a position about 3 miles SW of the SW extremity of Chacachacare Island (10°41′N, 61°45′W) the route leads SSW, for 30 miles, across the Gulf of Paria to the vicinity of 10°12′N, 62°01′W, and thence SSE, for a farther 3 miles to the vicinity of 10°09′N, 62°00′W, on the N side of Serpent's Mouth.

2 If this route is to be used mariner's must take into account the restrictions and depths in Serpent's Mouth; see 4.291 and 4.292.

Tide rips

4.86

1 Strong tide-rips occur about 5 cables S of the E end of Isla Patos (10°38′N, 61°52′W).

Principal marks

4.87

1 **Landmark:**

Soldado Rock (10°05′N, 62°01′W) (4.296).

Major lights:

2 Isla Patos Light (white metal framework tower, black bands) (10°38′N, 61°52′W).

Punta del Arenal Light (10°03′N, 61°56′W) (4.14).

Other aid to navigation

4.88

1 **Racon:**

Islas Patos (10°38′N, 61°52′W).

For further details see *Admiralty List of Radio Signals Volume 2*.

Directions

(continued from 4.80)

4.89

1 From a position about 3 miles SW of the SW extremity of Chacachacare Island (10°41′N, 61°45′W) the track leads generally SSW across the Gulf of Paria, passing:

ESE of Islas Patos (10°38′N, 61°52′W), from which a light (4.87) is exhibited; the island is 100 m high and thickly wooded. Thence:

2 WNW of an oilfield (10°25′N, 61°52′W), shown on the chart, lying within a circular area of radius 2½ miles; there are several platforms in the field from which lights are exhibited. Thence:

WNW of Soldado Oilfield (10°14′N, 61°54′W) (4.72).

3 Thence the track leads to the vicinity of 10°12′N, 62°01′W, W of Soldado Oilfield. From this position the track then continues SSE, for a farther 3 miles, to the vicinity of 10°09′N, 62°00′W, passing between a group of isolated platforms from which lights are exhibited, lying 3½ miles NNW of Soldado Rock (10°05′N, 62°01′W) (4.296), and Soldado Oilfield.

(Directions continue for Serpent's Mouth at 4.297)

BOCAS DEL DRAGON TO PORT OF SPAIN

General information

Charts 484, 479

Route

4.90

1 From a position about 3 miles SW of the SW extremity of Chacachacare Island (10°41′N, 61°45′W) the route leads ESE for 12 miles, along the N side of Gulf of Paria, to the outer pilot boarding area for Port of Spain (4.116), about 3 miles SSW of Five Islands (10°40′N, 61°36′W).

Oil rigs

4.91

1 Oil rigs undergoing refit, and mooring buoys, may be found about 7½ cables S of the SE point of Gaspar Grande Island (10°40′N, 61°39′W).

Tidal streams

4.92

1 See 4.71 and 4.99.

Principal marks

4.93

1 **Major lights:**

Chacachacare Island Light (10°42′N, 61°45′W) (4.78).

Isla Patos Light (10°38′N, 61°52′W) (4.87).

Other aid to navigation

4.94

1 **Racon:**

Islas Patos (10°38′N, 61°52′W).

For further details see *Admiralty List of Radio Signals Volume 2*.

Directions

(continued from 4.80)

4.95

1 From a position about 3 miles SW of the SW extremity of Chacachacare Island (10°41′N, 61°45′W) the track leads ESE, passing (with positions relative to Espolon Point Light (10°40′N, 61°40′W)):

SSW of Diamond Rock (4.80) and Bolo Rocks (4.80) lying close off the SW extremity (6 miles W) of Chacachacare Island, thence:

SSW of Huevos Island (3 miles NW) (4.74) and Monos Island (1½ miles NW) (4.74), thence:

2 SSW of Gaspar Grand Island covered in woods; a light (white framework tower) is exhibited from Espolon Point, the W extremity of the island. Thence:

SSW of Diego Islands (2¼ miles E) (4.104); a light is exhibited from the SW end of Cronstadt Islet, the W–most of the group.

3 The track then leads to a position about 3 miles SSW of Five Islands (4 miles E). This group of islands also known as Las Cotorras or Quarantine Islands, consist of Nelson Islet, Caledonia Islet and some smaller islets. There are buildings on all except one of the islets; a light (white mast) is exhibited from Nelson Islet.

(Directions continue, for Port of Spain at 4.134, and for a coastal route to Lisas Point at 4.148)

(Directions for Chaguaramas Bay are given at 4.100, and for Tembladora Bauxite Terminal at 4.110)

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Chaguaramas Bay

Chart 479

General information

4.96

1 **Position.** Chaguaramas Bay (10°41′·0N, 61°39′·0W) is situated on the S side of the NE part of Trinidad, 6½ miles WNW of Port of Spain. The bay lies between San José Point (10°40′·6N, 61°39′·3W) and San Carlos Point, the W extremity of Point Gourde, a thickly wooded peninsula, 1¼ miles SE.

2 **Function.** Chaguaramas Bay contains a repair yard for commercial vessels and a supply base handling cargo associated with the offshore oil and gas industry; there are also extensive facilities for yachts and recreational craft. It is a port of entry.

Traffic. In 2000 the bay was used by 251 vessels.

3 **Port Authority.** Port Authority of Trinidad and Tobago, PO Box 549, 1 Dock Road, Port of Spain, Trinidad and Tobago.

Limiting conditions

4.97

1 **Tidal levels.** In the vicinity of Gaspar Grande Island (10°40′N, 61°39′W) there is a mean maximum range of about 0·7 m and a mean minimum range of about 0·5 m. For further information see the *Admiralty Tide Tables.*

Maximum size of vessel handled. Vessels up to 22 000 dwt can be handled at the repair yard.

Arrival information

4.98

1 **Anchorage.** Vessels may obtain anchorage in a depth of 26 m about 4 cables N of Reyna Point (10°40′·0N, 61°38′·8W), with Gasparillo Light bearing 280°, but this berth is not advisable due to strong currents and numerous other vessels.

The safest and best anchorage for vessels awaiting repairs is about 1½ miles S of Cronstadt Islet (10°39′·5N, 61°37′·8W).

2 **Submarine cables.** A cable is laid across the W entrance to Chaguaramas Bay between San José Point (10°40′·6N, 61°39′·3W) and a point on Gaspar Grande Island SSW. Another cable is also laid across the S entrance to the bay from Reyna Point, on Gaspar Grande Island, to Escondida Cove, close N of San Carlos Point.

For further information on cables see 1.42.

3 **Pilotage.** For commercial vessels pilotage is compulsory. Pilots are provided by Port of Spain. It was reported in 1999 that the pilot boards W of Cronstadt Islet. For information on pilots at Port of Spain see *Admiralty List of Radio Signals Volume 6 (5).*

Tugs. Several tugs are available.



Chaguaramas from E (4.96)

(Original dated 2004)

(Photograph – permission of The Shipping Association of Trinidad and Tobago)

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Harbour

4.99

1 **General layout.** A repair yard, with several berths, is situated on the N shore at the W end of Chaguaramas Bay. To the E of the repair yard there are smaller wharves used to service the offshore oil and gas industry. There is also a cargo terminal on the W side of Point Gourde. For recreational craft there are many smaller berths along with marinas along the shores of the bay.

2 **Tidal streams.** The in-going stream, after flowing S through Boca de Monos (4.83), turns E and SE between Gaspar Grande Island and the coast of Trinidad. The stream striking the W side of Point Gourde is deflected N and W around Chaguaramas Bay, causing eddies round the repair yard and in the cove W of it; this portion of the stream is weak and confined to an area close to the shore.

3 The out-going stream flows W between Gaspar Grande Island and Trinidad, and N through Boca de Monos; eddies are caused in the cove W of the repair yard as a portion of the stream is deflected N by Gasparillo Islet (10°40′·4N, 61°39′·3W).

4 The N–going stream in Boca de Monos is assisted by the prevailing N–going current. As the stream weakens and the S–going builds up at the N end of Boca de Monos, a tidal surge, known locally as the *Re-Mou*, sometimes occurs and is clearly visible as a marked line on the surface which moves E through the channel N of Gaspar Grande Island.

5 The *Re-Mou* arrives in Chaguaramas Bay between 30 minutes and 1 hour after local LW and sets for 20 to 30 minutes; it is irregular in occurrence and erratic in rate, varying between 1 and 5 kn, generally being strongest in the wet season from July to August and weakest in the dry season from January to March, though maximum rates can occur at any season.

6 As soon as the *Re-Mou* has dissipated, the rate of the tidal stream settles down to that shown by the tables for stations B and C on the chart.

Directions for entering harbour

4.100

1 **Entry.** The bay is entered from the S, passing W of Cronstadt Islet (10°39′·4N, 61°37′·9W) (4.95) and thence between Reyna Point, from which a light (white mast) is exhibited, and San Carlos Point. The chart is sufficient guide.

The bay may also be entered from the W passing between Gasparillo Islet (10°40′·4N, 61°39′·3W), from which a light (white mast) is exhibited, and the N side of Gaspar Grande Island.

2 **Useful marks:**

Radio masts (10°40′·1N, 61°37′·8W) standing on the summit of Point Gourde; the tallest of some short masts, just visible above the trees, exhibits obstruction lights from a yard-arm; these lights are very prominent from the offing.

3 Light (white tripod) exhibited from the N edge of a spit 3 cables N of San Carlos Point (10°40′·1N, 61°38′·2W).

Berths

4.101

1 The main alongside berths are as follows:

Piers No's 4 and 5 situated in the repair yard on the N side of the bay; both are 150 m in length with depths of 12 m alongside. It was reported in 1999 that the piers are in a bad state of repair. There is also a quay at the repair yard, with a depth of 7 m alongside.

2 Wharf for the handling of spirits by tankers; length 60 m with a depth of 6 m.

Salt Jetty with two berths; both with a length of 58 m and a depth of 8 m alongside.

Chaguaramas Terminals (10°40′·6N, 61°38′·0W), situated on the W side of Point Gourde. Consists of one berth able to handle vessels up to 30 000 grt and 274 m in length.

3 Berthing and unberthing should be avoided between LW and 1½ hours after LW, when the *Re-Mou* (4.99) may be setting; it is advisable to berth at slack water. Vessels approaching Pier No 4 from E should take care to avoid submerged piles in the vicinity.

Port services

4.102

1 **Repairs.** Major repairs undertaken. There is a floating dry dock with a capacity for vessels up to 11 380 tonnes, along with a ship hoist with a lifting capacity of 750 tonnes.

Other facilities: Deratting and Deratting Exemption Certificates issued; first aid facilities at the repair yard; hospital in Port of Spain.

2 **Supplies.** Fuel, freshwater and provisions are available.

Communications. Piarco International Airport ESE of Port of Spain.

Small craft

4.103

1 There are several marinas situated on the NE side of Chaguaramas Bay, providing a full range of facilities for small craft including marine hoists and an anchorage. One of the largest is The Crews Inn Marina (10°40′·6N, 61°38′·1W), situated on the former site of Aluminium Company of Canada's bauxite and manganese ore handling terminal; the marina has a capacity of about 66 berths.

2 Yachts and other recreational craft entering Trinidad for the first time are required to proceed to the Customs Dock situated close E of the N side of Crews Inn Marina. Customs are available 24 hours a day and at the customs office arrangements can be made for an immigration officer to attend.

Diego Islands

General information

4.104

1 **Description.** Diego Islands consist of Cronstadt Islet (10°39′·4N, 61°37′·9W), 46 m high and from which a light is exhibited, and Carrera Islet, lying 2 cables ENE and 51 m high. There are some prominent buildings on both islets; on Carrera Islet these form a prison.

2 **Submarine cables** are laid between Cronstadt Islet and Carrera Islet and from both islets to the mainland. For further information on cables see 1.42.

Loading terminal

4.105

1 **Position and function.** A bulk barytes terminal is situated on the W side of Cronstadt Islet. It is considered to be a berth within Port of Spain.

Port Authority. Port Authority of Trinidad and Tobago, PO Box 549, 1 Dock Road, Port of Spain, Trinidad and Tobago.

2 **Maximum size of vessel handled.** Vessels up to 131 m in length can use the terminal.

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Pilotage is compulsory for berthing and a tug is available.

Berth. The terminal consists of a wharf, length about 65 m with a depth of 13·7 m alongside. A vessel 122 m in length berthing at the wharf would overhang it by about 30 m fore and aft.

3 **Supplies.** Fuel and fresh water are available by barge.

Tembladora Bauxite Terminal

General information

4.106

1 **Position.** Tembladora Bauxite Terminal (10°41′N, 61°36′W) is situated close E of Point Sinet, on the W side of Saint Peter's Bay.

Function. The terminal is a port of entry and transhipment centre for alumina brought in by shallow draught vessels from Guyana and Suriname.

2 **Traffic.** In 2000 the terminal was used by 70 vessels.

Port Authority. Alcoa Steamship Co. Inc, PO Box 609, Tembladora Transfer Station, Port of Spain, Trinidad and Tobago.

Limiting conditions

4.107

1 **Tidal levels.** In Carenage Bay, adjacent to Tembladora Bauxite Terminal, there is a mean maximum range of about 0·7 m and a mean minimum range of about 0·4 m. For further information see the *Admiralty Tide Tables.*

Maximum size of vessel handled. Vessels up to 209 m long, beam 32 m and 29 000 grt can be accommodated.

Arrival information

4.108

1 **Anchorage.** Secure anchorage can be obtained 5 cables to 7½ cables off the terminal pier.

Submarine cable. A submarine cable running E/W, parallel to the shore, is laid under the pier approximately 1 cable from its head. For further information on cables see 1.42.

2 **Pilotage.** For vessels berthing at the terminal pilotage is compulsory. The pilot boards 5 cables SW of the pierhead.

Tugs. A tug is available.

Harbour

4.109

1 **General layout.** The terminal consists of a single pier projecting S from the shore.

Tidal stream. Off Carenage Bay, the E–going stream runs for about 8 hours, beginning about 4 hours after HW by the shore, and attains a maximum rate of about 2 kn.



Port Tembladora from SW (4.106)

(Original dated 2004)

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Directions
4.110

1 From a position about 1 mile S of Cronstadt Islet (10°39′·4N, 61°37′·9W) (4.95) the track leads NE, passing (with positions relative to Cronstadt Islet Light):

SE of Diego Islands (4.104); tide-rips occur about 2 cables NE of Carrera Islet, the NE islet of Diego Islands. Thence:

NW of Five Islands (1¾ miles E) (4.95).

2 The track then leads to a position 4 cables SE of Alice Point (1½ miles NE), the SW entrance point of Carenage Bay, and on to the following leading line:

Front light (10°40′·9N, 61°36′·0W) (white square daymark with black stripe), exhibited from the N end of the berth.

Rear light (similar structure) (180 m from front light).

3 The alignment (042¼°) of these marks leads NE, through a channel marked by a pair of light-buoys (lateral), to the pier. The turning basin off the pier is marked on its E side by a light-buoy (starboard hand).

Berth
4.111

1 The terminal pier has two berths, one on each side, as follows:

West berth; 207 m long, used for loading. It was reported in 1987 that the maximum draught allowed at this berth is 7 m.

East berth; 207 m long, used for discharging.

2 The travelling cargo handling equipment on the pier has a capacity of 1200 tonnes per hour discharging and 2000 tonnes per hour when loading.

Port services
4.112

1 **Repairs** can be carried out.

Other facilities: Deratting and Deratting Exemption Certificates issued; medical facilities and hospital in Port of Spain.

Supplies: fuel supplied by barge; fresh water available at the pier and by barge; provisions obtainable in Port of Spain.

2 **Communications.** Piarco International Airport ESE of Port of Spain.

Small craft

La Retraite
4.113

1 **Description.** La Retraite, a small bay, lies 2 cables NW of San José Point (10°40′·6N, 61°39′·3W). In the bay there is a jetty, with a least depth of 3 m alongside; it is used by boats communicating with Gaspar Grande Island and Monos Island. There is a coastguard station near the jetty.

Useful marks:

Lights are exhibited from the coastguard station.

Gaspar Grande Island
4.114

1 There are facilities for small craft at Bay View Marina (10°39′·6N, 61°39′·0W), situated on the N side of the point forming the SE extremity of Gaspar Grande Island. The marina is protected by a small breakwater and affords shelter for about 15 boats.

Carenage Bay
4.115

1 **Description.** Carenage Bay is entered between Alice Point (10°40′·4N, 61°36′·9W) and Point Sinet, 1 mile NE. The bay was a site for a former seaplane base; the piers, No's 1 and 2, and the ramps at the N end of the bay are now in ruins.

Submarine cables lie close SE of Pier No 1 and off the NE shore of the bay. For further information on cables see 1.42.

2 **Anchorage.** Yachts can obtain anchorage in Masson's Bay close WNW of Alice Point but space is limited as the bay is also used for the mooring of barges and other associated craft.

Trinidad and Tobago Sailing Association. This establishment is situated in the larger cove on the W side of Carenage Bay. It offers anchorage, moorings and other facilities for up to 75 visiting yachts.

PORT OF SPAIN

General information

Charts 479, 482 plan of Port of Spain

Position
4.116

1 Port of Spain (10°39′N, 61°31′W), is situated on the W coast of Trinidad, in the NE corner of Gulf of Paria.

Function
4.117

1 Port of Spain, the seat of government for Trinidad and Tobago, is the principal port in Trinidad for ocean-going vessels. In 1999 its population was estimated to be 53 000.

Principal exports are sugar, molasses, rum, cocoa, coconuts, citrus fruits and coffee; imports include timber, clothing, foodstuffs and manufactured products.

Port limits
4.118

1 The port limits of Port of Spain are defined by a line extending WSW from Martin Point 10°40′·5N, 61°33′·7W to the E end of Nelson Islet, thence 180° to latitude 10°36′·5N, thence 090° to the shore, 5¾ miles SE.

Traffic
4.119

1 In 2000 the port was used by 2223 vessels.

Port Authority
4.120

1 Port Authority of Trinidad and Tobago, PO Box 549, 1 Dock Road, Port of Spain, Trinidad and Tobago.

Limiting conditions

Controlling depths
4.121

1 In 2002 there was a dredged depth of 12 m in Grier Channel leading to Grier Basin, the main berthing area for Port of Spain; charted depths within Grier Basin vary from 6·2 to 10·6 m.

2 In Sea Lots Channel, which leads to Sea Lots Basin in the S part of Port of Spain, there is a least charted depth of 6·8 m; charted depths within Sea Lots Basin vary from 4·2 to 9·2 m.

Deepest and longest berth
4.122

1 The deepest berths are No's 6A (E and W) at King's Wharf (4.136), in Grier Basin; the longest berth is No 7 at the same wharf.

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Port of Spain from WSW (4.116)
(Original dated 2002)

(Photograph – G. Kirk mv Logos II)

Tidal levels
4.123

1 Mean maximum range about 0·8 m; mean minimum range about 0·5 m. For further information see the *Admiralty Tide Tables.*

Maximum size of vessel handled
4.124

1 Vessels up to 245 m LOA (single screw) or 265 m LOA (twin screw and highly manoeuvrable) can be accommodated at Berth 6A.

Arrival information

Port radio
4.125

1 There is a port radio station at Port of Spain. For details see *Admiralty List of Radio Signals 6 (5).*

Notice of ETA required
4.126

1 Vessels should send ETA 48 and 24 hours in advance through North Post Coast Radio Station (4.54).

Outer anchorages
4.127

1 **Caution.** Several below-water obstructions and stranded wrecks lie within the following described anchorages.

General anchorage. There is anchorage anywhere off the city, the bottom being stiff mud with a layer of soft mud over it. If anchoring between Grier Channel and Sea Lots Channel a good line of approach is along the line of bearing 068° of Fort Picton (10°39′·1N, 61°29′·8W).

2 By anchoring with Fort Picton bearing more than 065°, a vessel will usually be clear of the foul water discharged from Caroni Swamp, situated 1½ miles S of the fort. After heavy rains, however, this water is carried past the anchorage on the turn of the tidal stream at HW; the edge of the discoloration is very distinct.

3 The breeze is usually E and overcomes the effect of either the tidal streams or the current out of Caroni River, so that vessels lie heading E.

Vessels should not anchor within 1 cable of the centre line of Grier Channel or Sea Lots Channel to avoid obscuring the light-beacons which mark them; neither should they anchor within 5 cables of the entrance to these channels.

4 It is recommended that vessels of deep draught should not anchor where the depth is less than 2 m below the keel at LW as condenser inlets may become choked with mud.

Quarantine anchorage. Vessels in quarantine should anchor S or SE of the entrance to Grier Channel, according to draught. The port health officer will board vessels at the anchorage by day or night, but if only from an infected port.

5 **Explosives anchorage.** The explosives anchorage is within an area, shown on the chart, close S of the entrance to Sea Lots Channel.

Pilotage
4.128

1 Pilotage is compulsory. The pilot boards in the following positions:

Grier Channel. Pilot station A (10°38′·2N, 61°34′·5W), for vessels of 9 m draught or less.

Grier Channel. Pilot station B (10°36′·5N, 61°37′·0W) (Chart 483), for vessels with draughts of more than 9 m.

2 Sea Lots Channel (10°37′·6N, 61°32′·1W), 1 cable W of the entrance light-beacons.

Pilots will also board outside the compulsory area, including in Bocas del Dragon (4.77).

Tugs
4.129

1 Tugs are available; there use is compulsory.

Harbour

General layout
4.130

1 The main berthing area is situated in Grier Basin (10°39′·0N, 61°31′·5W) at King's Wharf, which fronts the city of Port of Spain; Grier Basin is approached through Grier Channel which has a width of 122 m.

2 The other berthing area of importance is within Sea Lots Basin (10°38′·3N, 61°30′·0W), which handles fishing vessels and tankers; the basin, situated 9 cables SE of Grier Basin, is approached through Sea Lots Channel.

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Development
4.131

1 It was reported in 2002 that reclamation work is being carried out to seawards of Mucurapo Point (10°39′·4N, 61°32′·1W).

Natural conditions
4.132

1 **Tidal streams.** The tidal streams generally follow the coast and attain rates from ½ to 1 kn. Streams with considerable rates have been reported about 4 miles SW of the wharves at Port of Spain. The following sets have also been reported:

2 1994. A tidal stream of up to 1¾ kn was observed, in the vicinity of 10°37′·3N, 61°33′·9W, to set 120° from 4 hours before until 2 hours after HW Port of Spain. The return stream was much lighter and variable in direction, at times bringing discoloured water from Caroni River.

3 1997. A NW set, with a rate of about ½ kn, was experienced 2 hours after HW in the entrance channels.

Climatic table. See 1.167 and 1.172.

Principal marks
4.133

1 **Landmarks:**

Fort George Signal Station (10°41′·2N, 61°32′·6W), with a flagstaff standing at an elevation of 334 m.

Radio mast (red obstruction lights) (10°41′·7N, 61°32′·4W), standing on the summit of Cumberland Hill, 6 cables NNE of Fort George Signal Station.

2 Stadium floodlight towers (10°39′·6N, 61°32′·1W).

Four chimneys (10°39′·3N, 61°31′·2W).

Hotel (10°39′·0N, 61°31′·0W), 3 cables SE of the chimneys.

Tower buildings (10°38′·8N, 61°30′·8W), approximately 70 m in height.

3 Fort Picton (10°39′·1N, 61°29′·8W).

Laventille Roman Catholic Church (10°39′·2N, 61°29′·8W), with a white stone tower surmounted by a large statue. A radio mast (red obstruction lights, 33 m in height) stands close N of the church.

Directions for entering harbour
(continued from 4.95)

Grier Channel
4.134

1 Grier Channel provides access to the main berthing area for Port of Spain. From a position about 3 miles SSW of Five Islands (10°40′N, 61°36′W), in the vicinity of the pilot station B, the track leads ENE for about 1 mile to the beginning of the following leading line:

2 Front light (yellow triangular daymark on black and white framework tower, elevation 41 m) (10°39′·2N, 61°31′·4W).

Rear light (similar structure, elevation 48 m) (181 m from front light). Both lights are often obscured by smoke or cranes.

3 The alignment (061½°) of these lights then lead NE for a farther 4½ miles through Grier Channel, which is marked by light-beacons (lateral), into Grier Basin, from where the commercial berths can be directly accessed. The seaward side of the basin is marked by light-beacons (lateral).

4 In 2002 it was reported that some of the light-beacons marking Grier Channel had been damaged and some were missing.

Sea Lots Channel
4.135

1 Sea Lots Channel provides access to a secondary berthing area in Sea Lots Basin. From a position about 3 miles SSW of Five Islands (10°40′N, 61°36′W), in the vicinity of the pilot station B, the track leads ENE for about 4 miles to the beginning of the following leading line:

2 Front light (orange rectangular daymark on white framework tower, elevation 26 m) (10°38′·4N, 61°29′·8W).

Rear light (similar structure, elevation 39 m) (640 m from front light).

3 The alignment (069¼°) of these lights then continues to lead ENE, for a farther 2¾ miles, through Sea Lots Channel, marked by light-beacons (lateral), into Sea Lots Basin from where the berths may be directly accessed. The seaward side of the basin is marked by light-beacons (lateral).

Berths

Grier Basin
4.136

1 The main berthing area within Grier Basin (10°39′·0N, 61°31′·5W) is alongside King's Wharf and its extension NW, situated on the NE side of the basin; the wharf has 11 numbered berths, as shown on the chart, with the longest and deepest as follows:

No's 6A (E & W); both berths are 170 m long with a a depth of 12 m alongside; used by container vessels.

2 No 7, with a length of 222 m and a depth of 9·5 m alongside; used for the handling of liquid bulk cargoes.

At the SE end of King's Wharf there are several smaller wharves and jetties. Regional and inter-island coasting vessels berth in this part of the port.

Sea Lots Basin
4.137

1 Sea Lots Basin (10°38′·3N, 61°30′·0W) is situated 9 cables SE of Grier Basin. On the N side of the basin several finger jetties project S; these jetties are used by fishing vessels.

In the NE corner of the basin there is a jetty for the handling of petroleum cargoes.

Port services

Repairs
4.138

1 Minor repairs undertaken; there are two slipways, the largest of which has a capacity of 1800 tonnes. Extensive general repairs are carried out at Chaguaramas Bay (4.96). Divers are available.

Other facilities
4.139

1 Deratting and Deratting Exemption Certificates issued; hospital at Port of Spain; garbage collection available.

Supplies
4.140

1 Fuel, fresh water, stores and fresh provisions available.

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Port of Spain from S (4.136)
(Original dated 2004)

(Photograph – permission of The Shipping Association of Trinidad and Tobago)

Communications

4.141

1 There is a regular Ro-Ro ferry service between Port of Spain and Tobago; scheduled international air services operate from Piarco Airport (10°35′N, 61°20′W) (Chart 493).

Small craft

Cumana Bay

4.142

1 At Cumana Bay (10°40′·5N, 61°34′·0W), 2½ miles NW of Grier Basin at Port of Spain, there is marina used by the Trinidad and Tobago Yacht Club. The club has facilities for visiting recreational craft, providing fresh water and fuel.

BOCAS DEL DRAGON AND PORT OF SPAIN TO PORTS IN THE SOUTH-EAST PART OF GULF OF PARIA

General information

Chart 483

Routes

4.143

1 Three routes are described for the approaches to Lisas Point Ports (4.166), Claxton Bay Marine Terminal (4.151), Pointe-à-Pierre (4.188), Brighton Harbour (4.158) and Point Fortin (4.215), as follows:

Port of Spain to Lisas Point (4.148). From the outer pilot boarding area for Port of Spain, about 3 miles SSW of Five Islands (10°40′N, 61°36′W), the route leads SSE for 16 miles to a position about 5 miles SW of Lisas Point (10°23′N, 61°29′W).

2 Direct route from Bocas del Dragon to Lisas Point (4.149). From a position about 3 miles SW of the SW point of Chacachacare Island (10°41′N, 61°45′W) this route leads SE, for 23½ miles across Gulf of Paria, to a position about 5 miles SW of Lisas Point (10°23′N, 61°29′W).

3 Deep water route from Bocas del Dragon to Lisas Point (4.150). From a position about 3 miles SW of the SW point of Chacachacare Island (10°41′N, 61°45′W) the route leads initially SSW for 17 miles to the vicinity of 10°24′N, 61°56′W, thence SE for 5 miles and then ESE for a farther 15 miles, to a position N of Brighton Harbour. The route then leads ENE for 4 miles to a position about 5 miles SW of Lisas Point (10°23′N, 61°29′W).

Topography

4.144

1 Between Port of Spain (10°39′N, 61°31′W) and Cangrejos Point, 13 miles S, the coast is low and swampy. Along the N part of this coastline several small rivers enter the sea draining Caroni Swamp. From Cangrejos Point to Cedros Point, 26 miles SW, the coastline becomes higher

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and more irregular in shape being indented by Claxton Bay, Tarouba Bay, Guapo Bay and Irois Bay.

2 The highest point of land between Port of Spain and Cedros Point is Naparima Hill (10°17′N, 61°27′W), with an elevation of 179 m.

Marine exploitation

4.145

1 For information on marine exploitation in Gulf of Paria see 4.72. A gas pipeline (4.53) is laid across the E side of Gulf of Paria from Boca de Monos (10°42′N, 61°40′W) to the shore close E of Point Fortin (10°11′N, 61°41′W); anchoring is prohibited in the vicinity of the pipeline.

Principal marks

4.146

1 **Landmark:**

Chimney (10°29′N, 61°28′W) standing near the coast.

Other landmarks are included within the descriptions of Lisas Point Ports, Pointe-à-Pierre, Brighton Harbour and Point Fortin.

2 **Major lights:**

Chacachacare Island Light (10°42′N, 61°45′W) (4.78).

Isla Patos Light (10°38′N, 61°52′W) (4.87).

La Carrière Light (white water tower) (10°20′N, 61°28′W).

Other aid to navigation

4.147

1 **Racon:**

Islas Patos (10°38′N, 61°52′W).

For further details see *Admiralty List of Radio Signals Volume 2*.

Directions

(continued from 4.95)

Port of Spain to Lisas Point

4.148

1 From a position about 3 miles SSW of Five Islands (10°40′N, 61°36′W), in the approach to Port of Spain, the track leads SSE, passing (with positions relative to Cangrejos Point (10°25′N, 61°30′W)):

WSW of a wreck (10 miles NNW), with a depth of 10 m over it, thence:

2 WSW of Barrancones Point (6 miles NNE), which is low, thence:

WSW of Couva Production Platform (5 miles NW), from which a light (pile with balcony) is exhibited, thence:

3 WSW of Couva Shoal, extending 2 miles from the coast between Cangrejos Point and Savonetta Point (1 mile S); the edge of the shoal is marked by a light-buoy (W cardinal). Cangrejos Point is not easy to identify, but a few small cliffs 1½ miles N of it show through the mangroves.

4 The track then leads to a position about 5 miles SW of Lisas Point (2½ miles S), from where Lisas Point Ports, Claxton Bay Marine Terminal and Pointe-à-Pierre can be accessed.

(Directions continue for Lisas Point Ports at 4.180, for Claxton Bay Marine Terminal at 4.155 and for Pointe-à-Pierre at 4.205)

Direct route from Bocas del Dragon to Lisas Point

(continued from 4.80)

4.149

1 From a position about 3 miles SW of the SW point of Chacachacare Island (10°41′N, 61°45′W), in Bocas del Dragon, the track leads SE across the Gulf of Paria, passing:

NE of an oilfield (10°25′N, 61°52′W) (4.89), shown on the chart and from which lights are exhibited, thence:

2 SW of Couva Production Platform (10°28′N, 61°34′W) (4.148), from which a light is exhibited.

The track then leads to a position about 5 miles SW of Lisas Point (10°23′N, 61°29′W), from where Lisas Point Ports, Claxton Bay Marine Terminal and Pointe-à-Pierre can be accessed.

3 If proceeding to Brighton Harbour or Port Fortin a more S track may be taken from Bocas del Dragon, passing ENE of the previously mentioned oilfield, to the vicinity of 10°20′N, 61°42′W at the beginning of the Brighton Harbour leading line.

(Directions continue for Lisas Point Ports at 4.180, for Claxton Bay Marine Terminal at 4.155 and for Pointe-à-Pierre at 4.205)

(Directions for Brighton Harbour are given at 4.162, and for Point Fortin at 4.230)

Deep water route from Bocas del Dragon to Lisas Point

(continued from 4.80)

4.150

1 For deep draught vessels the route leads through an area (4.70), surveyed in 1971, which is defined on the charts by a pecked line. From a position about 3 miles SW of the SW point of Chacachacare Island (10°41′N, 61°45′W), in Bocas del Dragon, the track leads initially SSW to the vicinity of 10°24′N, 61°56′W, following the directions for the first part of the through route (4.89) from Bocas del Dragon to Serpent's Mouth.

2 The track then leads SE, passing SW of the central oilfield (10°25′N, 61°52′W) (4.89), thence ESE, passing:

NNE of Iguana Well (10°19′N, 61°51′W), from which a light is exhibited; the well lies just outside the boundary of Soldado Oilfield (4.72). Thence:

NNE of the approaches to Point Fortin (4.215) and Brighton Harbour (4.158).

3 The track then leads ENE to a position about 5 miles SW of Lisas Point (10°23′N, 61°29′W), from where Lisas Point Ports, Claxton Bay Marine Terminal and Pointe-à-Pierre can be accessed.

(Directions continue for Lisas Point Ports at 4.180, for Claxton Bay Marine Terminal at 4.155 and for Pointe-à-Pierre at 4.205)

(Directions for Brighton Harbour are given at 4.162, and for Point Fortin at 4.230)

Claxton Bay Marine Terminal

Charts 483, 482 plan of Approaches to Pointe-à-Pierre

General information

4.151

1 **Position.** Claxton Bay Marine Terminal (10°21′N, 61°28′W) is situated on the E shore of Claxton Bay, 2¼ miles SE of Lisas Point.

Function. The terminal is used for discharging gypsum and clinker and for the loading of cement.

Traffic. In 2000 the terminal was used by 145 vessels.

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Limiting conditions
4.152

1 **Controlling depth.** The approach channel leading to the terminal was dredged to 6·4 m in 1983.

Maximum size of vessel handled. In 1981, a vessel 93 m in length berthed at the loading pier; vessels up to 3000 grt are handled.

Arrival information
4.153

1 **Pilotage.** A pilot from Lisas Point Ports (4.166) is reported to be available.

Tugs. No tugs available.

Harbour
4.154

1 **General layout.** Claxton Bay Marine Terminal consists of a turning basin, with a pier in it, which is entered through a narrow approach channel 4 cables in length.

Landmark:

Chimney (white) (10°21′N, 61°28′W) at Claxton Bay Marine Terminal.

2 **Major light:**

La Carrière Light (10°20′N, 61°28′W) (4.146).

Directions for entering harbour
(continued from 4.148, 4.149 and 4.150)
4.155

1 From a position about 5 miles SW of Lisas Point (10°23′N, 61°29′W) the track leads E for 4 miles to the beginning of the following entrance leading line:

Front light (building) (10°20′·8N, 61°27′·9W).

Rear light (silo) (260 m from front light).

2 The alignment (081½°) of these lights then leads ENE through the entrance channel, which is marked by numbered light-beacons (lateral) and light-buoys (lateral), to the terminal basin.

Berths
4.156

1 On the E side of the turning basin a loading pier projects W from the shore. A Ro-Ro berth is situated on the shore N of the loading pier.

Port services
4.157

1 **Repairs.** Not available; major repair facilities can be found at Chaguaramas Bay (4.96).

Other facility. Couva District Hospital, nearby.

Supplies. Fresh water can be supplied at the loading pier in limited quantities.

2 **Communications.** Piarco International Airport, distant 40 km.

Brighton Harbour

Charts 483, 482 plan of Approaches to Brighton

General information
4.158

1 **Position.** Brighton Harbour (10°15′N, 61°38′W), situated on the SE side of Gulf of Paria, fronts a promontory separating Tarouba Bay from Guapo Bay.

Function. Brighton Harbour, a port of entry, was traditionally used for the export of asphalt, from Pitch Lake. It is now used for the import of raw materials and the export of oil industry related products; offshore supply companies also operate from the port.

2 **Port Authority.** La Brea Industrial Development Company Limited, La Brea Industrial Estate, Bungalow 14, Brighton, La Brea, Trinidad.

Limiting conditions
4.159

1 **Controlling depth.** The approach channel leading to the dock, and the turning basin off of it, at Brighton is dredged to 12·8 m.

Density of water. 1·025 g/cm^3.

2 **Maximum size of vessel handled.** Vessels up to 115 m in length, with a maximum draught of 7·2 m and 15 000 dwt are handled.

Arrival information
4.160

1 **Outer anchorage.** Vessels may anchor as convenient. A good berth, as shown on the chart, lies 6 cables NW of the head of La Brea Pier (10°15′, 61°37′W), in depths from 13 to 15 m with good holding ground, over stiff mud.

Prohibited anchorage. Vessels are prohibited from anchoring within 1 cable of a submarine pipeline which has been laid between the marine oilfield fronting Brighton and the coast at Point Galba (10°14′·5N, 61°38′·4W).

2 **Pilotage** is compulsory. The pilot boards 2¾ miles NW of Brighton. There is no port radio station.

Tugs. None available; a launch assists with berthing.

Harbour
4.161

1 **General layout.** Brighton Harbour contains on its W side a dock at Brighton, and at La Brea, a village ENE of Brighton and close S of Pitch Point, a pier extending N from the shore.

2 **Development.** It was reported in 2003 that the dock (4.163) at Brighton is to be lengthened to 150 m. A yard for the fabrication of offshore platforms and related work is also being built nearby.

Tidal streams. Off Brighton, the tidal streams are strong. The SW–going stream has a rate of 1½ to 2½ kn; the NE–going stream has a rate of 1 to 1½ kn.

3 The meeting of the tidal streams from Bocas del Dragon (4.76) and Serpent's Mouth (4.294) takes place just E of Brighton, but the streams are very irregular. Between Brighton and Cedros Point, 13 miles WSW, in June and July, 1936, the SW–going and NE–going streams were much stronger at neap than at spring tides.

4 **Landmarks** (with positions relative to the hotel (10°14′·6N, 61°37′·9W) at Brighton):

Flagstaff (close N).

Tank (silver-coloured) (5 cables SE) with a tower close W of it.

Two black chimneys (3 cables S).

Six tall chimneys (4 cables S) on a hill top.

Directions for entering harbour
4.162

1 From the vicinity of 10°20′N, 61°43′W, on the deep water route (4.150), the track leads SE to the pilot station at the beginning of an approach channel, which provides a clear path through the marine oilfield fronting Brighton.

Thence the alignment (approximately 133°) of a set of leading lights exhibited from the dock at Brighton, leads through the approach channel to a turning basin, diameter 325 m, off the dock.

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2 Vessels are warned to navigate with extreme caution in the approach channel to avoid damage to the installations, from which lights are exhibited, in the marine oilfield.

Useful mark:

Light (white framework tower) exhibited from the head of La Brea Pier (10°15′, 61°37′W).

Berths

4.163

1 **Brighton.** Concrete dock (10°15′N, 61°38′W); length 65 m with a depth of 8 m alongside.

La Brea. La Brea Pier (10°15′N, 61°37′W) extends 777 m from the coast but is now disused and reported (1985) to be unsafe.

Port services

4.164

1 **Repairs.** None undertaken.

Other facilities: oily waste removal using road tankers; Deratting and Deratting Exemption Certificates issued.

Supplies: fuel available; provisions obtainable.

2 **Communications.** Piarco International Airport, E of Port of Spain.

Small craft

Charts 483, 482 plan of Approaches to Pointe-à-Pierre

San Fernando

4.165

1 **Description.** San Fernando (10°17′N, 61°28′W), on the E shore of Tarouba Bay, was a base for supplying vessels at Pointe-à-Pierre or Lisas Point Ports; in 1986 it was reported that the entrance channel was disused and the buoys marking it had been removed.

2 **Directions.** From a position about 6 miles WNW of Naparima Hill (10°17′N, 61°27′W) the track leads ESE into Tarouba Bay, passing (with positions relative to Naparima Hill):

NNE of Oropuche Light-beacon (N cardinal) (5¾ miles W), marking the N side of Oropuche Bank; Pitch Shoal lies on the bank 2 miles ESE of the light-beacon. Thence:

3 NNE of Hughes Rock (2½ miles W), a shoal of pitch, thence:

NNE of Farallon Rock (1½ miles WSW). A flagstaff and a wooden house with verandahs stand on the rock. And:

SSW of several stranded wrecks (1 mile NE) lying on the coastal bank.

4 The track then leads to the pier.

Useful mark:

Roman Catholic Church (10°17′N, 61°28′W), with a clock in its red tower.

Anchorage. Vessels may obtain anchorage with the summit of Naparima Hill bearing 107°, in a depth of 13 m about 2 miles from the pierhead, or in a depth of 7 m about 1¼ miles from the pierhead.

5 **Berth.** The pier at San Fernando is 122 m in length with charted depths of less than 1 m alongside.

LISAS POINT PORTS

General information

Charts 483, 482 plan of Approaches to Lisas Point Ports

Position

4.166

1 Lisas Point Ports (10°23′N, 61°30′W), encompassing Point Lisas Industrial Port and Lisas Point Port, is situated on the E side of Gulf of Paria 15 miles S of Port of Spain.

Function

4.167

1 The two ports serve a large industrial complex which includes a steel works. A variety of solid and liquid bulk cargoes are handled in addition to containerised and general cargo.

Approach and entry

2 Point Lisas Industrial Port and Lisas Point Port are approached from the W and entered through the following separate channels:

Savonetta Channel, nearly 1 cable wide, leading NE to Lisas Industrial Port, in which there is a turning area.

3 Lisas Point Port Channel, 76 m wide, leading E towards Fedchem Basin, a turning basin 457 m wide at Lisas Point Port; the E part of the channel is flanked on both sides by rubble breakwaters.

Traffic

4 The ports are visited by approximately 1465 vessels annually, with 7 345 400 tonnes of cargo being handled.

Port Authorities

4.168

1 **Point Lisas Industrial Port.** Point Lisas Industrial Port Development Corporation Limited, PO Box 191, Orinoco Drive, Point Lisas Industrial Estate, Port Lisas, Trinidad and Tobago.

Lisas Point Port. Hydro Agri Trinidad Limited, PO Box 952, Port of Spain Trinidad.

Limiting conditions

Controlling depths

4.169

1 The channels leading to the ports have the following dredged depths:

Point Lisas Industrial Port – Savonetta Channel; dredged to 12·8 m in 1995.

2 Lisas Point Port Channel; dredged to 12·8 m in 1989 from seaward to Tringen II Jetty (10°22′·8N, 61°29′·7W) and thereafter to 8·8 m to the inner berths.

Tidal levels

4.170

1 Mean maximum range about 1·0 m; mean minimum range about 0·6 m. For further information see the *Admiralty Tide Tables.*

Deepest and longest berth

4.171

1 Savonetta Pier No 3 (10°23′·9N, 61°29′·7W) (4.182), situated on the E shore of Point Lisas Industrial Port.

Density of water

4.172

1 1·015 to 1·025 g/cm^3.

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Maximum size of vessel handled
4.173

Vessels up to 77 996 dwt with a draught of 11·6 m can be accommodated.

Arrival information

Port radio
4.174

1 There is a port radio station at Lisas Point Port. For further information see *Admiralty List of Radio Signals Volume 6 (5).*

Outer anchorages
4.175

1 Two waiting anchorages, as shown on the chart, have been established off Lisas Point Ports as follows:

Point Lisas Industrial Anchorage, 2 miles WSW of Savonetta Point (10°24′N, 61°30′W).

Lisas Point Port Anchorage, 1½ miles W of Lisas Point (10°23′N, 61°29′W).

Pilotage
4.176

1 Pilotage is compulsory. An ETA, together with request for pilot, should be sent through the ship's agent 48, 24 and 12 hours in advance. The pilot boards close W of the entrance channels as shown on the chart. For further information see *Admiralty List of Radio Signals.*

Tugs
4.177

1 Tugs and mooring launches are available.

Harbour

General layout
4.178

1 Lisas Point Ports, consists of Point Lisas Industrial Port (10°24′·0N, 61°29′·7W) and Lisas Point Port (10°22′·6N, 61°29′·5W), also known as Hydro Agri Point Lisas, 1¼ miles S. In both ports the berths are arranged around a basin and off the entrances to them.

Principal marks
4.179

1 **Landmarks:**

Two groups of chimneys standing 2 miles NE of Lisas Point (10°23′N, 61°29′W).

Chimney (white) (10°21′N, 61°28′W) at Claxton Bay Marine Terminal.

2 **Major light:**

La Carrière Light (10°20′N, 61°28′W) (4.146).

Directions for entering harbour
(continued from 4.148, 4.149 and 4.150)

Port Lisas Industrial Port
4.180

1 From a position about 5 miles SW of Lisas Point (10°23′N, 61°29′W) the track leads NE for 2 miles on to the following leading line:

Front light (orange rectangular daymark, with white stripe) (10°24′·2N, 61°29′·6W).

Rear light (similar structure to front) (700 m from front light).

2 The alignment (052¼°) of these lights leads NE for a farther 3½ miles, passing the W end of the entrance channel leading to Lisas Point Port, and thence through Savonetta Channel, which is marked by numbered light-buoys (lateral), to a turning basin and the berths.

Lisas Point Port
4.181

1 From a position about 5 miles SW of Lisas Point (10°23′N, 61°29′W) the track leads initially NE for 2 miles on to the leading line for Savonetta Channel (4.180) and thence along it for a farther 1½ miles until the following leading line for the entrance channel for Lisas Point Port is reached:

Front light (10°22′·6N, 61°29′·0W).

Rear light (530 m from front light).

2 The alignment (091¼°) of these lights leads E through a channel, which passes along the N side of Lisas Bank, with depths of 2 m or less over it, extending 1 mile WSW from Lisas Point, to a turning basin at the head of the port. The channel, and the S and W sides of the turning basin, are marked by numbered light-beacons (lateral).

Berths

Point Lisas Industrial Port
4.182

1 Berthing areas are as follows (positioned from the front leading light (10°24′·2N, 61°29′·6W)):

Container terminal (3 cables NW) with five berths, which can also handle Ro–Ro vessels and general cargo. The largest berth is No 5 on the N side of the terminal; length 200 m with a depth of 12·8 m alongside. In 2001 81 602 TEU (20 ft equivalent unit containers) were handled.

2 Savonetta Pier 1 and 2 (3 cables E). Contains three berths; No 1 (S) and No 2 specialise in loading ammonia and methanol. Berth No 1 (N) is used for loading bulk lubricating oil and additives. The largest berth is No 2; length 312 m with a depth of 12·8 m alongside. A further berth, No 2 (N), is under construction (2004).

3 Ispat Dock (ISCOTT) (close S); length 407 m with a depth of 12·8 m alongside. Used for the export of steel products and the import of iron-ore.

Savonetta Pier 3 (NUCOR) (3 cables SSW). Length 500 m with a depth of 12·8 m alongside. A specialised installation for the discharge of iron fines and iron carbide.

4 Savonetta Pier 4 (6 cables SSW outside the main port area), with two berths. Length 380 m with a depth of 12·8 m alongside. Handles hot briquetted iron and methanol.

Lisas Point Port
4.183

1 Berthing areas are as follows (with positions relative to the front leading light (10°22′·6N, 61°29′·0W)):

Tringen II Deep-water Terminal (7 cables WNW). Vessels up to 220 m in length with a maximum loaded draught of 11·58 m are handled. The terminal is used for loading ammonia.

2 HATL Jetty No 1 (1 cable WNW). Vessels up to 171 m in length with a maximum loaded draught of 8·66 m can be handled; the jetty exports butane, propane and natural gasolene.

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3 HATL Jetty No 2 (1 cable SW). Vessels up to 171 m in length with a maximum loaded draught of 8·97 m. The jetty exports ammonia, molasses and raw bulk sugar; imports include caustic soda, sulphuric acid and voranol.

4 Deep-water terminal (7 cables W). Similar to Tringen Deep-water Terminal, for vessels up to 230 m in length situated on the S side of the entrance to the port.

Port services

Repairs
4.184

1 Repairs undertaken.

Other facilities
4.185

1 Reception for oily waste using road tankers; Deratting and Deratting Exemption Certificates issued; Couva District Hospital, 2 km distant; garbage collection; fumigation; compass adjusting carried out.

Supplies
4.186

1 Fuel delivered by barge; fresh water and provisions available.

Communications
4.187

1 Piarco International Airport, distant 20 km.

POINTE-À-PIERRE

General information

Charts 483, 482 plan of Approaches to Pointe-à-Pierre

Position
4.188

1 Pointe-à-Pierre (10°19′N, 61°28′W) is situated on the N side of Tarouba Bay, 3½ miles SSE of Lisas Point.

Function
4.189

1 The port is a major oil terminal and port of entry. It exports crude oil, petroleum products and sulphur; there are also limited facilities for the handling of general cargo.

Traffic
4.190

1 Approximately 660 vessels use the port annually.

Port Authority
4.191

1 Petroleum Company of Trinidad and Tobago Limited (Petrotrin), Marine Terminal, Point-à-Pierre, Trinidad and Tobago.

Limiting conditions

Controlling depths
4.192

1 North jetty (10°19′·5N, 61°28′·5W) approach channel: least charted depth of 11·6 m.

Viaduct jetty (10°18′·9N, 61°28′·9W) approach channel: least charted depth of 13·1 m; in the turning basin on the S side of this jetty there is a least charted depth of 5·8 m.

Deepest and longest berth
4.193

1 Sea island berth No 6 (4.207).

Density of water
4.194

1 1·023 to 1·025 g/cm^3.

Maximum size of vessel handled
4.195

1 Tankers up to 120 000 dwt with a maximum draught of 15·5 m and 290 m LOA are handled.

Arrival information

Port radio
4.196

1 There is a port radio station at Pointe-à-Pierre. For further information see *Admiralty List of Radio Signals Volume 6 (5).*

Notice of ETA required
4.197

1 An ETA should be sent 72, 48 and 24 hours in advance; if the ETA should change by more than 2 hours, an amended ETA should be sent immediately. The port radio station at Pointe-à-Pierre should be contacted at least 2 hours before arrival.

2 For further details see *Admiralty List of Radio Signals Volume 6 (5).*

Outer anchorages
4.198

1 **General information.** Vessels of 200 000 dwt or more may anchor in the transhipment area (10°20′N, 61°34′W), as shown on the chart; the holding ground is good.

For other vessels there is a general anchorage at least 1 mile E of the transhipment area, avoiding Pierre Shoal (10°18′·6N, 61°29′·5W), a 6·7 m patch 7 cables WSW of the head of the viaduct jetty at Pointe-à-Pierre; the holding ground is good.

2 **Prohibited anchorage.** Vessels are prohibited from anchoring within 1 mile of position 10°20′·5N, 61°31′·6W, where an SBM used to be moored, and within 2½ cables of three submarine pipelines which extend ESE from it to the island berths, thence within an area shown on the chart continuing SE to the viaduct jetty.

Pilotage
4.199

1 Pilotage is compulsory within 5 cables seaward of the oil installations at Pointe-à-Pierre, and for all berthing and unberthing. The pilot embarks about 1½ miles W of the berths in the vicinity of 10°19′·8N, 61°30′·7W; the ladder should be rigged on the starboard side.

2 Pilots will board vessels outside the compulsory area, or at Bocas del Dragon (4.77), if application is made by radio to the pilot's office or ship's agent. For further details see *Admiralty List of Radio Signals Volume 6 (5).*

Tugs
4.200

1 Tugs are available and there use is obligatory.

Regulation concerning entry
4.201

1 Vessels are forbidden to cross the pipeline area, shown on the chart, from the vicinity of 10°19′N, 61°28′W, on the shore SE of the viaduct pier, to the sea island berths 1½ miles NW.

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Harbour

General layout

4.202

1 The port consists of two jetties, one projecting WSW from Pointe-à-Pierre for 9 cables, the other projecting NW from the point for 4 cables, along with two sea islands situated 7 cables NW of the N jetty.

Natural conditions

4.203

1 **Current.** During July and August, 1924, a current was observed setting SW continuously for several days, and at other times there was little or no current either way.

Tidal streams. In the offing, outside the 20 m line, the tidal streams are not well defined. Between November and June, the in-going stream sets S whilst the out-going stream sets N; rates vary from ½ to 1 kn.

2 Between June and November, the streams are irregular and may set N or S for several days, or occasionally with rates considerably in excess of 1 kn, but at certain times they are non-existent.

Principal marks

4.204

1 **Landmarks:**

Chimney (white) (10°21′N, 61°28′W) at Claxton Bay Marine Terminal.

Chimneys (obstruction lights, elevation 81 m) (10°19′N, 61°27′W).

Chimney (white with black top, obstruction lights, elevation 80 m) (10°19′N, 61°28′W).

2 Radio mast (grey framework, obstruction lights) (10°17′N, 61°28′W) at San Fernando; Mon Chagrin, a hill 85 m high, stands 3 cables ENE of the mast

Naparima Hill (10°17′N, 61°27′W) (Chart 483) (4.144).

White shed (10°15′N, 61°30′W) (Chart 483) standing on the foreshore.

3 **Major light:**

La Carrière Light (10°20′N, 61°28′W) (4.146).

Directions for entering harbour

(continued from 4.148, 4.149 and 4.150)

4.205

1 From a position about 5 miles SW of Lisas Point (10°23′N, 61°29′W) the track leads ESE for 3½ miles to the pilot boarding position W of the berths. Thence the harbour berths are approached through channels, shown on the chart, delineated by pecked lines and marked by light-buoys (lateral and cardinal).

Useful mark:

Light (white metal framework tower) (10°18′·9N, 61°28′·9W) exhibited from the head of the viaduct jetty.

Berths

Transhipment area

4.206

1 A transhipment area for large vessels, shown on the chart, is established in the vicinity of 10°20′N, 61°34′W, 5 miles W of Pointe-à-Pierre. Within it there are six anchorages, the positions of which are denoted by letters.

Alongside berths

4.207

1 **Viaduct jetty** (10°18′·9N, 61°28′·9W). The viaduct, supported on concrete piles, extends nearly 1 mile WSW from the S side of Pointe-à-Pierre; No's 1, 2, 3, 4, are situated along the outer part, with the longest and deepest as follows:

Longest. No 2 (N) Berth; for tankers with a maximum LOA of 236 m, 63 000 dwt and draught 11·2 m.

Deepest. No 1 Berth; for tankers with a maximum LOA of 220 m, 50 000 dwt and draught 11·4 m.

2 **Sea island berths.** An island jetty, comprised of several dolphins, is situated 1¼ miles NW of Pointe-à-Pierre; No 6 Berth (N) and No 6 Berth (S) lie on either side of the island, respectively. No 5 Berth is a fixed platform with dolphins, situated 2 cables ESE of the island jetty.

The largest vessels are handled at No 6 Berths; LOA 290 m, with a maximum draught of 15·5 m.

3 **North jetty** (10°19′·5N, 61°28′·5W). This is a solid structure extending 4 cables WNW from Pointe-à-Pierre, with two freighter berths, No's 7 and 8; sulphur is handled at No 8 Berth. The largest is No 7 Berth; vessels with a maximum LOA 213 m, maximum draught of 9·1 m and 35 000 dwt accommodated.

Port services

Repairs

4.208

1 Repairs are not permitted at Pointe-à-Pierre without written approval from the Port Authority.

Other facilities

4.209

1 Hospital 4 cables ENE of the shipping office at Pointe-à-Pierre; Deratting and Deratting Exemption Certificates issued; reception of dirty water ballast; garbage collection; Seaman's Club available but authorisation required for visitors.

Supplies

4.210

1 Fuel, fresh water and provisions obtainable.

Communications

4.211

1 Piarco International Airport, 45 km from the port.

Harbour regulation

4.212

1 Vessels must be ready to get underway at short notice.

Small craft

Landing stage

4.213

1 A short landing stage for launches projects W from the shore at Pointe-à-Pierre, abreast the shipping office (10°19′·2N, 61°28′·0W).

Yacht club

4.214

1 On the N side of Pointe-à-Pierre there is a yacht club with a landing stage and a slipway. The yacht club is a port of entry for visiting yachts; there is a customs shed situated near the foot of the N commercial jetty. Fresh water is obtainable from the landing stage.

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Point Fortin from SSE (4.215)
(Original dated 2004)

(Photograph – permission of The Shipping Association of Trinidad and Tobago)

POINT FORTIN

General information

Charts 483, 482 plan of Point Fortin

Position

4.215

1 Point Fortin (10°11′N, 61°42′W) is situated on the SW coast of Trinidad, 4½ miles SW of Brighton.

Function

4.216

1 It is a port of entry, and the site of an oil refinery. There is also an LNG terminal at the port. Crude oil is imported and refined petroleum products along with liquefied natural are exported.

Traffic

4.217

1 In 2000 the port was used by 47 vessels.

Port Authorities

4.218

1 **Oil terminal.** Trinidad and Tobago Oil Company, Point Fortin, Trinidad and Tobago.

LNG terminal. Atlantic LNG, Atlantic Avenue, Point Fortin, Trinidad and Tobago.

Limiting conditions

Controlling depths

4.219

1 It was reported in 1999 that the channel leading to the LNG terminal had a dredged depth of 13 m.

Tidal levels

4.220

1 Mean spring range about 1·1 m; mean neap range about 0·5 m. For further information see the *Admiralty Tide Tables.*

Maximum size of vessel handled

4.221

1 The oil terminal can handle vessels up to approximately 80 000 dwt. The LNG terminal is capable of accommodating vessels with capacities up to 125 000 cubic metres, LOA 294 m, and a maximum draught of 11·5 m.

Arrival information

Port radio

4.222

1 There is a port radio station at Point Fortin. For further details see *Admiralty List of Radio Signals Volume 6 (5).*

Notice of ETA required.

4.223

1 Vessels should send an ETA 72, 48 and 24 hours in advance; a corrected ETA needs to be sent if original more than 1 hour in error.

Outer anchorage

4.224

1 There is a designated anchorage area, 2½ miles NW of the head (10°12′·6N, 61°42′·2W) of the oil terminal pier, for the use of all vessels awaiting pilots for the Point Fortin terminals. The limits of the anchorage are shown on Chart 483.

2 In 2004 it was reported that a new anchorage area had been established for vessels bound for Point Fortin, 5 miles

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NNW of the head of the oil terminal. The limits of the anchorage are as follows:

10°18′·6N, 61°43′·8W
10°18′·6N, 61°42′·6W
10°17′·6N, 61°43′·8W
10°17′·6N, 61°43′·8W

Pilotage

4.225

1 Pilotage is compulsory. The pilot boards 1 mile NW of the head of the oil terminal pier. Pilots will board vessels outside the compulsory area, or at Bocas del Dragon (4.77), if application is made by radio to the pilot's office or ship's agent. For further details see *Admiralty List of Radio Signals Volume 6 (5).*

Tugs

4.226

1 Tugs are available.

Harbour

General layout

4.227

1 The oil terminal consists of a Y–shaped pier situated at the head of an illuminated viaduct carrying pipelines; the viaduct extends 1¾ miles NNW from the coast at Point Fortin.

2 Atlantic LNG Terminal is situated 4 cables W of the root of the oil terminal viaduct. Between the viaduct and the LNG terminal there is a small craft harbour for tugs and launches. The LNG terminal is built on land reclaimed from the sea between the small craft harbour and Point Ligoure, 9 cables SSW.

Development

4.228

1 In 2004 it was reported that the access channel to the Atlantic LNG Terminal was to be widened and a second loading jetty was to be constructed close SW of the existing loading jetty.

Tidal streams

4.229

1 Off Guapo Bay (10°12′N, 61°41′W) and Irois Bay, situated either side of Point Fortin, the tidal streams set NE and SW, attaining rates from 1 to 2 kn. See table for station A on Chart 482, plan of Point Fortin, for further information on tidal streams.

Directions for entering harbour

4.230

1 From the vicinity of 10°20′N, 61°43′W, on the deep water route (4.150), the track leads S, for about 6 miles, to the pilot station, passing E of a well (10°17′N, 61°43′W), from which a light is exhibited. The well is situated just outside the limit of Soldado Oilfield for which special regulations apply; for details see 4.72.

2 From the pilot station the berths at the oil terminal can be directly accessed. For vessels bound for Atlantic LNG Terminal (4.232) the track leads SSW, for a farther 8 cables, to the following leading line:

Front light (metal framework lattice tower with red and white stripe) (10°11′·1N, 61°41′·7W).
Rear light (similar structure) (2 cables from front light).

3 The alignment (148°¾°) of these lights leads SSE through a channel 1½ miles long, marked by light-buoys (lateral) to a turning area off the LNG berth.

Useful mark:

Light (aluminium framework tower, 24 m in height) (10°12′·6N, 61°42′·2W) exhibited from the centre of the head of the oil pier.

Berths

Oil terminal

4.231

1 Berths at the oil terminal are as follows:

Berths 1, 2 and 3 situated along the two arms of the head of the oil pier. No 1 is the largest, length 213 m with a depth of 11·6 m alongside, handling vessels up to 35 000 tons. There are mooring buoys off the NE and SW arms; vessels normally berth starboard side to.

2 Berth 4 on the W side of the viaduct, 6 cables from its root; length 91 m with a depth of 4·7 m alongside. The berth is for vessels displacing up to 3000 tons.

3 Berth 5, situated 8 cables N of the oil pier head. This is a CBM consisting of six lighted mooring buoys. A submarine pipeline, the head of which is marked by a small white buoy, is laid between this berth and the pier. Tankers up to 260 m in length and 15·5 m in draught are berthed by day only, letting go the port anchor underfoot.

Atlantic LNG Terminal

4.232

1 The Atlantic LNG Terminal (10°11′·4N, 61°42′·0W) consists of a T–shaped jetty extending 3½ cables NW from the N point of reclaimed land. There is a charted depth of 13·3 m alongside the centre of the loading berth.

Port services

Repairs

4.233

1 Repairs involving immobilisation of engines are not allowed at the berths; a diver is available.

Other facility

4.234

1 Medical facilities are available.

Supplies

4.235

1 Fuel and fresh water supplied; provisions obtainable.

Communications

4.236

1 Piarco International Airport, E of Port of Spain.

BOCAS DEL DRAGON TO RÍO SAN JUAN

General information

Charts 493, 483

Route

4.237

1 From a position about 3 miles SW of the SW point of Chacachacare Island (10°41′N, 61°45′W), in Bocas del Dragon, the route along the NW side of Gulf of Paria leads SW for 43 miles, passing SE of Islas Patos (10°38′N, 61°52′W), to a position 10 miles ENE of Punta Arenas (10°20′N, 62°38′W) off the entrance to Río San Juan.

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Topography

4.238

1 The coast N of Punta Garcitas (10°40′·3N, 61°53′·7W), forming the W shore of Boca Grande, is described at 4.74. Between Punta Garcitas and Cristobal Colon, also known as Puerto Macuro, 2½ miles WSW, the coast is indented by Ensenada Cariaquita and composed of reddish cliffs in places.

2 Between Cristobal Colon and Puerto de Güiria, 22 miles WSW, the coast along the S side of Promontorio Paria is indented by many small bays. From Puerto de Güiria to Punta Guaraguara, 2½ miles SW, the coast consists of earth cliffs which are good landmarks.

Principal marks

4.239

1 **Major lights:**

Isla Patos Light (10°38′N, 61°52′W) (4.87).

Recalada Güiria Light (white GRP framework tower with orange bands, 12 m in height) (10°35′N, 62°17′W); the position of the light is approximate.

Other aid to navigation

4.240

1 **Racon:**

Islas Patos (10°38′N, 61°52′W).

For further details see *Admiralty List of Radio Signals Volume 2*.

Directions

(continued from 4.80)

4.241

1 From a position about 3 miles SW of the SW point of Chacachacare Island (10°41′N, 61°45′W) the track leads SW, passing (with positions relative to Recalada Güiria Light (10°35′N, 62°17′W)):

SE of Islas Patos (25½ miles ENE) (4.89), thence:

SE of the S coast of Promontorio Paria (14 miles ENE) (4.74), along which Cristobal Colon (4.242) and Puerto Hierro (4.249) are situated, thence:

2 SE of the approaches to Puerto de Güiria (close SSW) (4.256), thence:

SE of Punta Guaraguara (3½ miles SSW), a headland covered with trees, thence:

SE of three shoals (10 miles SSW), with depths of 10·4 m (34 ft) over them; in 1959 less water was reported over them.

3 The track then leads to a position 10 miles ENE of Punta Arenas (25½ miles SW).

(Directions continue for Río San Juan at 4.275 and for a coastal passage to Serpent's Mouth at 4.286)

Cristobal Colon

Chart 483

General information

4.242

1 **Position.** Cristobal Colon (10°39′N, 61°56′W), also known as Puerto Macuro, is situated on the S side of Promontorio Paria, close within the W entrance to Gulf of Paria.

Function. It is a small private port used for loading gypsum for national cement factories.

2 **Topography.** The bay in which Cristobal Colon is situated is divided into two parts by a point from which a ruined pier extends 1 cable SSE. The W part of the bay is known as Ensenada Macuro and the E part as Ensenada Aricagua. Pueblo de Macuro stands at the head of Ensenada Macuro.

3 **Port Authority.** Port Authority of Cristobal Colon, Port of Cristobal Colon, Gulf of Paria, Venezuela.

Limiting conditions

4.243

1 **Density of water.** 1·025 g/cm^3.

Maximum size of vessel handled. Vessels up to 80 m in length are accommodated.

Arrival information

4.244

1 **Outer anchorages.** Small vessels can anchor anywhere in the bay; larger vessels should anchor just seaward of the line joining the entrance points, in a depth of 9 m.

Prohibited area. Anchoring and fishing are prohibited in an area seaward of the arc of a circle with radius 5 cables centred on the head of the ruined pier mentioned at 4.242.

2 **Quarantine and customs.** Officials for quarantine and customs board at the anchorage or on completion of berthing.

Harbour

4.245

1 **General layout.** The loading berth is situated on the W shore of Ensenada Macuro.

Tidal streams. In the bay the tidal streams attain rates of 1 to 2 kn and set as follows:

	State of tide	*Direction*
2	In-going tide	Clockwise round the bay
	Out-going tide	Counter-clockwise and attains a greater rate
	–0200 local LW	Counter-clockwise stream attains its greatest rate
3	+0100 HW or LW	Slack in the middle of the bay

Directions for entering harbour

4.246

1 There are no specific directions for approaching Cristobal Colon the chart being sufficient guide. However attention is drawn to Rocas Paticos, a group of rocks fringing the E side of the entrance point of the bay; the largest, an above-water rock, lies 4 cables SE of the point. Also off the W entrance point the bay shoals to a depth of 4·6 m.

2 **Useful mark:**

Macuro Light (hexagonal orange and white structure, 6 m in height) (10°39′·3N, 61°56′·7W).

Berth

4.247

1 The loading berth consists of an iron pier on concrete piles extending 128 m from the shore. Vessels berth alongside the head of the pier, starboard side to, using the port anchor and securing to three mooring buoys, one on the starboard bow and one on each quarter. It has been reported that a maximum draught of 7·9 m is allowed alongside.

2 On the pier is a loading platform 20 m long with a conveyor belt and loading tower. The tower is static and therefore a vessel must shift as necessary during loading.

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Port services

4.248

1 **Facility.** Deratting and Deratting Exemption Certificates issued.

Supplies. Fresh water available.

Communications. There is a small airfield (4.262) at Puerto de Güiria, 37 km distant.

Puerto de Hierro

Charts 493, 1963 plan of Puerto de Hierro

General information

4.249

1 **Position and function.** Puerto de Hierro (10°38′N, 62°06′W), a cove developed as a transhipment port, is situated on the S side of Promontorio Paria, 9 miles W of Cristobal Colon. In 2003 it was used by Reynolds Aluminium for the shipping of bauxite.

2 **Traffic.** In 1997 the port was used by 16 vessels with a total of 29 156 dwt.

Port Authority. Capetania Puerto de Puerto de Hierro, Calle Valdez, Güiria, Edo Sucre, Venezuela.

Limiting conditions

4.250

1 **Tidal levels.** Mean spring range about 1·2 m; mean neap range about 0·6 m. For further information see the *Admiralty Tide Tables.*

Density of water. 1·025 g/cm^3.

2 **Maximum size of vessel handled.** Vessels up to 45 000 dwt are handled.

Arrival information

4.251

1 **Outer anchorage.** Vessels may obtain anchorage with good holding ground about 1¼ miles S of the port.

Pilotage. A pilot is obtained through Puerto de Güiria (4.258). Notice of ETA should be given 72, 48 and 24 hours in advance.

2 **Tugs.** None available.

Harbour

4.252

1 **General layout.** The loading berth is situated on the E side of the cove. Silting is liable to occur in the harbour.

Tidal streams. Off Puerto de Hierro, the in-going stream sets W; the out-going stream sets E. Rates may be up to 2½ kn.

Directions for entering harbour

4.253

1 There are no specific directions for entering Puerto de Hierro; berthing is difficult without local knowledge. Vessels are berthed by day or night, but normally only at slack water. Approach the berth with as little way on as possible; the use of an anchor has proved helpful.

2 **Useful marks:**

Light (white metal framework tower, red bands) exhibited from the W entrance point of the cove.

Ore-loading towers on the pier at Puerto de Hierro along with two oil storage tanks; best seen from S and W.

3 At night, the port lighting which may be seen up to 20 miles distant.

Berths

4.254

1 The ore-loading pier extends 240 m SSW from the shore; it was reported in 1966 that it now extends 400 m. The W side of the pier, for coastal vessels discharging, has a berthing length of 182 m with depths alongside of 4·6 m at its outer end and 3·3 m at the inner end; the E side, for ocean-going vessels, has a berthing length of 210 m with a depth of about 6·1 m alongside.

2 There are two dolphins off the head of the pier and one off the point of land close SE of the pier. The loading rate is 1500 tons an hour.

Port services

4.255

1 **Repairs** are not undertaken.

Other facilities. Naval hospital with limited facilities; Deratting and Deratting Exemption Certificates issued.

Supplies. Diesel oil available in an emergency; fresh water supplied at the berth in limited quantities.

2 **Communications.** There is a small airfield (4.262) at Puerto de Güiria, 24 km distant.

Puerto de Güiria

Charts 493, 482 plan of Güiria anchorage and harbour

General information

4.256

1 **Position and function.** Puerto de Güiria (10°34′N, 62°18′W), situated on the NW side of Gulf of Paria, is a fishing harbour and primarily a pilot boarding station for the W part of Gulf of Paria.

Traffic. In 1997 the port was used by 29 vessels with a total of 53 013 dwt.

Limiting conditions

4.257

1 **Controlling depths.** A shoal patch, with a depth of 3·2 m over it, lies in the centre of the harbour. Elsewhere, there are general depths of 5·0 to 6·0 m within the harbour except alongside the berths where less water may be found.

Arrival information

4.258

1 **Port radio.** There is a port radio station at Puerto de Güiria. For further details see *Admiralty List of Radio Signals.*

Outer anchorage. Vessels may obtain anchorage E of the harbour entrance in depths from 10 to 11 m; good holding ground over a bottom of mud.

2 **Pilotage.** Puerto de Güiria provides pilotage, which is compulsory, for the N part of the Orinoco delta, Río Pedernales and Río San Juan; pilots are disembarked here by outward bound vessels. Incoming vessels requiring a pilot should send an ETA 72, 48 and 24 hours in advance.

3 Pilots usually board near a buoy (white), moored 2 miles ESE of the harbour entrance, within 1 hour of a vessel being identified, and it is not necessary to anchor. If the pilot is delayed, a vessel should anchor close seaward of the buoy. For further details see *Admiralty List of Radio Signals.*

Harbour

4.259

1 **General layout.** The harbour is enclosed by a NE breakwater and a S breakwater. Berths are arranged along the insides of the breakwaters and along the W shore within the breakwaters fronting the town.

Tidal streams. The tidal streams usually attain rates of 2 to 3 kn, but the rates may increase to 6 kn in September.

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2 **Landmarks:**
Church (10°34′·3N, 62°18′·0W) with two square red-roofed towers.
Radio towers (red obstruction lights), standing 6 cables NE of the church.

3 **Major light:**
Recalada Güiria Light (10°35′N, 62°17′W) (4.239); the position of the light is approximate.

Directions for entering harbour
4.260

1 There are no specific directions for approaching and entering the harbour, the chart being sufficient guide, but attention is drawn to a shoal reported in 1940, with a depth of 5·8 m (19 ft) over it, lying 1¼ miles S of the head of the NE breakwater. At night, the lights at Puerto de Hierro (4.253) are an excellent guide.

2 **Useful marks:**
Light (red and white concrete tower) exhibited from the head of the NE breakwater.
Light (green and white concrete tower, 4 m in height) exhibited from the head of the S breakwater.

Berths
4.261

1 Berths in the harbour are as follows:
Quay situated on the inner side of the S breakwater near its head; length 140 m with refrigeration facilities. To the W of the refrigeration quay three piers project N from the breakwater; the W of these piers is for vessels carrying dangerous cargoes.

2 Quay situated on the inner side of the NE breakwater 5 cables from its head; length 170 m.
Four piers projecting from the W side of the harbour; the N pier is reserved for naval vessels.

Port services
4.262

1 **Supplies:** fresh water available in small quantities; provisions, produced locally, obtainable.

Communications. There is a small airfield on the N side of the town; it provides flights to Caracas and Port of Spain, Trinidad.

Small craft
4.263

1 A pier for small craft is situated 1 mile NNE of the harbour.

Small craft

Chart 484

Ensenada Cariaquita
4.264

1 **Description.** Ensenada Cariaquita (10°41′N, 61°54′W) is entered between Punta Garcitas and Punta Picua, 7½ cables SW. Rocks, some awash, lie up to 1 cable off both entrance points. The current sometimes sets across the entrance at a considerable rate. The head of the bay is shallow; on the W side of the bay there is a small village.

2 **Anchorage.** Good anchorage, as shown on the chart, can be obtained by small vessels in Ensenada Cariaquita.

Cristobal Colon to Puerto Hierro
4.265

1 Between Cristobal Colon (10°39′N, 61°56′W) and Puerto de Hierro, 9 miles W, several small shallow bays provide good anchorages for small craft. The bays are separated by bold points at the extremities of spurs extending from the wooded peaks inland.

North-west bay of Gulf of Paria
4.266

1 **Description.** The bay forming the NW end of Gulf of Paria, between the NE side of Isla Antica (10°24′N, 62°44′W) and the W part of Península de Paria, is shallow and contains no ports of any commercial value to merchant shipping. Río Grande flows into the head of this bay N of Punta Antica (10°29′N, 62°47′W), the N extremity of Isla Antica.

2 **Useful mark:**
Church at Pueblo de Irapa (10°34′N, 62°35′W), situated on the N shore of the bay 15 miles W of Punta Guaraguara.

Anchorage. Small craft can anchor off Pueblo de Irapa.

RÍO SAN JUAN

General information

Charts 493, 1480

Description
4.267

1 Río San Juan flows into Gulf of Paria over Barra de Maturin, which extends from Punta Arenas (10°20′N, 62°38′W), the E extremity of Isla Antica, to Punta Mata Redonda, 11 miles SE. A dredged channel leads generally SW across Barra de Maturin into the river.

The main commercial port within the river is Caripito Oil Terminal (4.278) about 40 miles upstream. Vessels up to 230 m in length and 61 000 dwt can reach the oil terminal.

Depths
4.268

1 The entrance channel to the river is dredged periodically; however, charted depths cannot be relied on. The depths are sometimes found to be up to 0·3 m (1 ft) less than expected. In 1995 the maximum permitted draught allowed in the river was 10·0 m (33 ft).

Tidal levels
4.269

1 In Río San Juan, off Punta Gorda (10°10′N, 62°38′W), there is a mean spring range of about 2·3 m and a mean neap range of about 1·2 m. For further information see the *Admiralty Tide Tables.*

Hazards
4.270

1 **Silting.** It was reported in 1993 that silting has changed the shape of the charted coastline in the vicinity of Punta Campana (10°14′N, 62°36′W) and could now (1999) be up to 8 cables NW of its charted position.

2 **River bed.** The bottom of the river, in places, is very soft mud which results in adverse propulsion conditions. Mariners are advised that upper main water engine intakes should be used when crossing Barra de Maturin.

3 **Debris.** Large floating logs may be encountered in the river.

Pilotage
4.271

1 Pilotage is compulsory from a position 3 miles off the entrance to the dredged channel. A vessel bound for Río San Juan should first call at Puerto de Güiria (4.256) to embark the pilot, having given 72, 48 and 24 hours notice

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of ETA to the agents at Puerto de Güiria. As there is one-way traffic from Punta Marieta (10°02′N, 62°48′W) to Caripito instructions to in-coming vessels are issued at Puerto de Güiria.

2 For further information see *Admiralty List of Radio Signals Volume 6 (5).*

Density of water

4.272

1 The water in Río San Juan at the bar is about 1·005 g/cm^3 in the rainy season, increasing to 1·015 g/cm^3 in the dry season. The density at Caripito Oil Terminal is 1·000 g/cm^3.

Tidal streams

4.273

1 Over the bar of Río San Juan the tidal streams attain a rate of about 3 kn.

Caution

4.274

1 The entrance channel to the river is subject to frequent change and realignment, and was reported in 1998 to be no longer as shown on the chart; it was also reported that the navigational aids marking the river cannot be relied upon. In 1995 several of the light-beacons marking the river banks were reported to be unlit or destroyed.

Directions

(continued from 4.241)

4.275

1 From a position 10 miles ENE of Punta Arenas (10°20′N, 62°38′W) the track leads initially SW, for a short distance to the beginning of a dredged channel, which crosses the bar. No E1 Light-buoy (black) marks the seaward entrance.

Thence the track leads SW and S, for about 15 miles, through the channel, which is marked by light-buoys (lateral), light-beacons (lateral) and leading lights (piles or dolphins, red diamond topmark), to a position off Punta Gorda (10°10′N, 62°38′W).

2 Care is necessary not to confuse the leading light-beacons with a number of unlit triangulation beacons (four pile structures, red diamond topmarks) which exist on both sides of the dredged channel.

Within the river, from Punta Gorda, the banks of which are marked at intervals by numbered light-beacons, navigation presents no difficulty and a mid-river track should generally be followed.

Anchorages

4.276

1 Vessels can anchor, if necessary, off the entrance to the dredged channel, or within Río San Juan as far as Punta Marieta, keeping as close as possible to the left bank (when proceeding upstream) of the river. Anchorage can be obtained by a vessel under 90 m in length 2½ cables up river from Punta Carner (10°06′N, 62°57′W), in mid-stream, in a depth of 14·6 m (48 ft).

2 Outward bound vessels occasionally anchor off Punta Gorda to await HW.

Minor harbour

Pueblo de Guanoco

4.277

1 **Description.** Río Guanoco, which enters Río San Juan W of Punta Carner (10°06′N, 62°57′W), leads three miles N to Pueblo de Guanoco, a town on the W bank; the normal controlling depth in this tributary is 5·5 m (18 ft).

Vessels up to 85 m in length are turned in the mouth of Río Cicaro, 7½ cables downstream of the town, and towed stern first to be berthed and loaded; owing to the strong current, five or six good stern lines are necessary.

2 **Berth.** Asphalt is shipped from a wharf, with a depth alongside of 7·6 m, at Pueblo de Guanoco.

Caripito Oil Terminal

General information

4.278

1 **Position and function.** Caripito Oil Terminal (10°09′N, 63°02′W) is a port of entry and is connected by road and rail with Pueblo de Caripito, 2½ miles W; the town has a population of about 11 000. The terminal exports petroleum products and crude oil.

2 **Traffic.** In 1997 the terminal was used by 78 vessels with a total of 4 779 005.

Port Authority. Capetania Puerto de Caripito, Calle Guaicaipuro, Caripito, Monagas State, Venezuela.

Limiting conditions

4.279

1 **Density of water.** See 4.272.

Maximum size of vessel handled. Vessels up to 61 000 dwt, 230 m in length and 10·36 m draught, can berth at Muelle No's 2 and 3 (4.282).

Arrival information

4.280

1 **Outer anchorage.** While awaiting an in-going tide or a berth alongside, a vessel can anchor about 5 cables up river from the terminal.

Pilotage. See 4.271.

Tugs. None available.

Harbour

4.281

1 **General layout.** The harbour is situated on the W bank of the river and consists of four piers, all with breasting and mooring dolphins.

Tidal streams. Normally, the streams attain rates of 2½ kn on the in-going tide and 3 kn on the out-going.

Tidal bore. A tidal wave effect has been experienced in the vicinity of Caripito Oil Terminal by vessels in November, January and February. An occurrence may cause moorings to part.

2 **Health.** A species of moth *"Hylesia canitia",* known locally as *Palometas*, exists at Caripito and may be attracted in large numbers by ship's lights. This moth carries thousands of spines or hairs which are shed on human skin, clothing and bedding, amongst other things, resulting in dermatitis and other toxic responses which cause intense itching and burning pain.

3 The itching is usually eliminated by the rapid use of 50% sodium hyposulphite lotion; a short course of prednisilone tablets is recommended for more severe cases.

Berths

4.282

1 The four berths at the terminal are as follows:

Muelle No 1, with a length of 106 m; able to accommodate vessels of 137 m in length with a draught of 7·0 m.

Muelles No's 2 and 3, for the larger tankers, are situated down river from Muelle No 1; both piers are T–shaped with depths of 10·7 m alongside.

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2 Muelle No 4, situated up river from Muelle No 1, is T–shaped and has a depth of 4·3 m alongside; it is used by small vessels.

Berthing and unberthing are carried out throughout the day and night, but only on the in-going tide. However, vessels may leave Muelle No 3 at any stage of tide.

Port services

4.283

1 **Repairs.** Minor emergency repairs effected, but notice of requirements should be given at Puerto de Güiria (4.256) when embarking the pilot.

Other facilities: lighters available; hospital facilities at terminal; completion of loading outside Barra de Maturin arranged if necessary; ballast, clean or dirty, pumped ashore; Deratting and Deratting Exemption Certificates issued.

2 **Supplies:** fuel and fresh water available; provisions obtainable in limited quantities.

Communications. Regular communication by sea and air with other parts of Venezuela.

RÍO SAN JUAN TO SERPENT'S MOUTH

General information

Charts 493, 481

Route

4.284

1 From a position 10 miles ENE of Punta Arenas (10°20′N, 62°38′W) the route leads SE for 29 miles, keeping outside the 11 m (36 ft) contour, to the vicinity of 10°05′N, 62°04′W, 8½ miles NE of Punta Tolete.

Topography

4.285

1 On the S side of Gulf of Paria, between Punta Mata Redonda (10°12′N, 62°31′W) and Punta Tolete, 22 miles SE, there is a shallow bay which is mostly filled with mudflats and is only navigable by the smallest craft; at the head of the bay are the creeks and channels of the NW end of the delta of Río Orinoco. Almost the entire shore of the bay is covered by dense forest of uniform height.

Directions

(continued from 4.241)

4.286

1 From a position 10 miles ENE of Punta Arenas (10°20′N, 62°38′W) the track leads SE, passing (with positions relative to Punta Barrial Light (10°03′N, 62°15′W)):

NE of Punta Mata Redonda (18½ miles NW), thence:

2 NE of the shallows lying between Punta Mata Redonda and Isla Cotorra; Punta Barrial Light (white GRP framework tower, orange bands, 12 m in height) is exhibited from the N extremity of Isla Cotorra. The island is swampy and thickly wooded. Thence:

3 SW of a dangerous wreck (10 miles NNE) reported in 1964; it is marked by a light-buoy. On Chart 493 the wreck's position is shown as approximate. Thence:

SW of oil platforms and wells (10 miles NE), marked by lights.; these form a NW extension of Soldado South-west Oilfield (4.295). Thence:

4 NE of the fairway light-buoy (safe water) (7¼ miles ENE), marking the entrance to Río Pedernales (4.287).

The track then leads to the vicinity of 10°05′N, 62°04′W, 8½ miles NE of Punta Tolete.

5 **Useful marks:**

Soldado Rock (10°05′N, 62°01′W) (4.296).

Punta del Arenal Light (10°03′N, 61°56′W) (4.14).

(Directions continue for Serpent's Mouth at 4.298)

(Directions for Río Pedernales are given at 4.288)

Río Pedernales

General information

4.287

1 **Description.** Río Pedernales is entered between Punta Tolete (10°01′N, 62°12′W) and the E point of Isla Cotorra 1½ miles W. The bar of the river, lying up to 5 miles NE of Punta Tolete, is reported to have a least depth of 3·4 m (11 ft) over it, but silting causes rapid changes in depths.

Tidal levels. At Puerto Pedernales (10°59′N, 62°14′W), there is a mean spring range of about 1·6 m and a mean neap range of about 0·8 m. For further information see the *Admiralty Tide Tables.*

2 **Pilotage.** In the approaches to and within Río Pedernales pilotage is compulsory. The pilot boards at Puerto de Güiria (4.256) and will take vessels by an intricate and tortuous route through Caño Mánamo to Tucupita (9°04′N, 62°02′W), an important commercial centre, thence as far as Ciudad Bolívar (3.59), joining the main stream of Río Orinoco at Punta La Pastora (3.2), about 90 miles S of Río Pedernales.

Directions

4.288

1 From the vicinity of the fairway light-buoy (safe water), moored 5½ miles NE of Punta Tolete (10°01′N, 62°12′W), the track leads SW through a channel marked by light-buoys (lateral), and thence between the NW end of Isla Capure and Isla Cotorra (4.286), passing Puerto Pedernales (4.290).

2 The river is then divided into two channels, with a least depth of 5·5 m (18 ft) in them, by a bank which extends NE from the N end of Isla Pedernales (9°58′N, 62°15′W). The SE channel lies close to the shore SW of Punta Tolete and leads to Caño Pedernales. The NW channel, close to Isla Cotorra, leads to Caño Mánamo which lies W of Isla Pedernales.

3 In 1970, maintenance of these channels was discontinued.

Useful mark:

Punta Barrial Light (10°03′N, 62°15′W) (4.286).

Anchorages

4.289

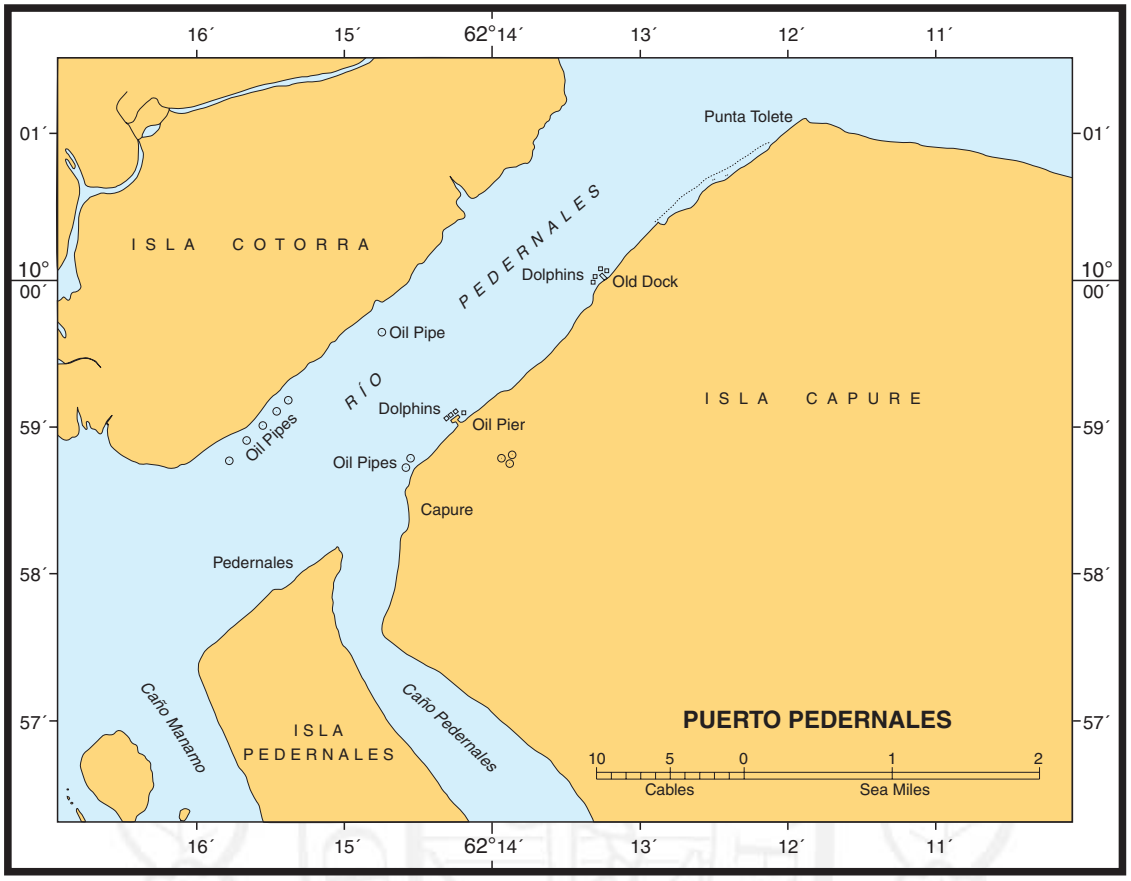
1 Anchorage, with good holding ground of soft mud, can be obtained on the bar of Río Pedernales. Within the river, anchorage with good holding ground is found off a village 1 mile above Punta Tolete in a depth of 9·1 m (30 ft), over fine grey sand.

Puerto Pedernales

4.290

1 **Position and function.** Puerto Pedernales (9°59′N, 62°15′W) consists of the waterway between the NW side of Isla Capure and Isla Cotorra, N of Isla Pedernales. Pueblo de Pedernales (9°58′N, 62°15′W) stands on the N end of Isla Pedernales. Important oil installations exist in

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Río Pedernales - Puerto Pedernales (4.290)

the vicinity of this town and Pueblo de Capure, 7½ cables NE.

2 **Berths:**

Oil berth, backed by tanks, situated on the NW side of Río Pedernales, opposite the two towns.

Pier, T–shaped and suitable for loading small tankers, situated 5 cables NE of Pueblo de Capure; the maximum safe draught allowed alongside is 4·0 m.

3 **Repairs.** At a yard with a slipway near an older pier midway between Pueblo de Capure and Punta Tolete repairs can be effected to small vessels; see chartlet.

SERPENT'S MOUTH

General information

Chart 481

Routes

4.291

1 Serpent's Mouth, the S entrance to Gulf of Paria, lying between Punta Arenal (10°03′N, 61°56′W) and Isla Capure, 8 miles SW, is divided into four channels:

Eastern or First Channel (4.299).

Second Channel (4.300).

Middle or Third Channel (4.297), the one that is most generally recommended for vessels, depending on draught; see depths at 4.292.

2 Western Channel or Fourth Channel (4.298). Although the widest and deepest of channels, it is not recommended as the NW–going current attains rates from 3 to 4 kn at times over the shoals on its SW side.

Depths

4.292

1 Least charted depths in the fairways, through the S entrance to Gulf of Paria, are as follows:

Eastern Channel 6·4 m.
Second Channel 7·0 m.
Middle Channel 6·7 m.
Western Channel 9·0 to 16·0 m.

Navigation

4.293

1 The S entrance to Gulf of Paria is not so safe or so easy to navigate, especially at night, as Bocas del Dragon, the N entrance to Gulf of Paria. However, the use of this passage will materially shorten the time taken by vessels proceeding SE from Gulf of Paria, avoiding much of the adverse current experienced when taking the usual route round the N coast of Trinidad, though the distance is about the same.

2 At night, Serpent's Mouth can be dangerous, especially for vessels not equipped with modern navigational aids. Due to difficult current conditions, particularly during the rainy season between the middle of April and middle of October, continuous checking of the ship's position is essential.

Natural conditions

4.294

1 **General information.** Observations made during March and April 1898 showed that the current through Serpent's

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Mouth was continually NW–going with a rate from 2 to 3 kn; this current was affected by tidal influence. In the rainy season, the rate is probably accelerated due to the increased outflow from Río Orinoco. The current forms heavy rips over the many dangers in the vicinity of Pelican Rock (10°04′N, 62°01′W) and between South East Rocks and South East Ledge, and the sea sometimes breaks on them.

2 The tidal stream generally sets NW on the rising tide and SE on the falling tide; its rate seldom exceeds 1½ kn and it is often insufficient to change the direction of the resultant water flow. However, in Middle Channel or Third Channel the tidal streams set N and S; the N–going stream runs from about 2 hours before to 4 hours after the time of HW at Georgetown, Guyana.

See table for station A on Chart 481 for details of tidal streams.

3 **Currents in the vicinity of Punta del Arenal.** Off Punta del Arenal (10°03′N, 61°56′W) in March and April, 1898, the current was continually NW–going with a rate from 1 to 3 kn. This current slackened at about the time of LW, when a strong SE–going undercurrent could usually be observed below a depth of 9 m; at the same time a SW–going stream of yellowish muddy water, in contrast with the usual olive green NW–going current, would appear off Corral Point and pass S round the point, sometimes reaching as far as Wolf Rock (10°03′N, 61°56′W). This stream usually caused vessels at anchor off Corral Point to lie heading N until 2 or 3 hours after LW.

Marine exploitation

4.295

1 Soldado South-west Oilfield, containing numerous oil platforms and wellheads, lies N and NW of Soldado Rock (10°05′N, 62°01′W). Unless otherwise shown on the chart, the structures usually exhibit quick or flashing red lights. A submarine pipeline is laid across the N approach to Middle Channel linking Soldado South-west Oil Field with Soldado Oilfield. Special caution should be exercised by vessels navigating in the vicinity and they should not anchor or trawl near the pipeline.

2 Five miles NE of Soldado Rock lies Soldado Oilfield (4.72); mariners are advised not to approach within the area, shown on the chart, bounded by E Light-buoy (10°10′N, 61°59′W).

For further information on oil and gasfields see 1.13; for submarine pipelines see 1.14.

Principal marks

4.296

1 **Landmark:**

Soldado Rock (10°05′N, 62°01′W), resembling a sail at a distance. It lies among numerous rocks and shoals which extend W from Icacos Point (10°03′N, 61°56′W) for 9 miles across Serpent's Mouth. A light is exhibited from Soldado Rock.

Major light:

Punta del Arenal Light (10°03′N, 61°56′W) (4.14).

Directions

(continued from 4.89)

Middle Channel or Third Channel

4.297

1 From the vicinity of 10°09′N, 62°00′W the track leads initially SSE, passing (with positions relative to Punta del Arenal (10°03′N, 61°56′W)):

ENE of the oil platforms (5½ miles NW) on the NE side of Soldado South-west Oilfield, thence:

ENE of Soldado Rock (5½ miles WNW) (4.296), thence:

2 ENE of a shoal (4½ miles WNW), with a depth of 2·7 m over it, fronting the E side of East Reef, thence:

ENE of a light-buoy (port hand) (3¼ miles WNW), thence:

ENE of South East Ledge (4¼ miles W), the SE of many dangers in the vicinity of Soldado Rock.

3 Thence when the alignment (061°) of the outer Los Gallos Rock (2½ miles NNE) with Cedros Point, 5¾ miles NE, is reached the track leads SE, allowing for the current and tidal stream, passing:

SW of Three Fathom Bank (1½ miles WNW), marked on its W side by a light-buoy (starboard hand), thence:

4 SW of Wolf Rock (6 cables WNW) from which a light (beacon, isolated danger) is exhibited. The rock is nearly always marked by a tide-rip, and the sea breaks heavily on it during a N swell.

The track then leads to a position about 2½ miles S of Punta del Arenal, from which a light (4.14) is exhibited.

(Directions continue for a route along the S coast of Trinidad, in reverse, at 4.16)

Western Channel or Fourth Channel

(continued from 4.286)

4.298

1 From the vicinity of 10°05′N, 62°04′W the track leads initially SE, passing (with positions relative to Soldado Rock (10°05′N, 62°01′W)):

SW of the oil platforms (1½ miles WNW) on the W side of Soldado South-west Oilfield, thence:

SW of the NW end (1¼ miles WSW) of the bank, with a depth of 4·9 m over it, extending from Black Rock, thence:

2 NE of a group of shoals (4 miles SW), with a least depth of 4·7 m over them, thence:

SW of a patch (1½ miles SSW), with a depth of 4·9 m over it, fronting the SW side of Black Rock; there are numerous dangers E of Black Rock, including those of Pelican Rock and South East Rocks.

3 The track then leads ESE, passing:

SSW of a bank (1¾ miles S), with a least depth of 3·7 m over it, thence:

SSW of South East Ledge (2 miles SSE).

The track then leads to a position about 2½ miles S of Punta del Arenal (10°03′N, 61°56′W), from which a light (4.14) is exhibited.

(Directions continue for a route along the S coast of Trinidad, in reverse, at 4.16)

Side channels

Eastern Channel or First Channel

4.299

1 **Caution.** This channel is narrow and may be partly obstructed by vessels at anchor. Attention is also drawn to the advice given for Soldado Oilfield at 4.295.

Track. Eastern Channel lies between Punta del Arenal (10°03′N, 61°56′W) and Wolf Rock, 3 cables W. From Gulf of Paria the track leads S, passing (with positions relative to Punta del Arenal):

2 W of a light-buoy (W cardinal) (2¼ miles N) moored 9 cables W of Los Gallos Rocks (4.303), thence:

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W of the shallows off Columbus Bay (1½ miles N) (4.302), thence:

E of Demerara Shoal (1½ miles NNW), which consists of two heads with depths of 4·2 and 3·4 m over them, thence:

Between Punta del Arenal and Wolf Rock (6 cables NW) (4.297)

3 The track then leads out into Serpent's Mouth.

Second Channel

4.300

1 **Caution.** Attention is drawn to the advice given for Soldado Oilfield at 4.295.

Track. Second Channel (10°08′·5N, 61°56′·5W) lies midway between Wolf Rock (4.297) and Three Fathom Bank (4.297). A vessel can pass E of Demerara Shoal as for Eastern Channel (4.299) or pass W of it.

Anchorage

4.301

1 Anchorage with good holding ground is found between Soldado Rock (10°05′N, 62°01′W) (4.296) and Icacos Point, 5 miles ESE, as convenient.

Minor bays

Columbus Bay

4.302

1 Columbus Bay (10°05′N, 61°55′W), on the NW side of Icacos Point, is entered between Corral Point and Los Gallos Point (4.303), 1¾ miles NE. It is filled by a shallow bank on which the sea breaks a considerable distance offshore during N winds.

Cedros Bay

4.303

1 **Description.** Cedros Bay, entered between Los Gallos Point (10°08′N, 61°50′W) and Cedros Point 5¾ miles NE, is filled by a shallow bank with depths of less than 5 m extending as much as two miles offshore. The sea breaks on the bank during N winds. Attention is drawn to the following dangers off the entrance points off the bay:

2 Los Gallos Rocks extending 2 cables W from Los Gallos Point, a yellow cliff; there are bushes on some of the rocks.

Barrel of Beef, a rock lying 1 mile WNW of Cedros Point; it is marked on its SW side by a steel pile beacon with no daymark

3 Loo Reef lying 1 cable NW of Barrel of Beef; it is marked by a timber pile beacon (yellow, topmark inverted cone).

Obstruction, with a least depth of 4·6 m over, lying 7 cables NW of Loo Reef; the obstruction is marked by a light-buoy (W cardinal).

4 **Tidal streams.** Off the bay the tidal streams were observed in March and April, 1898 to have rates from ½ to 1½ kn, setting NE for 9 hours after HW, and SW for 3 hours before HW. Later observations gave the same rates, but with the streams setting for approximately 6 hours after HW and LW, respectively.

5 **Tidal levels.** In Cedros Bay there is a mean spring range of about 1·4 m and a mean neap range of about 0·6 m. For further information see the *Admiralty Tide Tables.*

Small craft

Anchorage

4.304

1 In the vicinity of Serpent's Mouth the only place where smooth water can be depended upon for small craft, if there is any wind, is under the lee of Icacos Point between Punta del Arenal (10°03′N, 61°56′W) and Corral Point, 1 mile N.

TOBAGO

GENERAL INFORMATION

Chart 505

Area covered

4.305

1 This section covers the coastal waters of Tobago and is arranged as follows:

North-east coast (4.309).
South-east coast (4.317).
North-west coast (4.335).

Topography

4.306

1 A ridge of irregular mountains rises from the NE part of Tobago to an elevation of 566 m (1856 ft) in position 11°16′N, 60°38′W. The summits of the ridge are mostly rounded and do not present any volcanic features. The slope on the N side of the ridge is relatively steep; on the S side, between the spurs of hills extending to the coast, there are several fertile valleys. The SW part of the island consists mainly of low-lying plains with numerous hills.

Anchorages

4.307

1 Anchorage is best obtained in Man of War Bay (11°19′N, 60°34′W) (4.339) and Great Courland Bay (4.340), on the NW side of the island, and King's Bay (4.315) and Rockly Bay (4.322), on the SE side. Rockly Bay, in which the principal harbour of Scarborough (4.322) lies, is the most frequented anchorage; King's Bay is the safest.

Natural conditions

4.308

1 **Current.** Tobago is subjected to the full force of the Guiana Current (1.142) off the NE coast of South America together with the outflow of the nearer of the large continental rivers. This current, which is predominantly NW–going, strikes the SE coast of Tobago and divides; one part flows past its NE end at rates from 3 to 4 kn, whilst the other part passes between Trinidad and Tobago, and, although slightly checked by the SE–going tidal stream, is usually NW–going with a considerable rate. Due allowance should be made for the current when approaching from E.

2 Between Tobago and Barbados, 117 miles NNE, the current is usually NW–going. The majority of currents observed have rates up to about 2 kn, but in May to July rates from 2 to 3 kn have been recorded.

Tidal streams. In the vicinity of Tobago, the tidal streams are weak, the NW–going current frequently over-coming the SE–going tidal stream. The general effect is that the NW–going tidal stream increases the current, whereas the SE–going stream reduces it.

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3 At the NE end of the island, the NW–going tidal stream deflects the current towards the coast, and the SE–going stream deflects the current away from it.

At the SW end of the island, the SE–going tidal stream at its strongest, sets close round Crown Point (11°09′N, 60°51′W) and over Wasp Shoal for about 2 hours, just checking or diverting the NW–going current.

4 At the SW end of the NW side of Tobago, during the rising tide, a slight eddy sets E near the coast into Mount Irvine Bay (11°11′N, 60°48′W), Stone-haven Bay and Great Courland Bay; during the falling tide, there is a set in the opposite direction, sometimes attaining a rate of about 1 kn near Buccoo Reef (11°11′N, 60°50′W).

5 At the NE end of the island, the combined NW–going tidal stream and current flow through the deep channels separating Tobago, Goat Islet (11°18′N, 60°31′W) and Little Tobago at rates attaining 2½ to 4 kn.

6 **Ground swell.** In winter off the NW coast of Tobago ground swell occurs and occasionally breaks heavily over Buccoo Reef and Drew Bank off the SW end of the island; at such times, vessels have to leave the bays on that coast. The SE coast of the island is continually exposed to a heavy swell.

NORTH-EAST COAST

Chart 505

Route

4.309

1 From a position about 3 miles NNE of Saint Giles Islands Light (11°21′N, 60°31′W) the route leads initially SSE for 7½ miles to a position ESE of Little Tobago (11°18′N, 60°30′W). Thence the route leads SW for a farther 8½ miles to a position about 2½ miles SE of Richmond Islet (11°13′N, 60°36′W).

Current

4.310

1 In the vicinity of Cape Gracias-a-Dios (11°16′N, 60°32′W), 2 miles SW of Little Tobago, the current is constantly N–going and against the prevailing NE wind, which raises a rough sea. This area should be avoided by small craft.

Principal mark

4.311

1 **Major light:**

Saint Giles Islands Light (11°21′N, 60°31′W), exhibited from the E end of the largest of Saint Giles Islands.

Directions

4.312

1 From a position about 3 miles NNE of Saint Giles Islands Light (11°21′N, 60°31′W) the track leads SSE, passing (with positions relative to Little Tobago Light (11°18′N, 60°30′W)):

ENE of Saint Giles (4 miles NNW) or Melville Islands, lying 5 cables off the NE point of Tobago. The islands are rocky and steep-to; the largest of the group is 114 m (373 ft) high. Marble Islet, the N of the group, is almost white. London Bridge Rock, at the W end of the group, is prominent and shaped like an arch. Thence:

2 ENE of the NE end (3 miles NNW) of Tobago, thence:

ENE of Black Rock (1 mile NNW).

The track then leads to a position ESE of Little Tobago, known also as Bird of Paradise Island, which lies nearly 1 mile offshore; a light is exhibited from the E extremity of Little Tobago.

3 The track then leads SW, passing (with positions relative to Little Tobago Light):

SE of South Rock (1¼ miles SW); a rock over which the sea breaks lies 1 cable N of it. Thence:

SE of Pedro Point (3½ miles SW), the E entrance point of King's Bay (4.315), thence:

4 SE of Queen's Island (5 miles SW), which is 55 m (180 ft) high to the tree-tops. A rock 3 m (10 ft) high lies ¾ cable S of the island and there is a rock which dries close S of this rock.

Thence the track leads to a position about 2½ miles SE of Richmond Islet (7½ miles SW), which lies on a shallow bank which extends 5 cables offshore; the islet is divided into two parts, each with a hummock.

(Directions continue for the coastal route at 4.320)

Side channels

Saint Giles Islands

4.313

1 Between Saint Giles Islands (11°21′N, 60°31′W) and the N end of Tobago there is a deep water channel 4½ cables wide. However, the channel is encumbered by a rock awash lying in the middle of it, and the tidal streams through the channel attain considerable rates; vessels should therefore pass N of Saint Giles Islands.

Little Tobago

4.314

1 **Description.** Between Little Tobago (11°18′N, 60°30′W) and the NE coast of Tobago there is a channel about 8 cables wide. The channel is encumbered by Goat Islet (11°18′N, 60°31′W), lying in the middle of it, and also by the following rocks (with positions relative to Goat Islet):

2 Long Rock (5 cables N), at the N end of the channel; a rock over which the sea breaks lies 1 cable NE of Long Rock.

Middle Rock (7 cables SE) lying on a reef on the E side of the S entrance to the channel.

South Rock (1 mile SSE) (4.312).

3 **Current.** In the channels E and W of Goat Islet, the N–going current attains rates from 2½ to 4 kn. The passage between South Rock and Little Tobago Rock should be avoided as the current divides at Middle Rock and attains a considerable rate.

Anchorage. Tyrrel's Bay, entered W of Goat Islet, only affords limited anchorage in deep water.

Bays and anchorages

Chart 508, plan of King's Bay

King's Bay

4.315

1 **Description.** King's Bay is entered between Pedro Point (11°15′N, 60°32′W) and a point 1 mile SW. This bay is the safest anchorage in Tobago, secure from the prevailing winds. The best berth is near the head of the bay in depths from 22 to 36 m (12 to 20 fm), fine sand, with practically no tidal stream.

2 **Landing.** Good landing is afforded on two sandy beaches at the head of the bay, where there is nearly always smooth water and seldom any surf.

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Chart 505

Carapuse Bay

4.316

1 **Description.** Carapuse Bay is the bight between Queen's Island (11°14′N, 60°34′W) (4.312) and Richmond Islet, 2½ miles SW; within it lie the smaller bays of Queen's and Prince's. Queen's Bay is entered between Queen's Island and a rock, with a depth of 2 m (6 ft) over it, 6 cables W.

2 Prince's Bay is entered close W of Queen's Bay, from which it is separated by a shallow bank terminating 7½ cables offshore in Roxborough Rock. A drying rock lies on the W side of the entrance to the bay, 5 cables SW of Roxborough Rock, and on the E edge of a shallow bank extending 7½ cables offshore.

3 A bay close SW of Prince's Bay is mostly foul and should be avoided.

Local knowledge is required for navigating within Carapuse Bay.

Anchorage. Small vessels may obtain anchorage in Queen's Bay in depths up to 11 m (36 ft), about 2 cables offshore.

SOUTH-EAST COAST

General information

Charts 505, 493

Route

4.317

1 From a position about 2½ miles SE of Richmond Islet (11°13′N, 60°36′W) the route leads initially SW along the SE coast of Tobago for 8½ miles, to the entrance to Rockly Bay in which lies the harbour of Scarborough (4.322), and then W for a farther 6½ miles to a position about 2 miles S of Columbus Point (11°08′N, 60°48′W).

2 Thence the track leads NW, for 5½ miles between the SW end of Tobago and Drew Bank, to a position about 2½ miles W of Crown Point (11°09′N, 60°51′W).

Submarine cables

4.318

1 See 4.52.

Principal marks

4.319

1 **Major lights:**

Fort George Light (white concrete building, yellow roof) (11°10′N, 60°44′W).

Crown Point Light (aluminium framework tower topmark, 26 m in height) (11°09′N, 60°51′W).

Directions

(continued from 4.312)

Richmond Islet to Rockly Bay

4.320

1 From a position about 2½ miles SE of Richmond Islet (11°13′N, 60°36′W) the track leads SW, passing (with positions relative to Richmond Islet):

SE of Great River Shoal (1¾ miles SW), which extends 1½ miles SE from the coast in the vicinity of Goldsborough Bay (4.333). The shoal has an irregular bottom of coral; during strong ESE breezes, the sea breaks heavily on it. Thence:

2 SE of Smith's Island (4 miles SW), from which a light is exhibited; Little Smith, a drying rock, lies 1 cable SW of Smith's Islet. Thence:

SE of Minster Rock (7 miles SW), which is steep-to; it consists of large boulders on which the sea usually breaks. A light-buoy (S cardinal) is moored off the rock.

The track then leads to a position about 4 miles SSE of Bacolet Point (7¾ miles SW) (4.326), off the entrance to Rockly Bay.

3 **Clearing bearing.** The line of bearing less than 046° of the SE extremity of Little Tobago (11°18′N, 60°30′W), open SE of Pedro Point, clears SE of Great River Shoal.

(Directions continue for Scarborough and its approaches at 4.326)

Rockly Bay to Crown Point

4.321

1 From the position about 4 miles SSE of Bacolet Point (11°10′N, 60°43′W), the track leads initially W, passing (with positions relative to Crown Point (11°09′N, 60°51′W)):

S of Bulldog Shoal (6 miles E) (4.326), marked by a light-beacon (S cardinal), thence:

2 S of Lowlands Point (4 miles E), thence:

S of Columbus Point (2¾ miles ESE), the low S extremity of Tobago.

The track then leads NW through a channel about 1½ miles wide, with a least depth of 16 m (53 ft), and through which the tidal stream sets strongly W, passing:

3 SW of a flat (1½ miles ESE) lying between Columbus Point and Crown Point. There are depths of less than 5 m (15 ft) over the flat which extends as much as 1 mile offshore; heavy breakers may occur on the W edge of the flat even in the calmest weather. And:

4 NE of Wasp Shoal (2½ miles SSW), lying close off the N edge of Drew Bank (4.56); in 1986 a depth of 1·5 m (5 ft) was reported on this shoal. Wasp Shoal, which is generally indicated by overfalls, may cause unexpected and heavy breakers to form even in the calmest weather.

5 The track then leads to a position about 2½ miles W of Crown Point, from which a light (4.319) is exhibited. The airport and landing strip which serve Tobago are located close by.

(Directions continue for the NW coast of Tobago, in reverse, at 4.338)

Scarborough and approaches

Charts 505, 508 plan of Rockly Bay

General information

4.322

1 **Position.** Scarborough (11°11′N, 60°44′W) stands on the W slopes of a hill, which is surmounted by Fort George, at the head of Rockly Bay, which is entered between Bacolet Point and Lowlands Point, 3½ miles WSW. The town does not show up well until a vessel reaches the inner part of Rockly Bay.

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Scarborough Harbour from S (4.322)
(Original dated 2002)

(Photograph – G. Kirk mv Logos II)

2 **Function.** Scarborough is the principal town of Tobago and had a population of 3800 in 1990. The principal trade is tourism. Exports are mainly cocoa, coconuts, copra, bananas and fibre; imports include manufactured products and textiles.

3 **Port Authority.** Port Authority of Trinidad and Tobago, PO Box 549, 1 Dock Road, Port of Spain, Trinidad and Tobago.

Limiting conditions

4.323

1 **Tidal levels.** Mean maximum range about 0·7 m; mean minimum range of about 0·4 m. For further information see the *Admiralty Tide Tables.*

Arrival information

4.324

1 **Pilotage.** Arrangements for pilots, although not compulsory, are made through Port of Spain, Trinidad, via North Post Coast Radio Station (10°45′N, 61°34′W) giving at least 48 hours notice of ETA. The pilot boards 3¼ cables SW of Lodge Point (11°10′·1N, 60°43′·6W).

Tugs. If tugs are required they must be arranged in advance from Port of Spain, Trinidad.

Harbour

4.325

1 **General layout.** The commercial berths serving Scarborough are arranged along the NE shore of Rockly Bay, fronting the town. The berths are protected from the S and SE by a breakwater which extends 280 m from the shore on the SE side of the harbour.

Landmarks:

2 Burleigh House (11°10′N, 60°45′W), a white building with a flat roof, standing on the N shore of Rockly Bay.

Lowlands Estate House (11°09′N, 60°46′W), a cluster of light-coloured buildings standing 3½ cables NNW of Lowlands Point.

3 **Major light:**

Fort George Light (11°10′N, 60°44′W) (4.319).

Directions for entering harbour

(continued from 4.320)

4.326

1 **Scarborough Leading Lights:**

Front light (11°10′·7N, 60°44′·4W) (elevation of 15 m). No 7 Light-beacon stands close SSE of the front leading light.

Rear light (elevation 20 m, 244 m NNW of front light).

2 From a position about 4 miles SSE of Bacolet Point (11°10′N, 60°43′W) the alignment (330¼°) leads NW, passing (with positions relative to the front light):

SW of Minster Rock (2½ miles SE) (4.320), marked by a light-buoy (S cardinal), thence:

3 NE of Bulldog Shoal (2 miles S), over which the sea breaks; the SE side of the shoal is marked by a light-beacon (S cardinal). Bulldog Shoal is the SE of a number of dangers which encumber the middle and W parts of Rockly Bay. Thence:

4 SW of Lighthouse Ledge (1½ miles SE) extending 2½ cables SW from Bacolet Point; the SW side of the ledge is marked by No 2 Light-beacon (starboard hand). Thence:

NE of a bank, with depths of less than 5 m (15 ft) over it, extending 8 cables ESE from Red Rocks (8½ cables SSW); the SE side of the bank is marked by No 1 Light-beacon (port hand). Thence:

5 Between Middle Shoal (5 cables SSW) and the NE coast of Rockly Bay, fringed by shoal water. Light-beacons (lateral) mark Middle Shoal and the shoal water along the coast.



Scarborough Harbour Leading Lights with No 7 Light–beacon in front (4.326)
(Original dated 2002)

(Photograph – G. Kirk mv Logos II)

The track then leads to a position close SW of the breakwater (3½ cables SE), from the head of which is exhibited a light. From this position the anchorage (4.328) and berths can be directly accessed.

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4.327

1 **Caution.** It was reported in 1998 that there was less water than charted on the SW side of the harbour.

Clearing bearings:

The line of bearing less than 059° of Richmond Islet (11°13′N, 60°36′W), open SE of Smith's Islet, from which a light is exhibited, clears SE of Minster Rock.

2 The line of bearing less than 012° of Fort George Light (11°10′N, 60°44′W) clears E of the dangers lying in the middle of Rockly Bay, until the Scarborough leading line is reached.

Berths

4.328

1 **Anchorage.** Vessels may obtain anchorage near the head of Rockly Bay in depths from 11 to 29 m (36 to 16 fm), over mud and sand; care is necessary to avoid Middle Shoal (4.326). Although a safe anchorage, it is never very smooth as the trade wind sends a continuous swell into the bay, rendering boat work and lighterage work uncomfortable.

2 **Alongside berths:**

General cargo wharf situated 1¾ cables N of the head of the breakwater. The wharf has a length of 150 m and can accommodate coastal vessels with a draught up to 4·5 m; a spur 82 m in length projects SSW from the W end of the wharf.

3 Passenger jetty situated 1 cable W of the general cargo wharf. The jetty projects 200 m from the shore. There is a cruise ship berth on its W face, 180 m in length; depth alongside reported in 1992 to be 9 m. On the E face there is cargo berth, 150 m in length, with a reported depth of about 8·5 m alongside; at the foot of this berth there are two Ro-Ro berths.

Port services

4.329

1 **Facilities.** Deratting and Deratting Certificates issued; hospital at Scarborough.

Supplies: fresh water available; fresh provisions obtainable with advance notice.

Communications. Airport, with a regular service to Trinidad.

Small craft

4.330

1 A yacht marina and a fish harbour lie immediately N of the breakwater on the SE side of the harbour of Scarborough.

Anchorage

Hillsborough Bay

4.331

1 Hillsborough Bay (11°11′N, 60°41′W) affords anchorage in a depth of 11 m (36 ft) in its E part. The approach is clear of dangers but numerous shoal patches fringe the shores of the bay and a dangerous rock lies on the SW side of the bay, 5½ cables NE of Minster Point. The wind usually blows along the shores of the bay.

Small craft

Mangrove Bay

4.332

1 **Description.** Mangrove Bay (11°13′N, 60°36′W), entered W of a salient point 2½ cables NW of Richmond Islet (4.312), affords secure anchorage, in depths of 5 or 7 m (18 or 24 ft). The anchorage should be approached by passing W of a rock, with a depth of 2 m (6 ft) or less over it, lying in the entrance.

Local knowledge is required.

Richmond Bay and Goldsborough Bay

4.333

1 **Description.** Richmond Bay (11°13′N, 60°37′W) and Goldsborough Bay, 1¼ miles SW, afford anchorage to small craft, but the depths in their approaches are very irregular.

Local knowledge is required.

Barbados Bay

4.334

1 **Description.** Barbados Bay (11°11′N, 60°40′W), situated on the W side of Granby Point on which there are the remains of an old fort, provides anchorage for vessels drawing up to 3·7 m (12 ft).

Local knowledge is required.

NORTH-WEST COAST

Chart 505

Route

4.335

1 From a position about 3 miles NNE of Saint Giles Islands Light (11°21′N, 60°31′W) the route leads initially WSW, for 11 miles, to a position NE of The Sisters (11°20′N, 60°39′W), and thence SW, for a farther 15 miles, to a position about 3 miles NW of Pigeon Point (11°10′N, 60°50′W). The track then leads S for 3½ miles to a position about 2½ miles W of Crown Point (11°09′N, 60°51′W).

Topography

4.336

1 From Saint Giles Islands (11°21′N, 60°31′W) to Corvo Point (11°20′N, 60°35′W) the NW coast of Tobago is irregular in shape being indented by Man of War Bay. Thence from Corvo Point to Courland Point, 13½ miles SW, the NW coast of Tobago is generally rocky and steep-to. Between Courland Point and Crown Point, 6 miles SW, the coast becomes irregular again, being indented by several bays and fringed by Buccoo Reef.

Principal marks

4.337

1 **Major lights:**

Saint Giles Islands Light (11°21′N, 60°31′W) (4.311).

Crown Point Light (11°09′N, 60°51′W) (4.319).

Directions

4.338

1 From a position about 3 miles NNE of Saint Giles Islands Light (11°21′N, 60°31′W) the track leads WSW, passing (with positions relative to Saint Giles Light (11°18′N, 60°30′W)):

NNW of Saint Giles (4.312), thence:

NNW of North Point (2½ miles WSW), the NE entrance point of Man of War Bay (4.339), thence:

2 NNW of The Brothers (6 miles WSW), two rocks lying close off the coast; the passage between The

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Brothers and the coast is foul. Two rocks, one awash and the other drying 1·2 m (4 ft), lie 6 cables WSW of The Brothers; the passage between these rocks and The Sisters, 1 mile NW, is not recommended.

3 The track then leads to a position NNW of The Sisters (7¾ miles WSW), from which a light is exhibited. The Sisters are five above-water rocks lying 1½ miles off the coast; the N and highest rock is 30 m (98 ft) high. Thence the track leads SW, passing (with positions relative to Courland Point Light (11°13′N, 60°47′W)):

4 NW of White Rock (6½ miles NE), lying close off the coast N of Castara Bay, thence:

NW of Courland Point, from which a light is exhibited; the point forms the N entrance to Great Courland Bay (4.340). Thence:

5 NW of Buccoo Reef (3 miles SW), which extends in patches 1½ miles N and E from Pigeon Point; its outer edge dries and is clearly defined. At night, the reef may be avoided by keeping in a depth of more than 37 m (20 fm). Two light-buoys (N and W cardinal) mark the N and W extremities, respectively, of the reef.

6 Thence the track leads to a position about 3 miles NW of Pigeon Point (4½ miles SW) and then S to a position about 2½ miles W of Crown Point (6 miles SW) (4.321), passing W of Buccoo Reef.

(Directions continue for the SE coast of Tobago, in reverse, at 4.321)

Minor bays and anchorages

Chart 508, plan of Man of War Bay

Man of War Bay

4.339

1 **Description.** Man of War Bay is entered between North Point (11°20′·1N, 60°33′·4W) and Corvo Point, 1½ miles WSW. Booby Islet, situated 1 mile S of North Point, can be identified from seaward at a distance of about 4 miles. The islet lies on the NW extremity of a reef which extends 1½ cables from the head of the bay; a patch, with a depth of 4·3 m (14 ft) over it, lies close NE of Booby Islet.

2 Charlotteville stands at the head of the bay, mainly to the E of Booby Islet. The town consists of scattered small houses, none of which are readily identifiable, except for a row of bungalows about 5½ cables E of Booby Islet; the green roof of Hermitage House, situated 8 cables WSW of Booby Islet, can be identified.

3 **Tidal levels.** Mean maximum range about 0·7 m; mean minimum range about 0·4 m. For further information see the *Admiralty Tide Tables.*

Useful mark:

Light (11°19′·2N, 60°32′·9W) exhibited from the head of the bay at Charlotteville.

4 **Anchorage.** Vessels of moderate size can obtain anchorage in Man of War Bay in depths from 25 to 35 m (14 to 20 fm), with Booby Islet bearing about 244°.

Small craft. The most sheltered anchorage for small craft is in the NE corner of Pirates Bay, 6 cables NE of Booby Islet.

Chart 508, plan of Great Courland and Mount Irvine Bays

Great Courland Bay

4.340

1 **Description.** Great Courland Bay is entered between Courland Point (11°13′N, 60°47′W) and Hawks Bill, 9 cables S; it contains the principal anchorage for the NW coast of Tobago. Care is necessary when navigating within the bay as fishing nets and fish traps may be encountered, and the S side of Courland Point is fronted by the dangers of Barrel of Beef Rock, which is always discernible at HW, and by an obstruction, with a depth of 4 m (13 ft) over it.

2 Plymouth, a small town, is situated in the NE corner of the bay.

Tidal levels. At Plymouth there is a mean maximum range of about 0·6 m and a mean minimum range of about 0·3 m. For further information see the *Admiralty Tide Tables.*

Useful marks:

Light exhibited from Courland Point.

Church (wooden building with a red roof and red spire) standing in Plymouth 1½ cables E of Courland Point.

3 **Anchorages.** Vessels of moderate size can anchor in Great Courland Bay in a depth of 18 m (60 ft) about 4 cables SW of Courland Point. The depths decrease gradually towards the shore, but smaller vessels should not anchor in depths of less than 13 m (42 ft). When the wind is N of E a swell enters the bay, but the holding ground is good.

4 In February, 1931, a deep draught vessel anchored temporarily with Plymouth Church (11°13′·0N, 60°46′·7W) bearing 061°, distant 8 cables. In April and May, 1960, good anchorage for medium size vessels was obtained in a depth of 11 m (36 ft) with Plymouth Church bearing 040°, distant 4 cables.

Mount Irvine Bay

4.341

1 **Description.** Mount Irvine Bay (11°11′N, 60°48′W) or Little Courland Bay is entered between Rocky Point and Booby Point, known locally as Buccoo Point, 1 mile SW. A large white house with a red roof stands on high ground 8 cables ESE of Booby Point.

Useful mark:

Light exhibited from Booby Point.

2 **Anchorage.** Vessels can obtain anchorage in the NE part of Mount Irvine Bay in a depth of 13 m (42 ft) with the large white house bearing 166°; it is smoother than the anchorage in Great Courland Bay, but is sometimes untenable.

Minor terminal

Chart 505

Crown Point Oil Terminal

4.342

1 **Description.** An oil terminal, consisting of a mooring buoy, is situated 3 cables WNW of Crown Point Light (11°09′N, 60°51′W); it supplies fuel to the nearby airport. The berth is named National Petroleum Buoy, and the depth at the mooring is 14 m (50 ft).

2 **Local weather.** The wind generally blows offshore, increasing to a fresh breeze around midday. In the rainy season squalls often occur, which can be quite violent with dramatic wind shifts. There is always a swell at the berth.

Anchorage. Vessels waiting to berth, or for the weather to moderate, may obtain good anchorage in Milford Bay or Great Courland Bay.

3 **Directions.** Vessels berth in daylight only, with the stern moored to the buoy using ship's lines and the port anchor paid out. The best time to berth is early morning; a small boat is available for handling the lines.

Communications. The line handling boat provides a service for crew needing to go ashore. The airport close by provides scheduled services to Port of Spain, Trinidad.

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Small craft

Corvo Point to Courland Point
4.343

1 **Description.** Anchorage can be obtained off the coast between Corvo Point (11°20′N, 60°35′W) and Courland Point, 13½ miles WSW by small craft in Bloody Bay, Parlatuvier Bay, Englishman's Bay, Castara Bay, King Peter Bay and Anse Fromager, all of which are small; only Castara Bay affords any security.

2 **Local knowledge** is required.

Stone-haven Bay
4.344

1 Stone-haven Bay (11°12′N, 60°47′W) is entered between Hawks Bill and Rocky Point, 9 cables SW. It is open and does not afford good anchorage.

Buccoo Bay
4.345

1 Buccoo Bay (11°10′·5N, 60°49′·0W) is entered between Wolf Rock, fronting the N side of Booby Point, and Buccoo Reef (4.338). Without local knowledge the bay is dangerous for boats, and for all craft in rough weather, as rollers set in suddenly across the shallow flats which enclose it.

Milford Bay
4.346

1 **Description.** Milford Bay (11°09′·2N, 60°50′·7W) is entered between Pigeon Point, at the SW end of Buccoo Reef, and Sandy Point 1¼ miles S. A landing place is situated 1 cable SSW of Pigeon Point, and there is another one at the head of the bay 4 cables NE of Sandy Point.

Submarine cables. Power cables are laid from the head of Milford Bay across Galleons Passage to the NE end of Trinidad. Anchorage is prohibited within 2½ cables of the cables in Milford Bay. For further information see 1.42 and 4.52.

2 **Useful marks:**

Light exhibited from the head of Milford Bay.

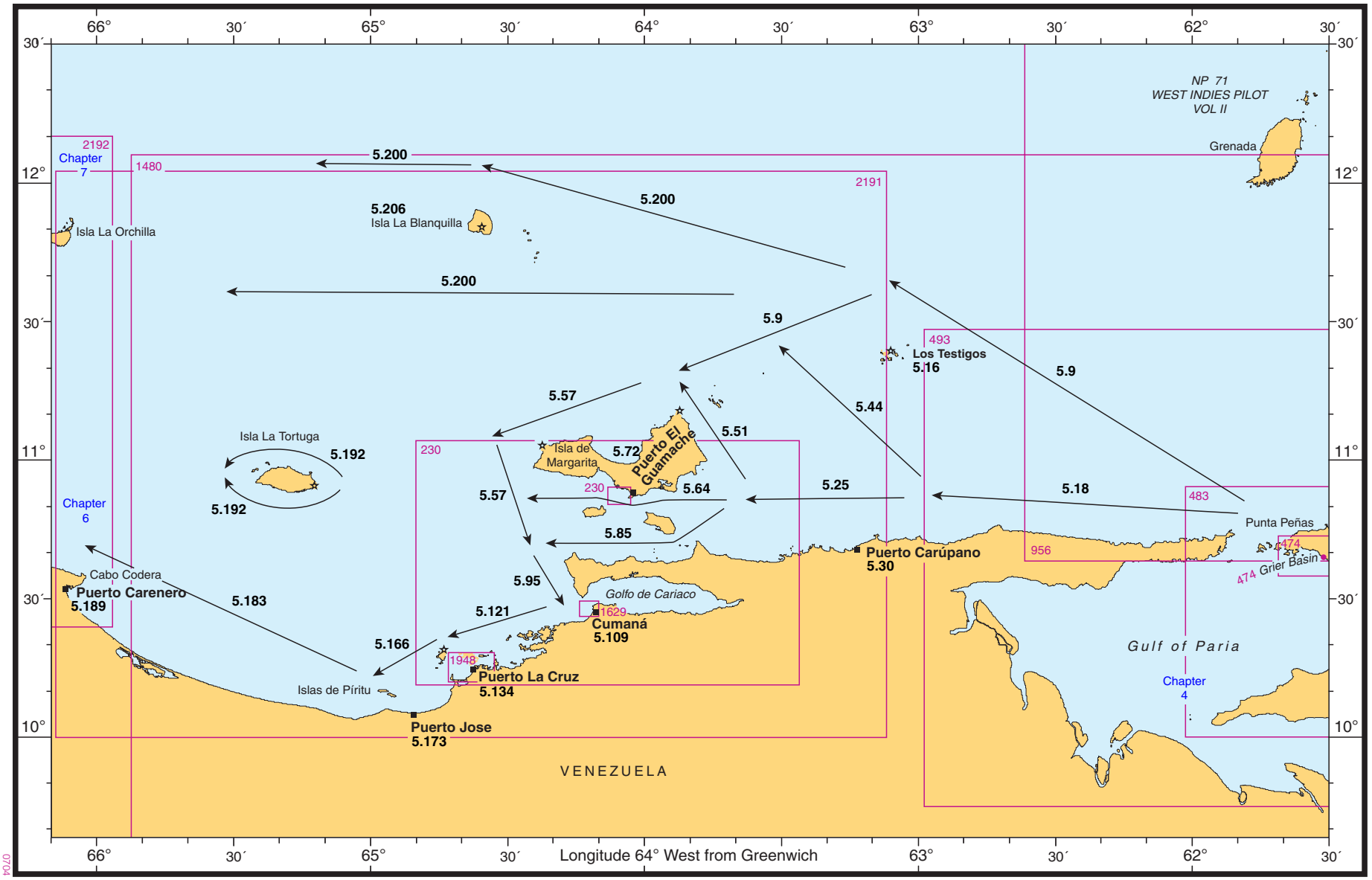
Large hotel standing on the N side of Sandy Point; it is prominent when approached from N and W.

Directions. When approaching Milford Bay, care should be taken not to round either the ledge off Crown Point (4.321) or Buccoo Reef (4.338) too closely.

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Chapter 5 - Venezuela - Punta Peñas to Cabo Codera



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CHAPTER 5

NORTH COAST OF VENEZUELA
PUNTA PEÑAS TO CABO CODERA WITH OUTLYING ISLANDS

GENERAL INFORMATION

Charts 493, 1480, 2191

Scope of chapter

5.1

1 This chapter describes the coastal waters of Venezuela from Punta Peñas (10°44′N, 61°51′W) to Cabo Codera (10°35′N, 66°03′W), 260 miles W, along with descriptions of out-lying islands. The chapter is arranged as follows:

Punta Peñas to Isla de Margarita (5.7).
Isla de Margarita and adjacent islands including the N coast of Península de Araya (5.49).

2 Península de Araya to Islas de Píritu (5.94).
Islas de Píritu to Cabo Codera (5.182).
Routes S and N of Archipiélago Los Hermanos and Isla La Blanquilla (5.200).

Navigation

5.2

1 The coast from Punta Peñas to Cabo Codera should present no difficulty to navigation; there are well defined topographic features, and some are marked by navigational aids. Vessels can pass N of the outlying islands and dangers or proceed through Canal de Margarita, the coastal channel S of Isla de Margarita (11°00′N, 64°00′W). Many of the outer islets and rocks are high enough to give reasonable radar responses.

2 However, care should be taken to avoid the vicinities of Cumberland Bank (11°10′N, 63°07′W) and the isolated low rocks of Isla La Sola (11°19′N, 63°34′W) (La Sola on Chart 1480) and Roca del Norte (11°16′N, 63°45′W) (North Rock on Chart 1480).

Current

5.3

1 The current sets generally W.

Marine exploitation

5.4

1 Oil and gas pipelines have been laid on the seabed in numerous places covered by this chapter. For information on oil and gasfields see 1.13; for further information on submarine pipelines see 1.14.

Regulations

5.5

1 For regulations concerning vessels entering Venezuelan territorial waters, see 1.47.

Rescue

5.6

1 For information on search and rescue services in Venezuelan waters see 1.62.

PUNTA PEÑAS TO ISLA DE MARGARITA

GENERAL INFORMATION

Charts 493, 1480, 2191

Area covered

5.7

1 This section covers the coastal waters from Punta Peñas (10°44′N, 61°51′W) to Isla de Margarita, 115 miles WNW, along with routes around Los Testigos (11°22′N, 63°06′W). It is arranged as follows:

Punta Peñas to Isla de Margarita passing N of Los Testigos (5.9).

2 Punta Peñas to Cabo Mala Pascua (5.18).
Cabo Mala Pascua to Isla de Margarita (5.25).
Passage between Los Testigos and Los Frailes (5.44).

Marine exploitation

5.8

1 Offshore oil and gas exploration and development may be encountered up to 35 miles N of Península de Paria in the Dragon, Patao and Mejillones Fields. Within this area mobile drilling rigs and associated vessels may be encountered. Moorings can extend 1 mile from the rigs, which should be given a wide berth.

PUNTA PEÑAS TO ISLA DE MARGARITA PASSING NORTH OF LOS TESTIGOS

General information

Charts 493, 1480, 2191

Route

5.9

1 From the vicinity of 10°50′N, 61°44′W, 9 miles NE of Punta Peñas (10°44′N, 61°51′W) the route leads initially NW for 93 miles to a position about 10 miles N of Isla Testigo Grande (11°23′N, 63°07′W), and then WSW, for a farther 47 miles, to a position about 9 miles N of Cabo Negro (11°11′N, 63°53′W) (Cabo de la Isla on Chart 1480), the NE extremity of Isla de Margarita.

Depths

5.10

1 In the vicinity of Los Testigos depths less than charted may exist between latitudes 11°01′N, and 11°25′N and longitudes 62°59′W, 63°12′W; vessels with a draught of more than 5·5 m should avoid this area.

Current

5.11

1 In the vicinity of Los Testigos (11°22′N, 63°06′W), the current often attains a considerable rate, setting between W and NW; in August it has been observed to be

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WNW–going with a rate of 1¾ kn. The current has been observed to be NNW–going with a rate of 2 kn in February and a rate up to 3 kn in July.

Caution

5.12

1 Los Testigos (5.16), and especially Isla Norteste, lie near the shipping lanes between Trinidad and the Caribbean Sea. Isla Norteste, being unlighted and surrounded by relatively deep water, is a danger at night and should be given a wide berth owing to the constant W–going current.

Principal marks

5.13

1 **Major lights:**

Isla Testigo Grande Light (white GRP tower, black bands, 3 m in height) (11°23′N, 63°07′W).

Cabo Negro Light (white round tower, orange bands, 10 m in height) (11°11′N, 63°53′W), exhibited from the summit of a conical hillock rising from the cape.

Directions

(continued from 4.57)

Punta Peñas to Isla Testigo Grand

5.14

1 From the vicinity of 10°50′N, 61°44′W, 9 miles NE of Punta Peñas (10°44′N, 61°51′W) the track leads NW, passing (with positions relative to Isla Testigo Grande Light (11°23′N, 63°07′W)):

NE of Green Bank (8 miles SSE), one of the many banks and shoals lying up to 19 miles S of Isla Testigo Grande. Between Green Bank and Isla Testigo, there is a least depth of 10·5 m (34 ft). For further information on these banks and shoals see 5.48. Thence:

2 NE of Isla Norteste (5 miles ENE) (5.16).

The track then leads to a position about 10 miles N of Isla Testigo Grand (5.16).

(Directions continue, for a route passing N of Isla La Blanquilla at 5.202, and for a route passing S of Isla La Blanquilla at 5.203)

Isla Testigo Grand to Isla de Margarita

5.15

1 From the position about 10 miles N of Isla Testigo Grand, the track leads WSW, passing (with positions relative to Isla Testigo Grande Light):

NNW of Isla Testigo Grand, thence:

NNW of Isla La Sola (27 miles WSW) (5.48) (La Sola on Chart 1480), thence:

2 NNW of Roca del Norte (38 miles WSW) (North Rock on Chart 1480), the N–most of Los Frailes (5.56) (Archipiélago Los Frailles on Chart 2191); reefs extend up to 2 cables from this rock.

Thence the track leads to a position about 9 miles N of Cabo Negro (47 miles WSW) (Cabo de la Isla on Chart 1480), from which a light (5.13) is exhibited.

3 **Useful mark:**

Los Frailes Light (11°12′N, 63°44′W) (5.55).

(Directions continue, for the N side of Isla de Margarita at 5.59, and for the E side of Isla de Margarita, in reverse, at 5.55)

Los Testigos

General information

5.16

1 **Description.** Los Testigos (11°22′N, 63°06′W), lying 38 miles N of the coast of Venezuela, is comprised of the following islands and rocks (positioned relative to Isla Testigo Grande Light (11°23′N, 63°07′W)):

Isla Testigo Grande, the largest island, being 3 miles long with an elevation of 246 m (807 ft) in the central part. An irregular rocky isthmus joins the central part of the island to its SE part, which rises to a hill 96 m high. Two islets lie within 3 cables N of the NW extremity of Isla Testigo Grande, and there is another islet 1 cable SW of this point.

2 Isla Norteste (5 miles ENE), the NE–most of the group; its N side is steep-to, but above-water and submerged rocks extend 1 cable from its SW and SE extremities.

Isla Conejo (2 miles E), lying between Isla Norteste and the SE end of Isla Testigo Grande. The island is steep-to on its E side; a chain of islets and rocks extends nearly 6 cables WNW from its N point.

3 Isla Rajada (2¾ miles ESE); the islet is steep-to except on its W side.

Isla Iguana (1¼ miles SSW) with Isla Morro Blanco close S. Isla Iguana is steep-to except on the E and N sides, where a bank, with depths of less than 11 m (36 ft) over it, extends 2 cables offshore. There is an excellent landing beach on the E side of Isla Iguana.

4 **Current.** Between Isla Iguana and Isla Testigo Grande, a strong WNW–going current causes rips.

Settlements. Small settlements of fisherman and goatherds exist on Isla Testigo and Isla Iguana.

Major light:

Isla Testigo Grande Light (11°23′N, 63°07′W) (5.13).

Anchorage

5.17

1 Excellent anchorage can be obtained in depths from 25 to 29 m (14 to 16 fm), over mud, with the summit of Isla Testigo Grande bearing 072° and the W extremity of Isla Iguana bearing 182°. When approaching the anchorage from the N, a wide berth should be given to the rocks and islets extending from the NW point of Isla Testigo Grande.

2 The anchorage can also be approached from the SE through the channel between Isla Iguana and Isla Testigo Grande, where the least depth in mid-channel is 11·3 m (37 ft), but local knowledge is required. Care is needed to pass midway between an islet, at the end of a reef extending 2½ cables from the SW side of Isla Testigo Grande, and Isla Iguana.

3 A hill on the SE part of Isla Testigo Grande appears from S like a separate island. The NE point of Isla Iguana should be given a berth of at least 2½ cables.

PUNTA PEÑAS TO CABO MALA PASCUA

General information

Charts 493, 1480

Route

5.18

1 From the vicinity of 10°50′N, 61°44′W, 9 miles NE of Punta Peñas (10°44′N, 61°51′W), the coastal route leads W

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for 76 miles, passing along the N coast of Venezuela, to a position about 8 miles N of Cabo Mala Pascua (10°43′N, 63°00′W).

Topography

5.19

1 Península de Paria, the N coast of which extends from Punta Peñas to Cabo Mala Pascua, 67 miles W, is backed by mountains more than 1200 m (3280 ft) high and is completely covered by trees. Large spurs branch from the central ridge and terminate in bold points, forming deep gorges at the heads of the bays.

2 Few features can be identified from the offing as the higher mountains are usually obscured by mist or cloud.

Depths

5.20

1 The coast is generally steep-to between Punta Peñas and Cabo Mala Pascua, and has depths from 36 to 73 m (20 to 40 fm) at 1 mile offshore; no known dangers exist outside this distance.

Currents

5.21

1 During June, July and August, a current 10 miles off the N coast of Península de Paria has been observed to set between W and WNW at a rate varying between ¾ and 2 kn. A single observation made early in September revealed an inshore set 7 miles off the coast between Punta Peñas and Punta Cacao, 26 miles W; this current set 215° at a rate of ¾ kn and is believed to result from the N–going current through Bocas del Dragon joining the W–going current to form an eddy off this stretch of coast.

Principal mark

5.22

1 **Major light:**

Cabo Tres Puntas Light (white GRP tower, orange bands, 9 m in height) (10°46′N, 62°43′W).

Directions

(continued from 4.57)

5.23

1 From the vicinity of 10°50′N, 61°44′W, 9 miles NE of Punta Peñas (10°44′N, 61°51′W), the track leads W, passing:

N of Promontorio de Paria, which attains an elevation of 299 m (980 ft) about 1 mile W of Punta Peñas and resembles an island at a distance from NW, thence:

2 N of Cabo Tres Puntas (10°46′N, 62°43′W) from which a light (5.22) is exhibited. Two prominent peaks are situated close together 6 miles ESE of the cape; the W and loftier peak is 1254 m (4114 ft) high.

Thence the track leads to a position about 8 miles N of Cabo Mala Pascua (10°43′N, 63°00′W). The cape consists of low rocky cliffs and is covered with trees; it is not prominent.

(Directions continue, for the coastal route W at 5.29, and for a passage between Los Testigos and Los Frailes at 5.48)

Minor bay

Chart 493

Ensenada de Unare

5.24

1 **Description.** Ensenada de Unare (10°45′N, 62°45′W), entered 3 miles WSW of Cabo Tres Puntas, affords some shelter from the trade wind under the NE entrance point, which can be identified by a small conical hill. The shore of the bay consists of a white sandy beach 1¾ miles long, through the middle of which flows a stream. Depths less than 5·5 m (18 ft) extend 2½ cables from both entrance points.

2 **Landing.** In Ensenada de Unare landing is best effected in the lee of the NE entrance point, but a surf usually makes it difficult.

CABO MALA PASCUA TO ISLA DE MARGARITA

General information

Charts 1480, 2191

Route

5.25

1 From a position about 8 miles N of Cabo Mala Pascua (10°43′N, 63°00′W) the coastal route continues W, passing well clear of any dangers, to a position about 11 miles SE of Punta Ballena (11°00′N, 63°47′W), the SE extremity of Isla de Margarita.

Topography

5.26

1 From Cabo Mala Pascua to Morro del Puerto Santo, 9 miles W, the coast is steep-to. From Morro del Puerto Santo (10°44′N, 63°10′W) to Ensenada La Esmeralda, 21 miles WSW, the coast becomes more irregular and is fringed with shoals.

2 From the S side of Ensenada La Esmeralda (10°38′N, 63°30′W) to Punta Baja (Punta Guarapotura on Chart 1480), a bold rocky headland 13 miles W, the coast consists of red cliffs between 12 and 45 m high, broken by occasional sandy beaches. Punta Manzanillo (10°38′N, 63°36′W) and Punta Gorda, 1½ miles W, are difficult to identify.

3 Piedra Blanca, two white rocks lying close together off Punta Baja, are 12 m high and form a good mark from the offing. Between Punta Baja and Punta Escudo Blanco, 2½ miles W, there are cliffs up to 18 m high which are white and distinctive in places.

Submarine cable

5.27

1 A submarine cable is laid from the NW side of Puerto Carúpano (10°40′N, 63°15′W) in a WNW direction to Isla de Margarita, landing in Bahía de Guaraguao (10°57′N, 63°50′W). For further information on submarine cables see 1.42.

Principal marks

5.28

1 **Landmarks:**

Morro del Puerto Santo (10°44′N, 63°10′W), a rocky and wooded headland 91 m (300 ft) high, which appears as an island from the offing; it is joined to the mainland by a low sandy isthmus on which stands Pueblo de Puerto Santo.

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2 Cerro La Corona (10°38′N, 63°10′W), a prominent mountain standing 6 miles S of Morro del Puerto Santo.

Cerro San José (10°31′N, 63°29′N), 1030 m (3380 ft) high.

3 Cerro Buena Vista (10°31′N, 63°36′W), 396 m (1300 ft) high. This landmark is more easily identified than Cerro San José due to its perfectly rounded summit.

Major lights:

Puerto Santo Light (white and orange stripes on GRP framework tower, 12 m in height) (10°44′N, 63°10′W).

4 Recalada Puerto de Carúpano Light (white metal framework tower, orange band, 1 m in height) (10°40′N, 63°15′W), standing on Cerro Miranda, a bluff 48 m high.

Directions

(continued from 5.23)

5.29

1 From a position about 8 miles N of Cabo Mala Pascua (10°43′N, 63°00′W) the track leads W, passing (with positions relative to Puerto Santo Light (10°44′N, 63°10′W)):

N of Punta Frayle (6¾ miles E), a low rocky point; a remarkable rock, 30 m high, lies near Punta Frayle. Thence:

2 N of Morro de Puerto Santo (close E) (5.28), bold and steep-to; Isleta del Puerto Santo, from which a light (5.28) is exhibited, lies close W of this headland. The N side of the headland and the N and W sides of the islet appear to be clear of off-lying dangers and may be approached to within 2½ cables. Thence:

3 N of the approaches to Puerto Carúpano (5¾ miles SW) (5.30), thence:

N of Punta de Güiria (9¾ miles WSW) (Morro Blanco on Chart 1480), a rocky point covered with dense vegetation; a patch, with a depth of 8·2 m over it, lies 7½ cables NNW of Punta de Güiria. Thence:

4 N of a group of rocks (13½ miles WSW) extending 1½ cables NW from Punta del Taquién; the rocks appear almost white when sunlit and show up well against the background from a considerable distance. Punta del Taquién, which is prominent, rises to a rounded hill covered with vegetation and terminates in grey rocky cliffs. Thence:

5 N of Islas Garrapatas (18 miles WSW), a group of three islets up to 8 m high, lying 1¾ miles N of the NW point of Morro de Lebranche, a rocky promontory. It is not safe to pass S of the islets as there is foul ground, on which the sea breaks, between them and the promontory. Thence:

6 N of Isla Esmeralda (20¾ miles WSW), a cliffy islet lying close WNW of Punta Esmeralda, a rocky bluff. A patch, with a depth of 7·6 m over it, lies 1 mile NE of Isla Esmeralda.

The track then leads to a position about 11 miles SE of Punta Ballena (39¾ miles NW) (5.55), from which a light is exhibited.

(Directions continue, for a route along the N coast of Península de Araya at 5.92, for a route through Canal de Margarita at 5.70, and for a route along the E coast of Isla de Margarita at 5.55)

Puerto Carúpano

Chart 2191

General information

5.30

1 **Position.** Puerto Carúpano, 4½ miles SW of Morro del Puerto Santo, is situated between Punta Hernán Vásquez (10°41′N, 63°14′W) and Punta Salinas 2½ miles WSW.

Function. Puerto Carúpano, in Estado de Sucre, is the principal port in E Venezuela. Pueblo de Carúpano has a population of about 30 000.

2 **Traffic.** In 1997 the port was used by two vessels with a total of 5365 dwt.

Limiting conditions

5.31

1 **Tidal levels.** Mean maximum range about 0·4 m; mean neap range about 0·1 m. For further information see the *Admiralty Tide Tables.*

Arrival information

5.32

1 **Outer anchorage.** Deep draught vessels anchoring offshore should keep well clear of the submarine cable described at 5.27.

Pilotage. Within Puerto Carúpano pilotage is compulsory. Pilots are available throughout the day and night; they board vessels 5 cables outside the breakwater if adequate notice of ETA is given.

2 **Quarantine and customs.** The Health Officer and Customs Officer board vessels at the anchorages (5.35) or pier after 0700.

Harbour

5.33

1 **General layout.** The harbour is formed by a breakwater extending 694 m from the coast near Recalada Puerto de Carúpano Light (10°40′N, 63°15′W). A pier projects NW from the shore close inside the breakwater.

Landmarks:

Cerro La Carona (10°38′N, 63°10′W) (5.28), situated 5 miles SE of the port.

2 Morro del Puerto Santo (10°44′N, 63°10′W) (5.28).

Cerro San José (10°31′N, 63°29′N) (5.28).

Punta del Taquién (10°41′N, 63°23′W) (5.29).

Twin spires of white church (10°40′·2N, 63°14′·8W) at Carúpano.

3 Tomb, situated 3 cables S of the spires.

Two radio masts (obstruction lights) standing close W of the tomb.

Punta Guayacán Este, situated 4 cables WNW of the spires.

Building standing 11 cables W of the spires.

4 **Major light:**

Recalada Puerto de Carúpano Light (10°40′N, 63°15′W) (5.28).

Directions for entering harbour

5.34

1 **Caution.** Dangerous shoals encumber the W part of Puerto Carúpano; vessels should not enter the area W of the meridian of Punta Guayacán Este (10°40′·4N, 63°15′·2W).

Track. From seaward the line of bearing 210° of a small islet lying close off Punta Guayacán Este leads SSW to the harbour, passing (with positions relative to Punta Guayacán Este):

2 WNW of Punta Hernán Vásquez (1½ miles ENE), in depths of not less than 8 m, thence:

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ESE of a shallow rocky patch (1 mile NW), reported in 1995; a light-buoy (isolated danger) marks the patch.

The track then leads to a position 1½ cables NW of the breakwater head. Rocky patches, with a least depth of 7·3 m over them, lie 7½ cables N of the breakwater head.

3 **Useful mark:**

Light (white concrete tower, green bands, 3 m in height) exhibited from the head of the breakwater.

Berths

5.35

1 **Anchorages:**

Bahía Hernán Vásquez. Vessels of light draught can anchor SW of Punta Hernán Vásquez (10°41′N, 63°14′W), with some shelter from the swell raised by NE winds, but they roll heavily during N winds.

2 Off the breakwater. Anchorage for vessels of medium draught can be obtained in a depth of 8 m, over mud, 1½ cables NNW of the breakwater head, with the W spire of the white church (5.33) bearing 168° and Isleta Jarro (10°40′·7N, 63°16′·3W) bearing 263°

3 Small vessels. These may anchor SW of the berth off the breakwater or under the lee of the breakwater.

Alongside berths. At the pier inside the breakwater there are berths on either side of its outer part; both berths are 123 m long with depths of about 5 m alongside.

Caution. A heavy swell may be experienced at the pier; a vessel's draught should be adjusted accordingly to avoid striking the bottom during adverse conditions.

Port services

5.36

1 **Facilities:** hospital; Deratting and Deratting Exemption Certificates issued.

Supplies: fuel oil not available; fresh water supplies at the pier; provisions obtainable.

Communications. There are daily air services to other places in Venezuela.

Minor bays and anchorages

Bahías de Puerto Santo

5.37

1 **Description.** Bahías de Puerto Santo consists of Bahía Oeste and Bahía Este, situated on either side of the isthmus joining Morro de Puerto Santo (10°44′N, 63°10′W) (5.28) to the mainland. Bahía Este, on the E side of the isthmus, is exposed to the prevailing winds and not recommended for anchoring.

2 **Anchorage.** Bahía Oeste affords good anchorage W of the isthmus in depths from 6 to 10 m (20 to 33 ft), over mud, keeping W of the meridian of the W side of Isleta del Puerto Santo and from 2 to 4 cables off the S shore of the bay.

3 **Berth.** A small fuel jetty, with a depth of 2·5 m alongside, is situated 800 m S of Morro del Puerto Santo in Bahía Oeste. Diesel and fresh water are obtainable from the jetty.

Chart 230

Ensenada La Esmeralda

5.38

1 **Description.** Ensenada La Esmeralda (10°39′N, 63°31′W), entered SW of Isla Esmeralda, is encumbered in its E part by Isletas Cascabel, three islets surrounded by foul ground. The two E islets, situated 5 cables S and 8 cables SSW of Punta Esmeralda (5.29), are about 33 m high and covered with low scrub; the W islet (not charted), lying nearly 1 mile SW of the point, is 21 m high and composed of bare white rock. The shores of the bay are lined with fishing villages and backed by red cliffs.

2 **Directions.** Vessels approaching Ensenada La Esmeralda from the NE should give Islas Garrapatas (5.29) and Isla Esmeralda a berth of at least 5 cables.

Anchorage. Good anchorage can be obtained off Ensenada La Esmeralda in a depth of about 11 m, over a soft mud bottom, with the NW side of Isla Esmeralda bearing 060° and the W islet of Isletas Cascabel bearing 103°. This anchorage is situated 1 mile N of the village of Saucedo.

Small craft

Chart 1480

Seno Caracoles

5.39

1 **Description.** Seno Caracoles (10°43′N, 63°05′W), a cove which may be identified by a remarkable rock 30 m high off its W entrance point, lies 4½ miles W of Cabo Mala Pascua. The cove affords anchorage off a good landing beach near a village.

Local knowledge is necessary.

Bahía Caribe

5.40

1 **Description.** Bahía Caribe (10°42′N, 63°07′W) provides anchorage in the lee of the E entrance point in depths from 11 to 13 m (36 to 43 ft). Landing is seldom impossible. Pueblo de Río Caribe, with a population of about 8000, stands on the shores of the bay.

Local knowledge is necessary.

Chart 2191

Punta Salinas

5.41

1 Between Punta Salinas (10°40′·5N, 63°16′·5W) and Punta de Güiria there is a bay with a good landing beach near some houses in its E part. The W part of the bay is foul.

Punta de Güiria

5.42

1 **Description.** Good anchorage can be obtained in the bay between Punta de Güiria (10°41′N, 63°19′W) (5.29) and Punta Padilla, a small point 2 miles W. Punta Padilla can be identified by a prominent islet close off the point; the islet is 46 m high, with a rounded summit and a grey rock formation at its base. Many rocks extend 1¾ cables from the islet.

2 **Anchorage and landing.** Anchorage is obtainable in a depth of 7·3 m close W of Punta de Güiria, which can be approached to within ½ cable. There is a good landing beach in this bay and also in the bay on the W side of Punta Padilla.

Charts 2191, 230

Ensenada Garrapata

5.43

1 Ensenada Garrapata (10°39′N, 63°26′W) (Ensenada Garrapatal on Chart 230), entered W of a point 1½ miles SW of Punta del Taquién (5.29), has depths of less than 5·5 m in it. The W entrance point of the bay is the extremity of a small peninsula ending in a rounded hill and

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joined to the mainland by a sandy isthmus; the peninsula resembles an island and is a good mark for identifying the bay. Two above-water rocks lie 4 cables NE of this point.

2 A village stands at the E end of the bay.

PASSAGE BETWEEN LOS TESTIGOS AND LOS FRAILES

General information

Charts 1480, 2191

Route

5.44

1 From a position about 8 miles N of Cabo Mala Pascua (10°43′N, 63°00′W) the route leads NW for 48 miles, passing between Los Testigos and Los Frailes (Archipiélago Los Frailles on Chart 2191) to a position about 20 miles NE of Cabo Negro (11°11′N, 63°53′W) (Cabo de la Isla on Chart 1480).

Depths

5.45

1 For a warning on depths in the vicinity of Los Testigos see 5.10.

Current

5.46

1 In 1939, a current with a rate of 3 kn was observed setting between 326° and 338° off Isla La Sola (11°19′N, 63°34′W) (La Sola on Chart 1480).

Principal marks

5.47

1 **Major lights:**

Puerto Santo Light (10°44′N, 63°10′W) (5.28).
Isla Testigo Grande Light (11°23′N, 63°07′W) (5.13).
Cabo Negro Light (11°11′N, 63°53′W) (5.13).

Directions

(continued from 5.23)

5.48

1 From a position about 8 miles N of Cabo Mala Pascua (10°43′N, 63°00′W) the track leads NW, passing (with positions relative to Isla Testigo Grande Light (11°23′N, 63°07′W)):

SW of Cumberland Bank (13 miles S), reported by HMS *Cumberland* in 1852, thence:

2 SW of Daring Shoal (8½ miles SSW), reported by HMS *Daring* in 1952, thence:

SW of Los Testigos; a light (5.13) is exhibited from Isla Testigo Grande, the largest island. In 1952, a shoal with a depth of 10·1 m (33 ft) over it was reported to lie 4½ miles SW of Isla Testigo Grande. Thence:

3 Clear of Isla La Sola (27 miles WSW) (La Sola on Chart 1480) and NE of Los Frailes (Archipiélago Los Frailles on Chart 2191) (5.56), from the largest island of which a light is exhibited. La Sola is a dark rock and steep-to. Thence:

NE of Roca del Norte (38 miles WSW) (North Rock on Chart 1480) (5.15).

The track then leads to a position about 20 miles NE of Cabo Negro (47 miles WSW) (Cabo de la Isla on Chart 1480), where it joins the route (5.15) leading from N of Los Testigos to Cabo Negro.

ISLA DE MARGARITA AND ADJACENT ISLANDS INCLUDING THE NORTH COAST OF PENÍNSULA DE ARAYA

GENERAL INFORMATION

Chart 2191

Area covered

5.49

1 This section covers the coastal waters around Isla de Margarita (11°00′N, 64°00′W) and the channels between Isla de Margarita and the N coast of Península de Araya. It is arranged as follows:

East coast of Isla de Margarita (5.51).
North and W coasts of Isla de Margarita (5.57).
South coast of Isla de Margarita and Canal de Margarita (5.64).
North coast of Península de Araya (5.85).

General remarks

5.50

1 **Estado Nueva Esparta.** Isla de Margarita is the largest of a group of islands, known collectively as Estado Nueva Esparta, lying up to 35 miles N of Península de Araya. The other islands of the group are Los Frailes (11°14′N, 63°45′W), Isla Coche (10°47′N, 63°57′W) and Isla Cubagua (10°49′N, 64°11′W). La Asuncion (11°02′N, 63°52′W) is the capital of Estado Nueva Esparta; the population of the state was estimated to be 326 000 in 1995.

2 On Isla de Margarita, the climate of which is good, most of the people live in the E part of the island. The principal occupations are fishing and pearling. The island is a popular holiday and weekend resort for Caracas; it is easily reached by ferry or by air to Porlamar (10°57′N, 63°51′W). The main port of entry is Puerto El Guamache (5.72), on the S side of the island.

3 **Topography.** Isla de Margarita is divided into two rugged and mountainous parts by a low sandy isthmus 2½ miles wide; when seen from a short distance N, it appears as two separate islands. In the E and larger part of the island, Cerro San Juan (11°00′N, 63°55′W) attains an elevation of 988 m near the E end of Cerros de la Vega de Margarita (Chart 1480); this part is much broken and contains various peaks separated by cultivated valleys.

4 **Traffic.** In 1997 Isla de Margarita was visited by 250 vessels with a total of 373 076 dwt.

EAST COAST OF ISLA DE MARGARITA

General information

Charts 2191, 230

Route

5.51

1 From a position about 11 miles SE of Punta Ballena (11°00′N, 63°47′W) the route leads NW for 30 miles, passing between Los Frailes (Archipiélago Los Frailles on Chart 2191) and the E coast of Isla de Margarita, to a position about 9 miles N of Cabo Negro (11°11′N, 63°53′W).

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Topography

5.52

1 Between Punta Ballena and Punta Montadero (Cabo Blanco on Chart 1480), 8½ miles NNW, the coast consists of an unbroken sandy beach, backed by farms and partially cultivated foothills; Cerro del Balantia rises 5 miles NW of Punta Ballena to an elevation of 672 m. North of Pointe Montadero the coast is formed by a level sandy beach as far as Isletas del Cabo, 1¼ miles SE of Cabo Negro.

Caution

5.53

1 Care should be taken when navigating near Los Frailes, as at night soundings give no warning of their presence.

Principal mark

5.54

1 **Major light:**

Cabo Negro Light (11°11′N, 63°53′W) (5.13).

Directions

(continued from 5.29)

5.55

1 From a position about 11 miles SE of Punta Ballena (11°00′N, 63°47′W) the track leads NW, passing (with positions relative to Punta Ballena):

NE of a patch (2 miles SE), with a depth of 9·6 m over it, lying 2 miles E of Isla Blanca (Islote Farallón Blanco on Chart 2191); a light (round GRP tower with orange and white bands, 3 m in height) is exhibited from the islet. The islet is nearly 30 m high with a white top and dark base. Thence:

2 NE of Punta Ballena, from which a light (round GRP tower with orange and white bands, 12 m in height) is exhibited. Punta Ballena is a rocky headland 70 m high, joined to Isla de Margarita by sandy flats and banks. Thence:

NE of Punta Montadero (8½ miles NNW), a well defined light-grey rocky point, thence:

3 SW of the main islands of Los Frailes (Archipiélago Los Frailles on Chart 2191) (12½ miles NNE) (5.56); a light (GRP framework tower with white and orange bands) is exhibited from the largest island. Thence:

NE of Isletas del Cabo (11½ miles NNW), lying up to 4 cables off an irregular part of the coast, thence:

4 NE of Cabo Negro (12½ miles NNW), the N extremity of Isla de Margarita, thence:

SW of Roca del Norte (16 miles N) (5.15) the N–most of Los Frailes.

The track then leads to a position about 9 miles N of Cabo Negro.

(Directions continue at 5.59)

Off-lying islands

Los Frailes

5.56

1 **Description.** Los Frailes (11°14′N, 63°45′W) (Archipiélago Los Frailles on Chart 2191), a group of eight cliffy islands and rocky islets forming the NE of Estado Nueva Esparta, lie 7 miles ENE of Cabo Negro. Isla Puerto Real, the S–most and largest island, is 125 m high; a light (5.55) is exhibited from this island.

2 **Anchorages.** Good anchorages can be obtained abreast some huts used by fishermen on the SW side of Isla Puerto Real, in depths from 9 to 15 m about 1½ cables offshore.

NORTH AND WEST COASTS OF ISLA DE MARGARITA

General information

Charts 2191, 230

Route

5.57

1 From a position about 9 miles N of Cabo Negro (11°11′N, 63°53′W) the route leads initially WSW for 42 miles, off the N coast of Isla de Margarita, to a position about 5 miles NW of Bajo Ostial Light-beacon (11°03′N, 64°29′W).

2 The route then leads S for about 6 miles, off the W end of Isla de Margarita, and thence SSE for a farther 18 miles to a position about 11 miles WNW of Punta Escarceo (10°40′N, 64°16′W), the NE extremity of Península de Araya.

Principal marks

5.58

1 **Landmark:**

Cerros del Macanao (11°00′N, 64°18′W), a rocky range of four peaks standing on the W part of Isla de Margarita.

Major lights:

Cabo Negro Light (11°11′N, 63°53′W) (5.13).

2 Punta Faragoza Light (rubblework, white and orange stripes, 23 m in height) (11°08′N, 63°56′W).

Directions

(continued from 5.15 and 5.55)

Cabo Negro to Bajo Ostial

5.59

1 From a position about 9 miles N of Cabo Negro (11°11′N, 63°53′W) the track leads WSW, passing (with positions relative to Cabo Negro):

NNW of Cabo Negro, from which a light is exhibited (5.13); patches, with depths of 12 and 15 m over them, lie 5 and 7½ miles NW of the cape. Thence:

2 NNW of Punta Faragoza (4¼ miles SW), from which a light (5.58) is exhibited, thence:

NNW of Isleta Galera (5¾ miles SW), thence:

NNW of Punta Galera (7 miles SW), a high point forming the N extremity of Cerro Galera, a barren headland with an elevation of 91 m, thence:

3 NNW of Punta de Tigre (19¾ miles WSW), from which rise the NE slopes of Cerros del Macanao (5.58). The point is fringed by rocks and there are sometimes heavy breakers off it. A light (round GRP tower, orange and white bands, 12 m in height) is exhibited from a position 1½ miles W of Punta de Tigre. Thence:

NNW of Morro de Robledal (30¾ miles WSW), the NW extremity of Isla de Margarita; a light (white GRP tower, orange bands, 10 m in height) is exhibited from the headland.

4 The track then leads to a position about 5 miles NW of Bajo Ostial Light-beacon (W cardinal) (36¼ miles WSW), marking the NW side of Bajo Ostial. In 1961 shoaling was reported N of Bajo Ostial (5.60).

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Bajo Ostial to Punta Escarceo

5.60

1 From the position about 5 miles NW of Bajo Ostial Light-beacon (11°03′N, 64°29′W) the track leads initially S and then SSE, passing (with positions relative to Bajo Ostial Light-beacon):

W of Bajo Ostial, lying on the outer part of a bank which extends 10 miles from the W coast of Isla de Margarita between Morro del Robledal and Punta Arenas, 4½ miles SSW. The bay between these points is known as Ensenada de Macanao. Thence:

2 WSW of Punta Arenas (6 miles SE); Punta Manglillo Light (round GRP tower with orange and white bands, 12 m in height) is exhibited from a point 3½ miles ESE of Punta Arenas. Thence:

WSW of Isla Cubagua (20½ miles SE).

The track then leads to a position about 11 miles WNW of Punta Escarceo (26½ miles SSE).

(Directions continue for a route SSE to Cumaná at 5.99)

Side channel

Baja Ostial

5.61

1 **Description.** Vessels may use the channel lying between Baja Ostial (11°03′N, 64°29′W) and the W coast of Isla de Margarita, but there are depths of less than 10 m in it. From the N the track leads S, passing about 2¾ miles W of Morro de Robledal (11°03′N, 64°23′W), from which a light (5.59) is exhibited, and thence W of Punta Arenas out into the open sea.

2 **Useful mark:**

Light (GRP hexagonal tower, orange and white bands) exhibited from Robledal (11°01′·5N, 64°22′·5W).

Bays and anchorages

Bahía de Juan Griego

5.62

1 **Description.** Bahía de Juan Griego (San Juangriego) (11°05′N, 63°59′W), a small bay, is entered between the SW side of the headland at Punta Galera (5.59) and Punta María Libre, nearly 2½ miles SW. Prominent on the shore of the bay are a red church with twin towers at Pueblo de Juan Griego (Juangriego), 2 miles S of Punta Galera, and a white monument standing 1¼ miles S of the point; none of these marks are charted.

2 **Pilotage.** A pilotage area is bounded seaward by the line joining Punta Galera and Punta María Libre. Vessels embark a pilot seaward of this line.

Directions. The bay is approached from the W. Care should be taken to avoid a rocky shoal, known locally as Los Venados, with a least depth of 3·6 m over it, lying near the middle of Bahía de Juan Griego 1 mile W of the church; the shoal is marked on its W side by a buoy.

3 **Anchorage.** Vessels may obtain anchorage, sheltered from the NE, in a depth of 11 m with the white monument bearing 105°, distant 1 mile. During the months of August, September and October, the wind generally blows from the NW, raising a swell in the bay.

Berth. There is a wharf in the bay; length 132 m, 1·6 m wide, with a maximum depth of 4·0 m alongside; only suitable for small vessels.

Ensenada La Guardia

5.63

1 **Description.** Ensenada La Guardia is entered between Punta María Libre (11°04′N, 64°01′W) and Punta de Tigre (5.59), 11 miles W. A patch, with a depth of 7·6 m over it, lies 5 cables W of Punta María Libre.

Pueblo de La Guardia, with a prominent church, stands on the shore of the bay 4 miles S of Punta María Libre. The head of the bay, W of the town, consists of a low sandy beach, backed by swamps and mangroves.

2 **Landmark:**

Las Tetas de María Guevara (10°57′N, 64°07′W) (not charted) (5.69).

SOUTH COAST OF ISLA DE MARGARITA AND CANAL MARGARITA

General information

Chart 230

Route

5.64

1 From a position about 11 miles SE of Punta Ballena (11°00′N, 63°47′W) the route along the S coast of Isla de Margarita leads generally W, for about 52 miles, through Canal de Margarita to a position 9 miles SW of Punta Arenas (10°58′N, 64°25′W). Canal de Margarita is the channel between the S side of Isla de Margarita and the N sides of Isla Coche (10°47′N, 63°57′W) and Isla Cubagua (10°49′N, 64°11′W).

2 Passage through Canal de Margarita presents no difficulties unless lights on any of the navigational aids are extinguished. The area is notably free from rain restricting visibility.

Topography

5.65

1 Between Punta Ballena (11°00′N, 63°47′W) and Morro el Palmar (El Morro on Chart 2191), 3¾ miles SW, the S coast of Isla de Margarita recedes to form Bahía Palmar which has a sandy beach. Between Morro el Palmar and Punta Mosquito, 5½ miles SW, lies Bahía La Mar. The shore of this bay is low and backed by a plain, from which the mountains arise abruptly.

2 Between Punta Mosquito and Punta Mangle, 10 miles W, the coast is low and sandy. From Punta Mangle (10°52′N, 64°04′W) to Punta Manzanillo, 9 miles NW, the coast is indented by Bahía de Guamache and Bahía de Mangle; the shores of Bahía de Guamache are flat and sandy, whilst the shores of Bahía de Mangle are low-lying, mostly covered by mangroves and broken by lagoons.

3 From Punta Manzanillo to Punta Arenas, 12 miles WNW, the coastline becomes more regular in shape, although between Punta Curichicual (10°58′N, 64°20′W) and Punta Arenas the coast is cliffy.

Controlling depths

5.66

1 In Canal de Margarita the least depth in mid-channel between the N and S 20 m depth contours is 18 m, situated 1½ miles N of Punta La Playa (10°49′N, 64°00′W). However, in the E approaches to the channel, there is an isolated shoal, reported to have a depth of 13·6 m over it, 7½ miles SSE of Punta Ballena (11°00′N, 63°47′W).

Submarine pipelines and cables

5.67

1 Several submarine pipelines and submarine cables have been laid across the approaches to Canal de Margarita and

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also within the channel. There positions can best be seen on the chart. Mariners should not anchor or trawl in the vicinity of these pipelines and cables.

2 For further information on submarine pipelines see 1.14; for information on submarine cables see 1.42

Fishing

5.68

1 It has been reported (1994) that large concentrations of fishing boats and associated gear may be encountered between Punta Ballena (11°00′N, 63°47′W) and Punta Mosquito, 10 miles SW.

Principal marks

5.69

1 **Landmark:**

Las Tetas de María Guevara (10°57′N, 64°07′W), which are twin peaks standing near the middle of the isthmus joining the E part of Isla de Margarita with the W part.

2 **Major light:**

Punta Mosquito Light (white GRP tower, orange bands, 10 m in height) (10°53′N, 63°49′W).

Directions

(continued from 5.29)

Punta Ballena to Punta La Playa

5.70

1 From a position about 11 miles SE of Punta Ballena (11°00′N, 63°47′W), from which a light (5.55) is exhibited, the track leads W, passing (with positions relative to Punta Mosquito (10°53′N, 63°49′W)):

Clear of an isolated shoal (9½ miles E), with a depth of 13·6 m over it, thence:

2 S of Isla Blanca (7¾ miles NE) (Islote Farallón Blanco on Chart 2191), from which a light (5.55) is exhibited, thence:

S of Morro el Palmar (El Morro on Chart 2191), which is bold and appears as three humps from S and NNE; a patch, with a depth of 14 m over it lies 2¾ miles SSW of the headland. Thence:

3 S of Punta Mosquito from which a light (5.69) is exhibited. The point is of a reddish-brown colour and from a distance it resembles an island as it is slightly higher than the adjacent ground and the land N of it is very low. And:

N of a bank (3 miles S), with a least depth of 6·3 m over it, fronting the NE extremity of Isla Coche, thence:

4 S of a bank (2½ miles WSW), with depths of less than 10 m over it, extending 3 miles WSW from Punta Mosquito.

The track then leads to a position about 1¾ miles N of Punta La Playa (7 miles SW). A bank, with depths of less than 5 m over it, extends 1½ miles N of Punta La Playa, the NW extremity of Isla Coche; the N side of the bank is marked by Caracare Light-buoy (N cardinal).

5 **Useful marks:**

Radio tower (red obstruction lights) (10°59′N, 63°55′W), the position of which is approximate, standing on the S side of Cerro Las Minas.

La Puntilla Light (white rubblework hexagonal tower, 15 m in height) (10°57′N, 63°51′W).

Aero light (10°54′N, 63°58′W), exhibited from the roof of an airport control tower.

Punta La Playa to Punta Arenas

5.71

1 From the position about 1¾ miles N of Punta La Playa (10°49′N, 64°00′W) the track continues generally W, passing (with positions relative to Punta Charagato (10°51′N, 64°10′W)):

S of Muelle Corpoven (7¾ miles E), part of an oil terminal (5.81). Acueducto Light (metal tower, 4 m in height) is exhibited from a structure 7 cables NW of Muelle Corpoven. Thence:

2 S of a bank, with depths of less than 5 m over it, extending 7½ cables S of Punta Mangle (5¾ miles ENE); Punta Mangle Light-buoy (S cardinal) marks the SW edge of the bank. Punta Mangle, a low sandy promontory projecting nearly 1 mile WSW from the coastline, is easily identified by its dense green mangroves; a light-beacon (metal tower, starboard hand, 4 m in height) stands close WNW of the point. And:

3 N of the bank (4 miles ESE) which connects Isla Coche with Isla Cubagua. There are least depths near the middle of the bank of 8·4 m about 2½ miles W of the NW point of Isla Coche, and of 9·6 m about 3½ miles ESE of the E extremity of Isla Cubagua. Caution is necessary when navigating in the vicinity of the bank as depths less than charted may exist. Thence:

4 S of a bank, with depths of less than 10 m over it, extending 1¾ miles S from Punta de Piedras (4½ miles NNE) (5.82), thence:

N of Punta Charagato, the N extremity of Isla Cubagua; a light (white GRP tower, red bands, 10 m in height) is exhibited from the point and there is a conspicuous stranded wreck on its W side. Isla Cubagua is bare and flat-topped with bluffs up to 24 m high. Thence:

5 S of the bank extending S from Punta Manzanillo (6¼ miles NNW), with depths of less than 10 m over it; a radio tower (red obstruction lights), the position of which is approximate, stands close within the point. And:

N of Punta Brasil (3¼ miles W), the NW extremity of Isla Cubagua from which a light (round GRP tower, 10 m in height) is exhibited. A bank, with depths of less than 20 m over it, extends 3¼ miles W from the island.

6 The track then continues W to a position about 9 miles SW of Punta Arenas (12 miles NW) joining the route (5.60) passing W of Isla de Margarita.

Useful marks:

Bahía de Guamache Light-beacon (isolated danger) (10°53′N, 64°04′W).

Punta de Piedras Light-beacon (isolated danger) (10°54′N, 64°07′W).

Puerto El Guamache

Chart 230 plan of Bahía de Guamache

General information

5.72

1 **Position and function.** Puerto El Guamache (10°52′N, 64°04′W) is situated on the SE side of Bahía de Guamache, which is entered between Punta Mangle and Punta de Piedras, 3¼ miles NW. The port handles general cargo and is used by cruise liners.

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2 **Traffic.** In 1997 the port was used by 419 vessels with a total of 2 759 010 dwt.

Port Authority. Consorcio Guaritico-Guaritico III, Municipio Tubores, Puerto El Guamache, Isla de Margarita, Estado Nueva Esparta, Venezuela.

Limiting conditions

5.73

1 **Density of water.** 1·025 g/cm^3.

Maximum size of vessel handled. MV *Dawn Princess;* 77 441 dwt, length 261 m, draught 8·12 m.

Arrival information

5.74

1 **Port radio.** There is a port radio station at Puerto El Guamache. For further information see *Admiralty List of Radio Signals Volume 6 (5).*

Notice of ETA required. An ETA should be sent 72, 48 and 24 hours in advance.

2 **Outer anchorage.** Vessels can anchor as convenient in Bahía de Guamache as the depths decrease gradually towards the shore and the bottom is sandy; a spit, with depths of less than 4·0 m over it, extending 6 cables SSW from Punta de Piedras (10°54′N, 64°06′W) should be avoided. Attention is also drawn to a shoal, with a depth of 3·9 m over it, lying 8 cables SE of Punta de Piedras; the shoal is marked by a light-buoy (S cardinal).

3 Vessels normally anchor in depths from 14 to 18 m W of Punta Mangle (10°52′N, 64°04′W).

Pilotage is compulsory; pilots will board a vessel on arrival or at anchor. The pilot boarding station, as shown on the chart, is situated 1 mile NW of Punta Mangle. Care should be undertaken when a vessel is underway while picking up the pilot as the pilot launch is low powered.

4 For further information see *Admiralty List of Radio Signals Volume 6 (5).*

Tugs are available.

Harbour

5.75

1 **General layout.** The port consists of a wharf, aligned 060°/240°, situated on the NW side of Punta Mangle.

Local weather. The prevailing winds are from the E. There is a rainy season from September through to December.

Directions

5.76

1 **General remarks.** There are no specific directions for entering Bahía de Guamache although the following clearing bearing may be of use:

The line of bearing not less than 333° of the W peak of Las Tetas de María Guevara (10°57′N, 64°07′W) clears W of the bank extending from Punta Mangle. The lights of Pueblo de Tubores (10°54′N, 64°06′W) on the same bearing also clears the bank.

2 After the pilot is embarked a vessel approaches the wharf from the W, berths starboard side to, and lets go the port anchor; a boat assists with mooring lines.

Useful marks:

Punta Mangle Light (10°52′N, 64°04′W) (5.71).

Bahía de Guamache Light-beacon (isolated danger) (10°53′N, 64°04′W).

3 Punta de Piedras Light-beacon (isolated danger) (10°54′N, 64°07′W).

Berth

5.77

1 The wharf, a concrete structure with rubber fendering, is 126 m long, with a depth of 11 m alongside. Extensions at either end of the wharf increase the berthing length to 270 m.

Port services

5.78

1 **Repairs.** Limited repairs available.

Other facilities: hospital at Porlamar; oily waste collection by road tanker; garbage collection not possible.

Supplies: fuel oil available by road tanker; freshwater and provisions obtainable.

2 **Communications:** airport about 12 km distant from the port; ferry services to the mainland operate from Punta de Piedras (10°54′N, 64°06′W) (5.82).

Minor harbours and anchorages

Bahía Pampatar

5.79

1 **Description.** Bahía Pampatar, fronted by Isla Blanca (Islote Farallón Blanco on Chart 2191) (5.55), is entered between Punta Ballena (11°00′N, 63°47′W) and Morro el Palmar (El Morro on chart 2191), 3¾ miles SW. Its sandy beach is divided by a rocky point, 1¾ miles WSW of Punta Ballena, into two parts, in the N of which stands Pueblo de Pampatar; Puerto Moreno forms the S part.

2 **Traffic.** In 1997 the bay was used by 11 vessels with a total of 1430 dwt.

Landmarks:

Cathedral with a square tower, the grey custom house, and an old fort with two towers standing on the shore of the bay at Pueblo de Pampatar.

Water tower standing on a hill NW of the town.

3 **Pilotage.** A pilotage area is bounded seaward by the line joining Punta Ballena and Morro el Palmar. Vessels should embark the pilot seaward of this line.

Anchorage. Good anchorage can be obtained in a depth of 7 m about 1·1 miles WSW of Punta Ballena; it is sufficiently sheltered from the swell for discharging cargo into small craft.

4 **Berth.** At Pueblo de Pampatar there is a small pier; reported in 1991 to be in a dilapidated condition.

Bahía La Mar

5.80

1 **Description.** Bahía La Mar is entered between Morro el Palmar (10°57′N, 63°49′W) and Punta Mosquito, from which a light (5.69) is exhibited, 5½ miles SW. Pueblo de Porlamar (10°57′N, 63°51′W), the principal town on Isla de Margarita, stands on the N shore of the bay.

Submarine cables are landed at a white hut on the N shore of Bahía La Mar; for further information on cables see 1.42.

2 **Pilotage.** A pilotage area is bounded seaward by the line joining Morro el Palmar and Punta Mosquito. Vessels should embark the pilot seaward of this line.

Directions. Local knowledge is required for entering the bay; attention is drawn to two stranded wrecks and several shoal patches lying within the 10 m depth contour, as shown on the chart.

3 **Useful marks:**

La Puntilla Light (5.70).

Porlamar Church standing in the centre of Pueblo de Porlamar.

Anchorage. Vessels may obtain anchorage in a depth of 9 m with Porlamar Church bearing 000° and the S

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extremity of Morro el Palmar bearing 061°. More sheltered anchorage in the same depth is found in the lee of Morro el Palmar with the church bearing 308° and the S extremity of the headland bearing 075°.

4 **Berth.** At Porlamar the main wharf is 288·5 m long and 11·9 m wide, with a depth of 2 m alongside. Used by passenger vessels from Puerto La Cruz and Cumaná.

Facility. There is a hospital in Pueblo de Porlamar.

Supplies. Fresh and dry provisions obtainable.

Small craft:

Wharf near the main wharf at Porlamar, used by motor boats; depth of 2 m alongside.

5 Marina, situated on the NW side of Morro el Palmar; a large hotel stands close E of the marina.

Oil terminal

5.81

1 **Position and function.** A tank farm complex stands 7½ cables W of Punta Carnero (10°53′N, 64°01′W); it is operated by Corpoven SA.

Prohibited anchorage. It is prohibited to anchor within an area, shown on the chart, close W of the terminal pier due to submarine pipeline works.

2 **Berth.** Muelle Corpoven, a sea berth, is situated 8 cables off the coast S of the tank farm. The berth is connected to the shore by submarine pipeline; the pipeline is marked on the chart as position doubtful. The berth, which is well illuminated at night, has mooring and breasting dolphins on each side connected by catwalks.

Punta de Piedras

5.82

1 **Position and function.** At Punta de Piedras (10°54′N, 64°06′W), the NW entrance point of Bahía de Guamache, there is a small harbour which is used by ferries from Puerto La Cruz and Cumaná. Pueblo de Tubores stands close E of Punta de Piedras.

Useful mark:

Punta de Piedras Light-beacon (isolated danger) (10°54′N, 64°07′W).

2 **Berths.** There are three docks at Punta de Piedras, of which one is public; the other two are private and are where the ferries berth.

The public dock is 212 m long, 17·9 m wide and has a maximum depth of 4 m alongside.

Small craft

Chart 230

Isla Coche

5.83

1 Anchorage can be obtained in suitable depths anywhere around Isla Coche (10°47′N, 63°57′W). The best berth is off the SW point of the island in a depth of 13 m. Local knowledge is required.

Bahía de Mangle

5.84

1 Bahía de Mangle is entered between Punta de Piedras (10°54′N, 64°06′W) and Punta Manzanillo, 6½ miles WNW. There is a popular anchorage for recreational vessels in the channel leading to Laguna de la Restinga, off Boca del Río, at the head of the bay. Laguna de la Restinga is a tourist attraction noted for its natural beauty, its mangroves and its transparent calm waters.

2 Care needs to be taken in the approach to Boca del Río to avoid a dangerous wreck and dangerous rock, both reported in 1990, lying respectively, 3 miles ENE and 2¼ miles NE of Punta Manzanillo.

NORTH COAST OF PENÍNSULA DE ARAYA

General information

Chart 230

Route

5.85

1 From a position about 11 miles SE of Punta Ballena (11°00′N, 63°47′W) the route along the N coast of Península de Araya leads initially SW for 17½ miles, passing through a shallow passage between Morro de Chacopata (10°43′N, 63°49′W) and Isla Coche, 5 miles NW. The route then leads W, for a farther 33 miles, to a position about 11 miles WNW of Punta Escarceo (10°40′N, 64°16′W), the NE extremity of Península de Araya.

Topography

5.86

1 Península de Araya forms the coast from Morro de Chacopata to Punta Escarceo, 26 miles W. On the S side of the peninsula lies Golfo de Cariaco. Tetas de Cariaco, with twin peaks, situated 10 miles SW of Morro de Chacopata, appear to be the highest and most prominent summits of Península de Araya.

Depths

5.87

1 In the passage between Morro de Chacopata and Isla Coche there are general depths of more than 5 m over a width of 1½ miles. Depths of less than 5 m lie up to 1½ miles off the SE coast of Isla Coche and off Morro de Chacopata.

Submarine pipelines and cables

5.88

1 Several submarine pipelines and submarine cables have been laid across the channel between Morro de Chacopata and Isla Coche. Another submarine cable is laid between Isla de Margarita and Cumaná, passing W of Isla Cubagua and Bajo de Araya. The positions of the pipelines and cables are best seen on the chart.

2 Mariners should not anchor or trawl in the vicinity of these pipelines and cables. For further information on submarine pipelines see 1.14; for information on submarine cables see 1.42.

Current

5.89

1 Off the N coast of Península de Araya, the current sets generally W with a rate seldom exceeding ½ kn.

Local knowledge

5.90

1 The passage between Morro de Chacopata and Isla Coche has not been properly surveyed and should only be used by vessels of shallow draught. Local knowledge is required.

Principal marks

5.91

1 **Landmarks:**

Pico del Este (10°37′N, 63°42′W) (Chart 1480), with an elevation of 426 m (1400 ft).

Cerro de Chacopata (Chart 1480), 5½ miles WSW of Pico del Este, with a similar elevation.

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Directions
(continued from 5.29)

5.92

1 From a position about 11 miles SE of Punta Ballena (11°00′N, 63°47′W) the track leads initially SW for 14 miles to a position about 1¼ miles N of Morro de Chacopata (10°43′N, 63°49′W). Thence the line of bearing 240° of a rock 23 m high close SE of Islote Lobos (10°41′·5N, 63°52′·5W) continues to lead SW, through a channel with a least charted depth of 8·0 m in it, passing (with positions relative to Morro de Chacopata):

2 NW of Morro de Chacopata from which a light (white metal framework tower, black bands, 9 m in height) is exhibited. Morro de Chacopata is a bold rocky headland 50 m high and reddish in colour; the coast SE of the headland is low and backed by a sandy plain. Thence:

3 SE of a patch (1¾ miles WNW), reported in 1961 to have a depth of 4·6 m over it, the position of which is approximate.

When Morro de Chacopata bears 090° the track then leads W for about 8 cables until the W extremity of Isla Caribe (2½ miles SW) bears 180°. Thence the track leads WSW to a position about 5 cables N of Islote Lobos (4 miles WSW), passing SSE of the shoal water fronting El Guamache (5¼ miles NW), the SE extremity of Isla Coche; bluffs up to 61 m high rise from the SE end of the island.

4 From the position 5 cables N of Islote Lobos, the track then leads W, passing (with positions relative to Punta La Playa (10°39′N, 64°03′W)):

N of Islotes Las Tunas (4½ miles ENE), three low bare islets lying from 1 mile NW to 3 miles NNW of Punta Caimanes; the islets are steep-to. The middle and highest of Islotes Las Tunas is white, and the other islets are brown. Thence:

5 N of Punta La Playa, the E extremity of Morros de la Peña, a rocky and dark-coloured headland, thence:

N of a shoal, with a depth of 5·5 m over it, fronting Punta Colorada (1¼ miles W), the W extremity of Morros de la Peña. Between Punta Colorada and Punta La Crucecita, 2½ miles WSW, the coast is rocky. Thence:

6 N of a shoal, with a depth of 5·0 m over it, fronting Punta Baindra (8¾ miles W), the W entrance point of Bahía Salinas; the point is a low and rocky bluff. Bahía Salinas has a sandy beach, and Punta Manglarcito within the bay is rocky. Thence:

S of the bank, with depths of less than 10 m over it, extending 2 miles S from Isla Cubagua (12¼ miles NW), thence:

7 N of the shallow bank fronting Punta Escarceo (12¾ miles W), the N extremity of a headland 4½ miles WNW of Punta Baindra; the headland is slightly higher than the land in its vicinity. The coast between Punta Baindra and Punta Escarceo is low and flat. Thence:

N of Bajo de Araya (16 miles W) (5.99), the NW edge of which is marked by a light-buoy (W cardinal). Care is necessary if rounding Bajo de Araya as the currents are strong and variable.

8 The track then leads to a position about 11 miles WNW of Punta Escarceo (10°40′N, 64°16′W).

(Directions continue for the coastal route SSE at 5.99)

Anchorage

Bahía de Chacopata

5.93

1 **Description.** Bahía de Chacopata lies between Morro de Chacopata (10°43′N, 63°49′W) and Punta Caimanes, 9½ miles SW. The bay is approached, either from the E through the shallow passage between Morro de Chacopata and Isla Coche, the directions for which are given at 5.92, or from the W passing along the N coast of Península de Araya.

2 **Anchorage.** Bahía de Chacopata affords anchorage 8 cables SE of Islote Lobos, in depths from 9 to 11 m. Care is necessary to avoid a 1·5 m patch lying 5 cables S of Isla Caribe.

Better shelter can be obtained by anchoring off the SW extremity of Isla Coche; see 5.83.

PENÍNSULA DE ARAYA TO ISLAS DE PÍRITU

GENERAL INFORMATION

Chart 2191

Area covered

5.94

1 This section covers the coastal waters from Península de Araya to Islas de Píritu, 48 miles SW, including Golfo de Cariaco. The section is arranged as follows:

West coast of Península de Araya (5.95).
Golfo de Cariaco and approaches (5.102).
Golfo de Cariaco to Isla La Borracha (5.121).

2 Puerto La Cruz and adjacent harbours (5.134).
Isla La Borracha to Islas de Píritu (5.166).

WEST COAST OF PENÍNSULA DE ARAYA

Chart 230

Route

5.95

1 From a position about 11 miles WNW of Punta Escarceo (10°40′N, 64°16′W), the NE extremity of Península de Araya, the route leads SSE for 13 miles to a position 8½ miles W of Punta Arenas (10°30′N, 64°14′W), off the entrance to Golfo de Cariaco (5.102).

Topography

5.96

1 Between Punta Cardón (10°40′N, 64°16′W), the W extremity of the headland at Punta Escarceo (5.92), and Punta de Araya 2 miles SW, the coast is low and sandy. Scattered huts stand near the latter point. From Punta de Araya, a low sandy beach extends 2½ miles SSE to Punta de Piedra.

2 Between Punta Barrigón (10°33′N, 64°16′W) and Punta Arenas, 3¼ miles SE, there are cliffs up to 18 m high.

Submarine cable

5.97

1 A submarine cable laid between Isla de Margarita and Cumaná (10°28′N, 64°11′W), lies close off the W coast of Península de Araya. Mariners should not anchor or trawl in the vicinity of the cable. For further information on submarine cables see 1.42.

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Principal mark

5.98

1 **Landmark:**

Cerro Barrigón (10°33′N, 64°15′W) (not named on chart), standing 7½ cables NE of Punta Barrigón, with an elevation of 150 m.

Directions

(continued from 5.60 and 5.92)

5.99

1 From a position about 11 miles WNW of Punta Escarceo (10°40′N, 64°16′W) the track leads SSE, passing (with positions relative to Punta Escarceo):

WSW of the NW extremity of Bajo de Araya (2¾ miles W), marked by a light-buoy (W cardinal); the bank, with depths of less than 20 m over it, extends 3 miles WNW from the coast between Punta Escarceo and Punta de Araya. The bank is steep-to so that soundings cannot be relied on to give warning of its proximity; it should be given a wide berth. Discoloured water at the edge of the bank may be seen under favourable conditions. Thence:

2 WSW of a dangerous wreck (3½ miles WSW) lying on the SW side of Bajo de Araya. On this side of the bank depths of 2 m or less, on which the sea breaks during strong winds, extend 1¾ miles NW from Punta de Araya. Thence:

WSW of Punta Chica (3 miles SW), the SW extremity of Punta de Araya, thence:

3 WSW of Punta de Piedra (4¼ miles SSW), a bold headland with a frontage about 5 cables in extent, thence:

WSW of Punta Barrigón (7 miles S).

The track then leads to a position 8½ miles W of Punta Arenas (9½ miles S) (5.108). A light is exhibited from a position 8 cables NW of Punta Arenas.

4 **Clearing bearing.** At night the line of bearing of less than 130° of the town lights of Cumaná (10°28′N, 64°11′W) clears SW of Bajo de Araya. Intervening high land on Península de Araya obscures these lights on a bearing of more than 130°.

(Directions continue, for Cumaná and entry into Golfo de Cariaco at 5.108, and for the coastal route WSW at 5.126)

Anchorage and minor harbour

West of Península de Araya

5.100

1 Vessels can anchor anywhere off the coast between Punta de Piedra (10°36′N, 64°17′W) and Punta Barrigón, 3½ miles SSE, avoiding the submarine cable (5.97) laid between Isla de Margarita and Cumaná.

Pueblo de Araya

5.101

1 **Position and function.** Pueblo de Araya (10°34′N, 64°16′W) stands at the head of Ensenada de Araya, a sandy bay. The chief industry is a saltworks.

Traffic. In 1997 the port was used by eight vessels with a total of 19 472 dwt.

Useful mark:

A prominent blue and white building stands on the quay at Pueblo de Araya.

2 **Berths:**

Quay at the saltworks; length 396 m with a depth of 10 m alongside.

Pier extending 122 m from the shore at Pueblo de Araya; it has a depth of 7 m alongside its outer end, off which there are two mooring buoys.

GOLFO DE CARIACO AND APPROACHES

General information

Chart 230

Route

5.102

1 From a position 8½ miles W of Punta Arenas (10°30′N, 64°14′W), off the entrance to Golfo de Cariaco, the track leads initially ESE, for about 8½ miles, to a position 2 miles S of Punta Arenas. The route then leads NE, for a farther 4 miles, into Golfo de Cariaco.

Topography

5.103

1 **Golfo de Cariaco.** The N shore of Golfo de Cariaco is backed by steep mountains and lined with small towns and fishing hamlets, which include Manicuare, Mero, Mérito, Los Cachicatos, Guacarapo and Chiguana.

The S shore of the gulf is backed by Ciudad de Cumaná, at its W end, and by several villages and farm land on a plain, from which rise the foothills of a mountain range. Many streams flow into the gulf along this shore.

2 **Mainland coast south-west of Cumaná.** Between Cumaná (10°28′N, 64°11′W) and Punta Piedras, 3½ miles SW, the coast is low and sandy. From Punta Piedras to Barranca de Mochima, 6 miles W, the coast consists of low cliffs interrupted by sandy beaches and small shallow coves.

Depths

5.104

1 There is a least charted depth in the entrance to Golfo de Cariaco of 34 m. The shores of the gulf are fringed by banks in places, but there are no outlying dangers.

Submarine pipelines and cables

5.105

1 Several submarine pipelines and cables have been laid across the entrance to Golfo de Cariaco and across the W part of the gulf from Cumaná to Mérito, 6½ miles NNE. There is also a submarine cable laid from the N side of Cumaná (10°28′N, 64°11′W), leading W through the entrance to Golfo de Cariaco and thence WSW along the coast towards Puerto La Cruz (5.134).

2 The positions of the pipelines and cables are shown on the chart. Mariners should not anchor or trawl in the vicinity of these pipelines and cables. For further information on submarine pipelines see 1.14; for information on submarine cables see 1.42.

Local magnetic anomaly

5.106

1 In 1939, an area of magnetic disturbance was reported to exist in the gulf.

Principal marks

5.107

1 **Landmarks:**

Cerro Barrigón (10°33′N, 64°15′W) (not named on chart) (5.98).

Castillo San Antonio (10°28′N, 64°10′W) (Chart 1629), a large rectangular building, elevation 55 m, standing on a hill in the E part of Ciudad de Cumaná.

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2 Silo (obstruction lights) (10°26′N, 64°12′W) (Chart 1629), situated close S of a disused airport in Ciudad de Cumaná.

Cerro Arrojata (10°23′N, 64°17′W), standing 7 miles SW of Cumaná.

Directions

(continued from 5.99)

5.108

1 From a position 8½ miles W of Punta Arenas (10°30′N, 64°14′W) the track leads ESE, passing (with positions relative to Punta Arenas):

NNE of Península de Manare (10 miles SE), thence:

NNE of Punta Cachimena (6½ miles SSW), the E entrance point of Puerto Escondido (5.119).

2 The track then leads to a position 2 miles S of Punta Arenas, from where Puerto Sucre at Cumaná (10°28′N, 64°11′W) (5.109) can be directly accessed. A light is exhibited from a position 8 cables NW of Punta Arenas. For vessels continuing into Golfo de Cariaco the track leads NE, passing (with positions relative to Punta Arenas):

3 SE of a bank, with depths of less than 20 m over it, extending 1¼ miles SE from Punta Arenas. It was reported in 1988 that a framework metal structure about 14 m high stood on Punta Arenas and that there was also a concrete structure about 9 m high situated about 1 cable SE of the point. Thence:

4 NW of Punta Carenero (3 miles SE).

Thence the track leads into the open waters of Golfo de Cariaco.

Useful mark:

Light (white concrete tower, orange bands, 3 m in height) (10°27′·6N, 64°11′·6W) exhibited from the main pier at Puerto Sucre.

Cumaná

Chart 1629

General information

5.109

1 **Position.** Cumaná (10°28′N, 64°11′W) is situated on the S entrance point of Golfo de Cariaco.

Function. Cumaná is served by the commercial port of Puerto Sucre, and also contains a fishing harbour, a ferry terminal and a marina for recreational craft. Puerto Sucre is principally a fishing port, but is used by oil companies to land cargo and equipment for the oilfields inland. The population of Ciudad de Cumaná is about 135 000.

2 **Port Authority.** Capetania de Puerto de Cumaná, Ed Advana, Puerto Sucre, Cumaná, Venezuela.

Limiting conditions

5.110

1 **Tidal levels.** Mean maximum range about 0·3 m; mean neap range about 0·0 m. For further information see the *Admiralty Tide Tables.*

Density of water. 1·025 g/cm^3.

Arrival information

5.111

1 **Port radio.** There is a port radio station at Cumaná. For further information see *Admiralty List of Radio Signals Volume 6 (5).*

Outer anchorage. Anchorage can be obtained by approaching Cerro Colorado (10°26′N, 64°12′W) on a bearing of 147°, anchoring immediately a depth of 27 m is reached; continuous and reliable soundings are essential as the bottom shoals very steeply. In 1980, large vessels were reported to be anchored by the pilots with the main pierhead bearing 049°, distant 2·3 miles.

2 Good holding ground of sand and mud is found at the anchorages.

Pilotage is compulsory for berthing and unberthing and is available 24 hours a day. Pilots will also anchor a vessel if required. Pilots board 5 cables W of the main pier at Puerto Sucre, as shown on the charts.

For further information see *Admiralty List of Radio Signals Volume 6 (5).*

3 **Tugs.** None available.

Harbour

5.112

1 **General layout.** The commercial port, Puerto Sucre, is situated along the W side of Cumaná, S of the mouth (10°28′·3N, 64°11′·5W) of Río Manzanares. A fishing harbour, protected by an L–shaped breakwater, is situated close N of the river mouth at Punta Carenero, and situated 3 cables farther NE there is the recreational harbour of Marina Deportiva Publica Cumanágoto (5.116).

2 **Climate.** The climate of Cumaná is generally very healthy, autumn being the least healthy season. The wind is usually offshore, but there is often a land and sea breeze, the latter setting in from about WNW.

Landmarks. See 5.107.

Directions for entering harbour

5.113

1 From a position 2 miles S of Punta Arenas the track leads ESE for about 2 miles to the pilot boarding station 5 cables W of the main pier (10°27′·6N, 64°11′·6W) at Puerto Sucre, passing NNE of the bank, with depths of less than 10 m over it, which fringes the coast SSW of Puerto Sucre. The bank, consisting of coarse sand and extending 1 mile offshore NW of Cerro Colorado, is marked on its N side by a light-buoy (W cardinal), moored 7½ cables SW of the main pier.

2 From the pilot station the berths are directly accessible.

Useful marks:

Light (10°27′·6N, 64°11′·6W) (5.108) exhibited from the head of the main pier at Puerto Sucre.

Silo, standing approximately 1 mile SSE of the head of the main pier at Puerto Sucre.

Berths

5.114

1 **Inner anchorage.** Good, but restricted, anchorage can be obtained off Puerto Sucre in a depth of about 60 m with the root of the main pier (10°27′·6N, 64°11′·6W) bearing between 069° and 075°, distant 4 cables. Depths increase rapidly offshore from this position. Farther inshore there is insufficient swinging room and a vessel is liable to obstruct traffic using the pier. The area N of this anchorage is usually occupied by fishing vessels.

2 **Puerto Sucre alongside berths.** The main pier at Puerto Sucre projects SW from the coast for nearly 2 cables. There are two berths at the outer end as follows:

North-west side; length 140 m; allowable draught 10·4 m.

South-east side; length 160 m; allowable draught 9·1 m.

3 Vessels secure heading NE. Manoeuvring space on the inshore side of the pier is restricted by the shore bank. There is a Ro-Ro berth at the pierhead.

Other berths. A vehicle ferry terminal is situated 5 cables N of the main pierhead; between them are several small piers for fishing boats. A small harbour, for the use

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of fishing vessels only, is situated 4 cables NNE of the ferry terminal.

Port services

5.115

1 **Repairs:** divers available; repairs undertaken and there are two small shipyards with slipways.

Other facilities: Deratting and Deratting Exemption Certificates issued; hospital at Cumaná.

2 **Supplies:** fuel supplied from Puerto La Cruz but difficult to obtain; fresh water and provisions obtainable.

Communications: airport on the E side of Cumaná; ferry service to Isla de Margarita.

Small craft

5.116

1 **Description.** Marina Deportiva Publica Cumanágoto (10°28′·7N, 64°11′·2W), situated on the N side of Cumaná, provides berthing for up to 50 recreational craft. There are depths of about 4 m inside the marina which is protected by two breakwaters.

Useful marks:

Lights exhibited from the heads of both breakwaters.

2 **Facilities:** electricity, public telephones; garbage collection; restaurant.

Supplies. Fresh water and fuel available.

Lagoon and anchorage

Laguna Grande del Obispo

5.117

1 Laguna Grande del Obispo (10°35′N, 64°03′W) is situated on the N side of Golfo de Cariaco, 11½ miles ENE of Punta Arenas; the entrance lies between two hilly points. Foul ground, which extends 1½ cables from the W point and ¾ cable from the E point to an above-water rock, narrows the entrance to a width of 1 cable with depths from 25 to 36 m.

2 The inlet is much indented and contains several islets; its shores are covered with mangroves. There are depths up to 27 m in the central basin of Laguna Grande del Obispo.

Anchorage

5.118

1 The only anchorage is at the E end of Golfo de Cariaco in depths decreasing from 36 m, sand and mud.

Small craft

Chart 230

Puerto Escondido

5.119

1 Puerto Escondido (10°24′N, 64°18′W), a small cove situated 6½ miles SW of Cumaná (5.109), is suitable only for small craft. It is entered W of Punta Cachimena.

Puerto Mochima

5.120

1 **Description.** Puerto Mochima (10°21′N, 64°21′W), entered W of Barranca de Mochima, is one of the best harbours on the coast SW of Cumaná, but it is narrow. The shores of the inlet are steep-to in many places; the only off-lying dangers are close inshore and in some of the many creeks and coves.

2 Stranded wrecks lie on the SE shore of Ensenada Matacual, close within Punta Garrapata (10°23′·0N, 64°20′·6W) its S entrance point. Aldea de Mochima stands on the E side of the inlet, 3 miles S of Barranca de Mochima, but has no commercial importance.

3 **Anchorages:**

La Aguada. Good anchorage is obtainable in La Aguada, a cove on the E side and 1½ miles within Puerto Mochima; there is a depth of 24 m in the anchorage, but swinging room is restricted.

4 Isla Larga. There is anchorage in depths from 20 to 22 m, with swinging room of 2 cables radius, 2½ cables SSW of the S extremity of Isla Larga (10°21′·3N, 64°21′·0W).

GOLFO DE CARIACO TO ISLA LA BORRACHA

General information

Chart 230

Route

5.121

1 From a position 8½ miles W of Punta Arenas (10°30′N, 64°14′W), off the entrance to Golfo de Cariaco, the track leads WSW, for about 23 miles, to a position 5 miles N of Isla La Borracha (10°18′N, 64°44′W), off the entrance to Bahía de Pozuelos.

Topography

5.122

1 Between Península de Manare (10°22′N, 64°22′W) and Isla La Borracha, 22 miles WSW, the coastline is very irregular in shape and is fronted by a number of islands and rocks, of which Islas Caracas (5.128) and Islas Chimanas (5.133) form the largest groups. Islas Borrachas (10°18′N, 64°44′W), the W–most group, consists of Isla La Borracha (5.124) and five other islets.

Submarine cable

5.123

1 A submarine cable is laid from the N side of Cumaná (10°28′N, 64°11′W) WSW along the coast and thence around the N and W sides of Isla La Borracha; it lands in the NE corner of Bahía de Barcelona (5.167). For further information on submarine cables see 1.42.

Principal marks

5.124

1 **Landmark:**

Isla La Borracha (10°18′N, 64°44′W), the largest island in the Islas Borrachas group; it is easily identified from seaward, being seen at a great distance. The island is rocky and precipitous, almost without vegetation, and of a pale copper colour.

2 **Major lights:**

Morro Pelotas Light (white framework tower, 6 m in height) (10°18′N, 64°41′W), exhibited from the summit of the islet.

Isla La Borracha Light (white GRP framework tower, orange band) (10°18′N, 64°44′W), exhibited near the summit of the island.

Other aid to navigation

5.125

1 **Racon:**

Isla La Borracha (10°18′N, 64°44′W).

For details see *Admiralty List of Radio Signals Volume 2*.

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Directions

(continued from 5.99)

5.126

1 From a position 8½ miles W of Punta Arenas (10°30′N, 64°14′W) the track leads WSW, passing (with positions relative to Isla Picuda Chica (10°18′·5N, 64°33′·8W)):

NNW of Península de Manare (11 miles ENE), indented on its N side by Bahía Manare (5.127), thence:

2 NNW of Bajo Caracas (8½ miles NE), a shallow bank about 5 cables in extent, lying 1¼ miles NNE of the N extremity of Isla Caracas del Oeste (5.128); two above-water rocks lie 4 cables NNE off the same extremity. Depths of less than 10 m extend 3 cables from the shoalest head of Bajo Caracas; vessels are advised to pass well NNE of the bank. Thence:

3 NNW of an above-water rock and islet fronting the N side of Isla Picuda Grande (4 miles NE), which is rocky. Drying rocks lie off the E side of the islet and 2 cables E of the NE end of Isla Picuda Grande. Thence:

NNW of Isla Picuda Chica, from the NE side of which a light (orange pyramidal structure, white band, 6 m in height) is exhibited, thence:

4 NNW of Islas Chimanas (2 miles WSW) (5.133) a group of islands fronting the approaches to Puerto La Cruz (5.134), thence:

NNW of Morro Pelotas (7 miles W), a dark-coloured islet, from which a light (5.124) is exhibited; a disused framework light-tower stands on its SW extremity.

5 The track then leads to a position 5 miles N of the N extremity of Isla La Borracha (9½ miles W) (5.124), from which a light is exhibited and a racon transmitted.

Useful mark:

Chimana Segunda Light (white GRP tower, orange bands, 6 m in height) (10°17′·5N, 64°36′·4W) exhibited from a knoll at the W end of Isla Chimana Segunda.

(Directions continue, for Bahía de Pozuelos at 5.154, and the coastal route SW at 5.171)

Bays and anchorages

Bahía Manare

5.127

1 **Description.** Bahía Manare (10°24′N, 64°22′W) is entered 1 mile W of the entrance to Puerto Mochima (5.120). The cliffs on the E entrance point of the bay are 46 m high and resemble walls of masonry, topped by a hill covered with cactus. A U–shaped rock on the E side of the entrance is 6 m high. Within the E entrance point, there is a cove with a sandy beach.

2 **Anchorage.** Bahía Manare affords good anchorage.

Ensenada Tigrillo

5.128

1 **Description.** Ensenada Tigrillo (10°20′N, 64°25′W) lying between Punta Tigrillo (10°23′N, 64°24′W) and Punta Gorda, 5 miles SW, is fronted by Islas Caracas, a chain of three islands up to 183 m in height. The shores of Ensenada Tigrillo are much indented. Isla Caracas del Este (10°22′N, 64°26′W) and Isla Caracas del Oeste, close W, are reddish-coloured and covered with cactus.

2 Punta Tigrillo rises to a dome-shaped hill 61 m high; a jagged tooth-like islet lies close offshore 6 cables SE of Punta Tigrillo. Punta Gorda, bare and rocky, is the W extremity of Península de Punta Gorda; an above-water rock lies 2½ cables SE of the NE extremity of Punta Gorda and 1 cable offshore.

3 **Depths.** Between Punta Tigrillo and Punta Gorda, depths less than 10 m do not extend more than 1½ cables offshore except at a point about 2½ miles E of Punta Gorda.

Entrance channels. The following channels lead into Ensenada Tigrillo:

East of Isla Los Venados (10°22′N, 64°24′W). This channel, between the mainland and Isla Los Venados, has a least width of 4½ cables and a least depth of 16 m in mid-channel. There are no dangers more than 1 cable from the E side of the island. A reef, with depths of less than 5·0 m over it, extends 1 cable N from Punta Campanario, the N point of Isla Venados.

4 West of Isla Los Venados. The channel between Isla Los Venados and Isla Caracas del Este has a least width of 4½ cables, but a reef, with a depth of 5·5 m over it, extends 4 cables W of the SW extremity of Isla Los Venados. Otherwise this channel is clear of dangers, with depths of less than 10·0 m not extending more than 1 cable offshore.

5 East of Isla Caracas del Oeste (10°22′N, 64°27′W). Within this channel, which has a least width of 2 cables, there is a least depth of 17 m in mid-channel. Above-water rocks lie close off the N and W extremities of Isla Caracas del Oeste.

West of Isla Caracas del Oeste. This passage is 1¼ miles wide between a drying rock lying 2 cables E of the NE end of Isla Picuda Grande (5.126) and Isla Caracas del Oeste. There are depths from 56 to 73 m in this channel.

Golfo de Santa Fé

5.129

1 Golfo de Santa Fé is entered between Punta La Peña (10°19′N, 64°27′W), a point 1 mile SSE of Punta Gorda, and Punta Colorada, 2½ miles S, which has red cliffs. An above-water rock lies 2 cables SSE of Punta La Peña, and a dangerous rock lies off a point 9 cables farther ESE. The inlet has no offshore dangers, and depths of more than 40 m extend to within 5 cables of its head.

2 The N shore of Golfo de Santa Fé is bare except for sparse cactus. The S shore is backed by hills and cliffs, covered with vegetation. Caserio de Santa Fé is a fishing village close W of the mouth of a river 2 miles E of Punta Colorada; it stands above a white sandy beach fronting a plain at a gap in the hills.

Bahía Cruz

5.130

1 Bahía Cruz (10°16′N, 64°27′W) is entered between Punta Colorada and Punta Cruz, 1 mile SSW. The bay, which affords good anchorage, recedes about 5 cables and is free of dangers to within ½ cable of the shore. Three coves in the bay are backed by sandy beaches.

Bahía de Arapo

5.131

1 **Description.** Bahía de Arapo is entered between Punta Cruz (10°16′N, 64°27′W) and Punta Comona, a bold and cliffy point 4½ miles WSW. The bay is fronted by Islas de Arapo, which consist of two islands up to 12 m high. A

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7·5 m patch lies 2½ cables E of the E extremity of the E island; the passage between this patch and Punta Cruz is 3 cables wide and has a least depth of 51 m in mid-channel. A crescent-shaped cove close S of Punta Cruz is 5 cables wide and has a sandy beach at its head.

2 **Dangers.** Two white above-water rocks lie 1½ cables off the W Islas de Arapo (10°16′N, 64°29′W) on a bank, with depths of less than 20 m over it, extending 4 cables W of the island. Foul ground which joins the two islands extends 2 cables S from an above-water rock lying between them.

3 The NW approach to Bahía de Arapo is obstructed by a rocky bank, with depths of less than 10 m over it, lying midway between Islas de Arapo and Islas Monos (5.132), 2¾ miles W. On the N side of this bank there is a rock, with a depth of 2·2 m over it.

Bahía Comona

5.132

1 Bahía de Comona is entered between Punta Comona (10°15′N, 64°32′W) and Punta Pertigalete, 1 mile W; its shores are backed by coconut plantations. The NW side of the bay is fronted by Isla Monos, lying 1½ cables N of Punta Pertigalete.

2 Isla Monos is 191 m high, wooded and generally steep-to; depths of less than 10 m do not extend more than 1 cable off it.

Adjacent islands

Chart 1498

Islas Chimanas

5.133

1 **Description.** Islas Chimanas, which are rocky, extend W from Isla Cachicamo (10°18′N, 64°33′W) to Morro Pelotas, 8 miles W. Most of the islands have sparse vegetation and are of a greyish colour. The islands, along with Isla La Borracha, front the approaches to Bahía de Pertigalete, Bahía de Guanta and Puerto La Cruz.

2 **Isla Chimana Segunda** (10°18′N, 64°36′W). The island is covered with cactus; a light (5.126) is exhibited from its W end. Isla Chimana Chica and Isla Quirica lie 1 cable and 5½ cables, respectively, off the E end of Isla Chimana Segunda. A dangerous area, in which there are many shoals, extends 5 cables N from Isla Quirica and Isla Chimana Chica. Within this area are several drying rocks and a stranded wreck.

3 **Isla Chimana Grande** (10°18′N, 64°39′W). This island, the largest of the Islas Chimanas group, has little vegetation on it. Its coasts are precipitous except at landslides on the N side and at sandy beaches at the heads of coves on the S side. The passage between Isla Chimana Segunda and Isla Chimana Grande is seldom used, and then only by small vessels.

4 **Isla Chimana del Oeste** (10°18′N, 64°41′W). Isla Chimana del Oeste is joined to the NW end of Isla Chimana Grande by a shallow bank on the middle of which there is an islet. Morro Pelotas (5.126) lies close NW of Isla Chimana del Oeste.

Isla Chimana del Sur (10°16′N, 64°38′W). This island, the S–most of the Islas Chimanas group, lies 2½ cables S of the E part of Isla Chimana Grande. The SW end of Isla Chimana del Sur forms a bold headland, 93 m high, terminating in Punta Baregán.

PUERTO LA CRUZ AND ADJACENT HARBOURS

General information

Charts 230, 1498

Position

5.134

1 Puerto La Cruz (10°14′N, 64°38′W) is situated on the SE side of Bahía de Pozuelos and includes Guaraguao Terminal and El Chaure Terminal within Bahía Bergantín, on the E side of the bay. The adjacent harbours of Bahía de Guanta (10°15′N, 64°36′W) and Bahía de Pertigalete (10°15′N, 64°34′W), lie 8 cables E and 1¾ miles E, respectively of Bahía Bergantín.

Function

5.135

1 The harbours of Puerto La Cruz, Bahía de Guanta and Bahía de Pertigalete contain terminals exporting the second greatest quantity of oil from Venezuela. Large amounts of building material, foodstuffs and general cargo enter the country through these harbours.

Topography

5.136

1 Bahía de Pozuelos is bounded E by Islas Chimanas (5.133) and W by Islas Borrachas. The mainland E of a sandy spit near the S end of Morro de Barcelona (10°13′N, 64°43′W) (5.152) forms its S and SE shores, which are very low. The N entrance between Morro Pelotas (10°18′N, 64°41′W) and Isla La Borracha, and the W entrance between Los Borrachitos (10°15′N, 64°46′W) and Morro de Barcelona, are wide and clearly defined.

Approach and entry

5.137

1 Vessels must first embark a pilot in Bahía de Pozuelos, entering the bay from the N between Morro Pelotas (10°18′N, 64°41′E), the W–most part of Islas Chimanas, and Isla La Borracha. Vessels then proceed E to the required harbour:

2 Bahía Bergantín is entered between Punta Bergantín (10°15′N, 64°38′W) and Punta Guaraguao, 8 cables SSW.

Bahía de Guanta is entered between Punta Meta (10°15′N, 64°36′W) and Punta Queque, 3 cables ESE.

3 Bahía de Pertigalete is entered between Punta Guanta (10°15′N, 64°35′W) and Punta Pertigalete, 1½ miles ESE.

Traffic

5.138

1 **Puerto La Cruz.** Approximately 400 vessels visit the port annually.

Bahía de Guanta. The harbour is used by approximately 500 vessels a year.

Bahía de Pertigalete. In 1997 the bay was used by four vessels with a total of 41 619 dwt.

Port Authorities

5.139

1 **Puerto La Cruz.** Meneven SA, Apdo 79, Barcelona, Venezuela.

Bahía de Guanta. Port Authority of Guanta, Puertos de Anzoategui SA, Av Raul Leoni, Ed Administrativo del Puerto, Guanta 6023, Venezuela.

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2 **Bahía de Pertigalete:**
Vencemos Cement Terminal. Vencemos Cement Company, Pertigalete, Edo Anzoategui, Venezuela.
Pamatacual Oil Terminal. Capetania de Puerto de Pamatacual, Puerto La Cruz, Venezuela.

Limiting conditions

Deepest and longest berths
5.140

1 The deepest and longest berths are No's 4, 5 and 7 at Guaraguao Terminal (5.158).

Density of water
5.141

1 1·025 g/cm^3.

Maximum size of vessel handled
5.142

1 Oil tankers up to 120 000 dwt with a maximum draught of 16·7 m can be handled at Guaraguao Terminal.

Arrival information

Port radio
5.143

1 There is a port radio station at Puerto La Cruz. For further details see *Admiralty List of Radio Signals Volume 6 (5)*.

Notice of ETA required
5.144

1 Vessels should advise their ETA at the pilot station (5.147) in Bahía de Pozuelos 72, 48 and 24 hours in advance.

Outer anchorages
5.145

1 Designated anchorages for waiting, tankers and bunkering have been established 3¾ miles NE, 3½ miles N, and 3½ miles NW, respectively, of Morro de Barcelona (10°13′N, 64°43′W). The limits are shown on the charts.

Submarine cable
5.146

1 A submarine cable (5.123) is laid across the N entrance to Bahía de Pozuelos. For further information on submarine cables see 1.42.

Pilotage
5.147

1 Pilotage is compulsory and available 24 hours a day. The pilot boards in Bahía de Pozuelos in position 10°15′·5N, 64°41′·0W, 2½ miles NNE of Morro de Barcelona. For further information see *Admiralty List of Radio Signals Volume 6 (5).*

Tugs
5.148

1 Tugs are available and their use is compulsory. Two tugs are normally used for berthing and unberthing in Bahía Bergantín; for vessels over 110 000 dwt four tugs are required.

In Bahía de Guanta the use of tugs is also compulsory for berthing. One tug is used for vessels up to 139 m in length; over 139 m two tugs are required.

Vessel Traffic Service
5.149

1 A Vessel Traffic Service Scheme, with radar surveillance, is maintained for the control of shipping. The system provides coverage from Bahía Bergantín to Puerto Jose (10°06′N, 64°52′W) (5.173). For details see *Admiralty List of Radio Signals Volume 6 (5).*

Harbours

General layout
5.150

1 **Puerto La Cruz.** The main commercial berthing area for Puerto La Cruz, consisting of Guaraguao terminal and El Chaure Terminal, is situated on the S and E sides of Bahía Bergantín, close NE of Punta Guaraguao (10°14′·2N, 64°38′·1W). Bahía Bergantín is well sheltered; vessels up to 304 m in length can be turned around in the bay.

2 South-west of Punta Guaraguao there is a ferry terminal and an oil pier at Los Cocos (10°12′·9N, 64°39′·0W). The port also contains several marinas, including those within Turístico El Morro (10°12′·1N, 64°40′·0W), situated on the SE and S sides of Bahía de Pozuelos.

3 **Bahía de Guanta.** This bay, situated 8 cables E of Bahía Bergantín, contains on its S side the general cargo port for Barcelona, the capital of Estado Anzoategui, and other towns. At Punta Meta, on the NW side of the bay, there is naval station belonging to the Venezuelan National Guard and a fishing harbour. Bahía de Guanta is well sheltered, being almost landlocked.

4 **Bahía de Pertigalete.** Situated 1¾ miles E of Bahía Bergantín, this bay contains a cement terminal on its E side and Pamatacual Terminal, an oil terminal, on its SE side.

Local weather
5.151

1 In Bahía de Pozuelos, the rainy season starts in mid-May and ends in November or December. In the rainy season, there is usually calm in early morning, followed before noon by light W or variable breezes. After mid-day, the breezes change to NE at about 12 kn until evening.

2 In the dry season, the wind cycle is similar except that the wind speed may reach 25 kn. This can prevent all communications between anchored vessels and the shore.

Principal marks
5.152

1 **Landmarks:**
Isla La Borracha (10°18′N, 64°44′W) (5.124).
Morro de Barcelona (10°13′N, 64°43′W), rocky and 151 m high, covered with dense cactus. A tank stands on the summit.
Buildings of Puerto La Cruz standing 4 miles E of Morro de Barcelona.

2 Oil storage tanks (aluminium-coloured), standing on Cerros Guaraguao (10°14′N, 64°37′W).
Customs House, standing on the S side of Bahía de Guanta (10°15′N, 64°36′W). This is a large stone building easily identified from the N when approaching Bahía de Guanta.
Several silos at the cement terminal on the W side of Bahía de Pertigalete (10°15′N, 64°34′W).

3 **Major lights:**
Morro Pelotas Light (10°18′N, 64°41′W) (5.124), exhibited from the summit of the islet.
Isla La Borracha Light (10°18′N, 64°44′W) (5.124).

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Other aid to navigation

5.153

1 **Racon:**

Isla La Borracha (10°18′N, 64°44′W).

For details see *Admiralty List of Radio Signals Volume 2*.

Directions for entering harbours

(continued from 5.126)

Approach

5.154

1 From a position 5 miles N of the N extremity of Isla La Borracha (10°18′N, 64°44′W) the track leads SSE for 9 miles to the pilot station in Bahía de Pozuelos, passing (with positions relative to Morro Pelotas (10°18′N, 64°41′W)):

ENE of the NE extremity of Isla La Borracha (2½ miles W) (5.124), thence:

2 WSW of Morro Pelotas, from which a light (5.124) is exhibited, thence:

WSW of a spit extending 1½ cables S from Punta Puinare, the S extremity of Isla Chimana del Oeste (5.133). The SW side of the spit is marked by a light-buoy (port hand).

3 Thence from the pilot boarding station (2¾ miles S) the track leads ESE, passing (with positions relative to Isleta Burro (10°14′·7N, 64°38′·0W)):

Between patches (1 mile WNW and 1 mile NW), with depths of 14·9 m over them, thence:

NNE of a patch (9½ cables WNW), with a depth of 11·9 m over it; the S side of the patch is marked by Pozuelo Light-buoy (isolated danger). To the S and W of the patch it has been reported (1982) that there is less water.

4 The track then leads to a position about 3 cables S of Punta Baregán (7½ cables NNW) (5.133).

Useful mark:

Islas Los Borrachitos Light (GRP hexagonal tower, orange and white bands, 6 m in height) (10°15′N, 64°46′W).

(Directions continue, for Bahía de Guanta at 5.156, and for Bahía de Pertigalete at 5.157)

Bahía Bergantín

5.155

1 **General remarks.** The channels on each side of Isleta Burro (10°14′·7N, 64°38′·0W), with a hillock near its NE end, lying in the middle of the entrance to the bay, can be used. The shallow banks and coral heads which fringe Isleta Burro and the shores of the bay are clearly visible by day from a vessel's bridge. The current is negligible, but wind strength in the afternoon and evening should be considered. Berthing is always starboard side to.

2 **South-west channel.** For vessels drawing less than 9·1 m, the track leads SE from a position about 3 cables S of Punta Baregán (10°15′·3N, 64°38′·5W), passing (with positions relative to Punta Baregán):

NE of Guaraguao Light-buoy (starboard hand) (7½ cables S), thence:

NE of a shoal (9 cables SSE), with a depth of 8·7 m over it, and:

3 SW of the shallow banks fringing Isleta Burro (7½ cables SE); the edge of the banks are marked by No's 3 and 4 Light-beacons (port hand) and by a light-buoy (S cardinal).

The track then leads directly to the berths.

North-east channel. For vessels drawing more than 9·1 m, the track leads initially E, for 6 cables, from a position about 3 cables S of Punta Baregán (10°15′·3N, 64°38′·5W), and thence SE, passing (with positions relative to Punta Baregán):

4 NE of Isleta Burro (7½ cables SE), marked on its E side by No 5 Light-beacon (starboard hand), and:

SW of the reefs fringing the promontory of which Punta Bergantín is the W extremity; the edge of this side of the channel is marked by light-buoys (port hand).

The track then leads directly to the berths.

5 **Departure.** It is reported that all vessels leaving Bahía Bergantín exit via the channel NE of Isleta Burro.

Useful mark:

Light (10°14′·4N, 64°38′·1W) exhibited from the W end of No 7 Berth.

Bahía de Guanta

(continued from 5.154)

5.156

1 From a position about 3 cables S of Punta Baregán (10°15′·3N, 64°38′·5W) the track leads initially NE in mid-channel between Isla Chimana del Sur (5.133) and Punta Bergantín (10°15′·0N, 64°37′·7W), and thence E, passing (with positions relative to Punta Bergantín):

N of a shoal (1 mile ENE), with a depth of 3·7 m over it; a 12·3 m patch lies 1½ cables NW of the shoal. Thence:

2 N of the headland (1½ miles E), which is formed on its E side by Punta Meta.

When abreast the entrance to Bahía de Guanta the track leads S through Grand Passage, passing (with positions relative to Isla Pitahaya (10°15′·5N, 64°35′·7W)):

3 Between Isla Pitahaya, from which a light (red and white hexagonal concrete tower, 3 m in height) is exhibited, and Isla Redondo (1¼ cables E); a light (green and white hexagonal concrete tower, 3 m in height) is also exhibited from Isla Redondo. Thence:

4 E of a line of reefs and islets extending 2 cables S from Isla Pitahaya, marked at their S end by a light-buoy (starboard hand); on their W side is North-west Passage, which is narrowest off Punta Meta. And:

5 W of a reef on which lie Islas Longues (2 cables SE); Little Passage separates this reef from Isla Redonda. Thence:

W of Punta Queque (4 cables SSE) from which a light (green GRP tower, white band, 3 m in height) is exhibited, and:

6 E of some drying reefs (3½ cables S) encumbering the W side of Bahía de Guanta; the S end of this area of reefs is marked by a light-buoy (starboard hand).

The track then leads directly to the berths.

Bahía de Pertigalete

(continued from 5.154)

5.157

1 **Main channel.** From the position about 3 cables S of Punta Baregán (10°15′·3N, 64°38′·5W) follow the directions (5.156) for Bahía de Guanta until abreast the entrance to

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Bahía de Guanta. The track then continues E, passing at least 4 cables N of Punta Guanta (10°15′·4N, 64°34′·7W), and thence SE to a position about 3 cables NE of the E islet of Islas de Plata. Islas de Plata, consisting of three islets, lie on a shallow bank extending E from the W shore of Bahía de Pertigalete.

2 The track then leads S into the bay, passing between the E islet of Islas de Plata, from which a light (red pyramidal structure, white band, 3 m in height) is exhibited, and the E entrance point; a light-buoy is moored off the E entrance point.

Small craft channel. A narrow buoyed channel, about 1½ cables in length, leads across the W side of the bank on which Islas de Plata lies, close off the W shore of Bahía de Pertigalete. The channel should not be used without local knowledge.

Berths

Puerto La Cruz

5.158

1 **Los Cocos.** At Los Cocos (10°12′·9N, 64°39′·0N) there is an oil pier extending 168 m from the shore at the SW end of Puerto La Cruz. The outer end of the pier is 15 m in length with a depth of 8 m alongside; dolphins stand on each side of the outer end of the pier.

A ferry terminal, with services to Isla de Margarita, is situated close ENE of the oil pier. The ferry pier extends 120 m offshore and has depths up to 3·7 m alongside.

2 **Guaraguao Terminal** (10°14′·5N, 64°37′·7W). Situated in the SW part of Bahía Bergantín, Guaraguao Terminal is comprised of six oil berths, numbered 1, 2, 3, 4, 5 and 7, as shown on the chart:

Longest berth; No 7, 290 m in length.

Deepest berths; No's 4 and 5, with an allowable draught of 16·7 m alongside.

3 **El Chaure Terminal** (10°14′·8N, 64°36′·9W). Situated in the E part of Bahía Bergantín, El Chaure Terminal is considered to be No 6 Berth of Puerto La Cruz; it consists of a wharf 30 m in length with mooring dolphins on each side. Vessels with a LOA of 244 m and draught up to 12·1 m can use this berth.

Bahía de Guanta

5.159

1 The berthing area in Bahía de Guanta consists of a quay, situated on the S side of the bay, with six numbered berths. The largest is No 6 Berth, situated at the W end of the quay; length 200 m, with a charted depth of 10·7 m alongside.

Bahía de Pertigalete

5.160

1 **Vencemos Cement Terminal** (10°14′·6N, 64°33′·5W). The terminal consists of two piers situated on the SE side of Bahía de Pertigalete used for loading of cement and discharging raw materials and machinery.

The S pier is L–shaped with berths numbered from 1 to 5. The E pier comprises No 6 Berth, which is the largest; length 158 m with a depth of 11·9 m alongside, accommodating vessels up to 150 m long.

2 **Pamatacual Oil terminal** (10°14′·4N, 64°34′·4W). The terminal consists of an oil pipeline extending 3 cables N from the S shore; its seaward end is marked by a buoy. A vessel berths heading NE with both anchors down, and with the stern secured to mooring buoys laid W of the seaward end of the pipeline.

3 **Other berth.** A T–shaped pier projects NE from the SW shore of Bahía de Pertigalete.

Port services

Repairs

5.161

1 Repairs carried out.

Other facilities

5.162

1 Limited facilities for the disposal of oily waste; hospital services in Puerto La Cruz; Deratting and Deratting Exemption Certificates issued.

Supplies

5.163

1 Fresh water, fuel and provisions available.

Communications

5.164

1 Airport at Barcelona, 16 km distant from Puerto La Cruz; ferry services (5.158) to Isla de Margarita.

Small craft

5.165

1 Several harbours are available for the use of small craft in the vicinity of Puerto La Cruz as follows:

Turístico El Morro (10°12′·1N, 64°4′·00W). This is a tourist complex, situated on the S side of Bahía de Pozuelos, made up of several waterways and basins; it is entered between two breakwaters, the heads of which are marked by light-buoys (lateral). There are five marinas within the complex of which Marina Americo Vespucio is one of the largest.

2 Marina (10°13′·7N, 64°38′·2W) at Puerto La Cruz, situated on the SE side of Bahía de Pozuelos.

Fishing boat harbour (10°15′·2N, 64°35′·8W) at Punta Meta in Bahía de Guanta.

Marina (10°14′·5N, 64°33′·9W), situated on the S side of Bahía de Pertigalete at the town of Pertigalete.

ISLAS LA BORRACHA TO ISLAS DE PÍRITU

General information

Charts 2191, 230

Route

5.166

1 From a position 5 miles N of Isla La Borracha (10°18′N, 64°44′W), off the entrance to Bahía de Pozuelos, the route leads SW, for about 16½ miles, across Bahía de Barcelona, to a position about 5 miles N of Isla Píritu Afuera (10°10′N, 64°58′W).

Topography

5.167

1 Between Isla La Borracha and Islas de Píritu the coastline is indented by Bahía de Barcelona. The bay is entered between Morro de Barcelona (10°13′N, 64°43′W) and Punta Chacopata, 15 miles WSW. Between the low sandy shore of the bay and the foothills inland there are extensive salt flats.

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Submarine cables

5.168

1 Two submarine cables are laid across the approaches to Bahía de Barcelona, as shown on the chart; they land in the NE corner of the bay. For further information on submarine cables see 1.42.

Principal marks

5.169

1 **Major lights:**

Isla La Borracha Light (10°18′N, 64°44′W) (5.124).

Islas de Píritu Light (white GRP tower, orange bands, 10 m in height) (10°10′N, 64°58′W).

Other aid to navigation

5.170

1 **Racon:**

Isla La Borracha (10°18′N, 64°44′W).

For details see *Admiralty List of Radio Signals Volume 2*.

Directions

(continued from 5.126)

5.171

1 From a position 5 miles N of Isla La Borracha (10°18′N, 64°44′W) the track leads SW, passing (with positions relative to Islas La Borracha Light):

NW of two islets (1 mile WNW) lying on a shallow bank extending nearly 1 mile W from the NW side of Isla La Borracha, thence:

2 NW of Islas Los Borrachitos (3½ miles SSW), the S–most islets of the Islas Borrachas group (5.122), which are steep to on their SW sides; a light (5.154) is exhibited from the largest islet. A rock, with a depth of 0·5 m over it, lies in mid-channel between Islas Los Borrachitos and Isla El Borracho, 1 mile NE.

3 The track then leads across the outer approaches to Bahía de Barcelona to a position about 5 miles N of Isla Píritu Afuera (16 miles SW), the W–most island of Islas de Píritu. Islas de Píritu, consisting of two islands, are low and sandy with some mangroves, and are fringed by reefs. The E island is Isla Píritu Adentro; a light (5.177) is exhibited from its E end.

(Directions continue for the coastal route NW to Cabo Codera at 5.187)

Small craft channel

5.172

1 Isla Píritu Adentro and Isla Píritu Afuera, the two islands of Islas de Píritu (5.171), are separated by a channel, with a least depth of 9 m over a width of 1½ cables in the middle.

The channel should not be attempted without local knowledge.

Puerto Jose

General information

5.173

1 **Position.** Puerto Jose (10°06′N, 64°52′W), consisting of several separate terminals, is situated on the S side of Bahía de Barcelona, about 14 miles SW of Puerto La Cruz.

Function. The port exports refined petroleum products and crude oil; dry bulk cargoes and containers are also handled.

2 **Traffic.** In 1997 the port was used by 24 vessels with a total of 979 110 dwt.

Port Authorities:

Petroterminal Jose; operated by Williams, Enbridge and Company, Carretera de la Costa Barcelona-Píritu, Barcelona, Estado Anzoategui, Venezuela.

3 Bitor SPM; PDVSA Bitor SA, Carretera de la Costa Barcelona-Píritu, Barcelona, Estado Anzoategui, Venezuela.

Petrozuata SPM; Petrozuata CA, Jose Terminal, Puerto La Cruz, Venezuela.

Cryogenic terminal; operated by PDVSA.

4 Petrochemical Dock; Proyecto Muelle Petroquimico de Jose, Compeljo Jose Antonio Anzoategui, Jose, Estado Anzoategui.

Limiting conditions

5.174

1 **Deepest and longest berth.** Petroterminal Jose (TAECJ Terminal) (10°08′·5N, 64°49′·7W) (5.178).

Maximum size of vessel handled. Vessels up to 300 000 dwt can berth at the Bitor SPM (10°09′·0N, 64°50′·2W) (5.178).

Arrival information

5.175

1 **Port radio.** There is a port radio station at Puerto Jose. For further information see *Admiralty List of Radio Signals Volume 6 (5)*.

Notice of ETA required. An ETA is required to be sent to the Port Superintendent and agent, 7 days, 72, 48 and 24 hours in advance.

2 **Outer anchorage.** A designated anchorage for vessels waiting to berth is situated on the NE side of Bahía Barcelona. The limits of the anchorage, which is rectangular in shape, are shown on the chart. In the anchorage there is good holding ground, over a bottom of mud and sand, although it has been reported that a heavy ground swell may be experienced.

3 Close E of the E limit of the anchorage there is a rocky shoal, with a depth of 6·5 m over it, lying 1¾ miles WSW of the SW end of Morro de Barcelona (10°13′N, 64°43′W).

Pilotage is compulsory and available 24 hours, although pilots prefer docking in daylight hours only. Maximum sized vessels are only berthed during daylight and in wind speeds of less than force 7. There are two pilot boarding stations as follows:

4 Outer station (10°09′·2N, 64°51′·2W); for vessels bound for Petroterminal Jose, Bitor SPM and Petrozuata SPM.

Inner station (10°07′·5N, 64°50′·5W); for vessels bound for the cryogenic terminal and petrochemical dock.

The pilot boat is a high speed launch, with a black hull and white superstructure, and is equipped with pilot boarding platforms.

5 **Tugs** are available.

Vessel Traffic Service. A Vessel Traffic Service Scheme, with radar surveillance, is maintained for the control of shipping. The system provides coverage from Bahía Bergantín (10°15′N, 64°37′W), at Puerto La Cruz (5.134), to Puerto Jose. For details see *Admiralty List of Radio Signals Volume 6 (5)*.

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Harbour

5.176

1 **General layout.** Puerto Jose consists of a cryogenic jetty terminal (10°05′·8N, 64°51′·5W), a petrochemical dock, an offshore platform terminal, and two SPM's. The offshore terminal and SPM's are connected to the shore by submarine pipelines.

Directions for entering harbour

5.177

1 Local knowledge is required for approaching and berthing at the terminals in Puerto Jose.

Useful marks:

Islas Los Borrachitos Light (10°15′N, 64°46′W) (5.154).

An aero light exhibited from the airport close S of Barcelona (10°08′N, 64°41′W).

2 Light exhibited from Petroterminal Jose (10°08′·4N, 64°49′·7W).

Isla Píritu Adentro Light (white GRP tower, orange bands, 16 m in height) (10°09′N, 64°55′W).

Berths

5.178

1 **Petroterminal Jose (TAECJ Terminal)** (10°08′·4N, 64°49′·7W). The terminal consists of an offshore platform with two berths, one on the E side and one on the W; the berths are each 335 m long. Vessels up to 250 000 dwt, with a length of 350 m and a maximum draught of 22·86 m can be handled. The terminal exports crude oil.

2 **Bitor SPM** (10°09′·2N, 64°50′·3W). This terminal consists of an SPM connected to storage tanks ashore by a submarine pipeline. The minimum depth around the SPM is 22 m. Tankers up to 300 000 dwt can moor at the SPM. Orimulsion, used in power stations, is exported; marine diesel oil and crude oil are also handled.

3 **Petrozuata SPM** (10°08′·9N, 64°52′·6W). The terminal consists of a SPM, with four mooring buoys (yellow), connected to the shore by submarine pipeline. There is a charted depth of 25 m in the vicinity of the SPM. Crude oil is exported.

4 **Cryogenic terminal** (10°05′·8N, 64°51′·5W). This consists of a fixed concrete structure with two jetties, numbered 8 (W) and 9 (E), linked to the shore by a trestle 1 mile long. The berths, each 270 m long, are dredged to a depth of 13·8 m. Vessels up to 45 000 dwt, maximum length 243 m, with a draught of 11·88 m, are handled. Vessels berth head out. The terminal exports butane, iso-butane, propane, mogas, pentane and methanol.

5 **Petrochemical Dock** (10°06′·0N, 64°52′·5W). The dock, situated W of the cryogenic terminal, is made up of three platforms, with concrete decks, combined to form one structure. It contains the following berths:

Petrochemical platform with two berths; accommodates vessels up to 65 000 dwt and 255 m LOA. Exports ammonia.

Container platform; one berth for vessels up to 50 000 dwt and 292 m LOA.

6 Dry bulk platform; accommodates vessels up to 65 000 dwt and 255 m LOA.

Port services

5.179

1 **Repairs.** None available.

Other facilities: except in emergencies no medical or dental facilities are available; ballast disposal to shore not possible.

Supplies: fuel is available from barge at the cryogenic terminal; fresh water and provisions not available.

Communications. Airport at Barcelona, 16 km distant, however crew changes are not permitted.

Small craft

Marina Club Nautico El Morro

5.180

1 Marino Club Nautico El Morro (10°12′·2N, 64°42′·4W), a small harbour for recreational craft, is situated on the NE side of Bahía Barcelona at the S end of Morro de Barcelona. The harbour consists of an L–shaped basin protected by breakwaters, from the heads of which lights are exhibited.

2 The basin is dredged to a depth of 2 m but there are lesser depths along the sides of the basin.

Río Neverí

5.181

1 Río Neverí (10°10′N, 64°42′W) enters the sea on the NE side of Bahía Barcelona. Barcelona, the capital of Estado Anzoategui, stands on the banks of the river, about 2 miles upstream from the mouth.

Entry to the river is encumbered by the sea breaking heavily on the shallow banks lying off the mouth of Río Neverí.

ISLAS DE PÍRITU TO CABO CODERA

GENERAL INFORMATION

Chart 2191

Area covered

5.182

1 This section covers the coastal waters from Islas de Píritu to Cabo Codera, 48 miles WNW, and includes a description of the off-lying island of Isla La Tortuga. The section is arranged as follows:

Coastal route (5.183).

Isla La Tortuga (5.192).

COASTAL ROUTE

General information

Chart 2191

Route

5.183

1 From a position about 5 miles N of Isla Píritu Afuera (10°10′N, 64°58′W) the coastal route leads WNW, for 66 miles, to a position about 5 miles NE of Cabo Codera (10°34′N, 66°03′W).

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Topography

5.184

1 The coast from Puerto Píritu (10°03′N, 65°03′W) to Punta Unare, 9 miles W, is a low sandy beach enclosing Laguna de Píritu. Punta Unare, which is difficult to distinguish, is the W entrance point of Río Unare.

2 Between Punta Unare and Puerto Carenero, 60 miles WNW, the coast is low and swampy. The hills in the background rise from 5 to 7 miles inland. Various rivers enter the sea along this coast, but all their entrances are obstructed by banks on which the sea breaks.

Submarine cables

5.185

1 Two submarine cables land at a position close SSE of Higuerote (10°29′N, 66°06′W). For further information on submarine cables see 1.42.

Principal marks

5.186

1 **Landmark:**

Cerro Unare (10°04′N, 65°15′W) (Chart 1966), situated 4 miles WSW of Punta Unare, is 579 m (1900 ft) high; it resembles an isolated promontory rising from the low coast.

Major light:

Islas de Píritu Light (10°10′N, 64°58′W) (5.169).

Directions

(continued from 5.171)

5.187

1 From a position about 5 miles N of Isla Píritu Afuera (10°10′N, 64°58′W) the track leads WNW, passing:

SSW of a platform (10°24′N, 65°09′W), the position of which is approximate. A light is exhibited from the platform. In 2002 the platform was reported missing. And:

2 NNE of the low-lying coast between Puerto Píritu (10°03′N, 65°03′W) and Puerto Carenero (10°32′N, 66°07′W).

Thence the track leads to a position about 5 miles NE of Cabo Codera (10°34′N, 66°03′W), which is prominent and steep-to, rising to an elevation of 264 m at Punta Castillo, its SE extremity. The cape has a frontage extending 1½ miles and decreasing in elevation irregularly to Punta El Muerto, its NW extremity. A light (GRP tower, white and orange bands, 10 m in height) is exhibited from the cape.

3 **Useful mark:**

At night, lights illuminating a tank farm, forming part of the Carenero Petroleum Terminal (5.190) close S of Cabo Codera.

(Directions continue for the coastal route W at 6.10)

Anchorage and minor harbours

Higuerote

5.188

1 **Description.** An open roadstead 1 mile E of Higuerote (10°29′N, 66°06′W) affords anchorage in a depth of 10 m. The NW side of the anchorage is encumbered by a spit, with a depth of 4 m over its outer end, extending 1 mile NE from the mouth of Río Curiepe at Pueblo Higuerote; a drying rock lies on the spit 5 cables offshore.

2 Vessels using the anchorage should also keep well clear of the submarine cables mentioned at 5.185.

Useful mark:

Light exhibited from the head of the E breakwater at Higuerote.

Puerto Carenero

5.189

1 **Position and function.** Puerto Carenero (10°32′N, 66°07′W is situated at the head of a bay 4 miles SW of Cabo Codera. The harbour is only suitable for small vessels.

Directions for entering harbour. Local knowledge is required. Puerto Carenero is approached from the E and entered through a narrow channel lying between Punta La Crucesita (10°31′·8N, 66°06′·3W) and a coral reef, with a depth of 1·2 m over it. The entrance is marked by two light-beacons (lateral).

2 **Useful mark:**

Bahía de los Piratas Light (white framework tower, orange bands) (10°32′·0N, 66°07′·0W).

Anchorage. Vessels may obtain anchorage 3 cables SW of Punta La Crucesita in a depth of 9 m.

Berth. The old dock close inside the W entrance point provides berthing for vessels with draughts up to 5·5 m.

3 **Supplies.** Fresh water available.

Small craft. There are extensive facilities for recreational craft in Puerto Carenero, provided by several marinas situated on the SW side of the bay. There is a 50 tonne travel-lift in the old dock.

Carenero Petroleum Terminal

5.190

1 **Position and function.** Carenero Petroleum Terminal (10°32′N, 66°04′W) is situated 2¾ miles SW of Cabo Codera. It is used for handling various petroleum products.

Berth. The berth consists of several mooring buoys situated at the head of a submarine pipeline.

Small craft

Puerto Píritu

5.191

1 Puerto Píritu (10°03′N, 65°03′W), situated 6 miles WSW of Punta Chacopata, is a fishing port which can be only entered by small craft. The town has a population of about 4000.

ISLA LA TORTUGA

General information

Chart 2191

Routes

5.192

1 **North coast.** From a position about 5 miles E of Punta Oriental (10°54′N, 65°13′W) the route leads initially NW for 10 miles and then WNW for a farther 9 miles to a position about 3 miles N of Cayo Herradura (10°59′N, 65°23′W). Thence the route leads SW for 8½ miles to a position 4 miles W of Los Tortuguillos (10°58′N, 65°26′W).

2 **South coast.** From a position about 5 miles E of Punta Oriental (10°54′N, 65°13′W) this route leads initially WSW, for 12 miles, and then WNW, for a farther 9 miles, to a position 4 miles SW of Punta Arena (10°55′N, 65°25′W). The route then leads NNW for 6 miles to join the route along the N coast at a position W of Los Tortuguillos.

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Description

5.193

1 Isla la Tortuga (10°56′N, 65°19′W), lying 47 miles W of Isla de Margarita, is Venezuelan territory; the island is barren and more than 40 m high. The E and W ends of the island are low, but terminate in distinct points. The S coast of Isla la Tortuga is relatively bold and steep-to; it is fringed in places by reefs enclosing lagoons.

Current

5.194

1 Between Isla la Tortuga and the N coast of Isla de Margarita, from February to October, the current is W–going and attains a maximum rate of ¾ kn. In November, an E–going current with a rate of about ¼ kn has been observed.

2 Isla la Tortuga lies on a bank, with depths of less than 100 m over it, which extends W from the island for 35 miles and then turns S towards the mainland at Cabo Codera (10°34′N, 66°03′W). The current S of the bank sets W, attaining a rate of ¾ kn. A stronger W–going current has been observed N of the bank, usually not less than 1 kn and often as much as 2 kn. A counter-current of varying but less rate usually prevails near the mainland.

Directions

North coast

5.195

1 From a position about 5 miles E of Punta Oriental (10°54′N, 65°13′W), from which a light (orange GRP tower, white band, 16 m in height) is exhibited and a tongue of land extends 4 cables NE, the track leads initially NW, passing (with positions relative to Punta Oriental Light):

NE of an above-water rock (1½ miles N) lying 4 cables offshore, thence:

2 NE of drying reefs (1¾ miles N) fringing the coast. Between Punta Oriental and Punta Delgada de Este, depths less than 10 m extend 8 cables offshore. Thence:

NE of a drying reef, partly above water, extending nearly 1 mile SE from Punta Delgada de Este (4 miles NNW).

3 The track then leads to a position about 3 miles N of Punta Delgada de Este, which is the N extremity of a low and narrow promontory projecting 1 mile offshore. Thence the track leads WNW, passing (with positions relative to Punta Delgada de Este (10°57′N, 65°14′W)):

4 NNE of an area of drying reefs (3¼ miles WNW) lying up to 2½ cables offshore, thence:

NNE of Punta Ranchos (5 miles WNW), thence:

NNE of Los Palenquines (6½ miles WNW), consisting of reefs partly above water lying up to 7½ cables offshore.

5 Thence the track leads to a position about 3 miles N of Cayo Herradura (9 miles WNW), which is a cay lying at the N end of a shallow area of sand and coral extending 2 miles offshore. A light (orange GRP tower, white band, 20 m in height) is exhibited from the NW end of the cay. A 6·0 m patch lies 8 cables WSW of the light and a drying coral head lies 2 cables SW of the S extremity of the cay.

6 The track then leads SW to a position about 4 miles W of Los Tortuguillos (10°58′N, 65°26′W) (5.196).

Useful marks:

Radio tower (red obstruction lights) (10°56′N, 65°17′W), the position of which is approximate.

Radio tower (red obstruction lights) (10°57′N, 65°21′W), the position of which is approximate.

South coast

5.196

1 From a position about 5 miles E of Punta Oriental (10°54′N, 65°13′W), from which a light (5.195) is exhibited, the track leads WSW and then WNW, passing (with positions relative to Punta Oriental Light):

SSE of Punta de Pela El Ojo (3¾ miles W), thence:

SSW of Punta de Los Negros (9¼ miles W) fringed by a drying rock, thence:

2 SSW of Punta Arena (12½ miles WNW). Depths less than 10 m extend 2 miles NNW and 5 cables W from Punta Arena and there is an isolated shoal, with a depth of 20 m over it, 3 miles NW of the point. In 1971, an extensive coral reef was reported to lie 1½ miles SE of Punta Arena.

3 The track then leads NW to a position about 4 miles W of Los Tortuguillos (13½ miles WNW), which consists of two islets. The islets, lying up to 2¼ miles offshore of Isla la Tortuga, are fringed by reefs on their N and W sides. Foul ground extends up to 6 cables S from the E islet and E from the W islet. Depths less than 10 m extend 3 cables S from the W islet.

4 **Useful mark:**

Radio tower (red obstruction lights) (10°54′N, 65°17′W), the position of which is approximate.

Small craft

Channels

5.197

1 **Cayo Herradura.** There is a passage between Cayo Herradura (10°59′N, 65°23′W) and the NW coast of Isla la Tortuga, but local knowledge is required.

Los Tortuguillos. There is also a channel, with a least charted depth of 8 m in it, between Los Tortuguillos (10°58′N, 65°26′W) and Isla la Tortuga. The channel passes 5 cables E, SE and S of the E islet, and thence 6 cables S of the W islet.

Anchorages

5.198

1 **Punta Delgada de Este**. A cove on the W side of Punta Delgada de Este (10°57′N, 65°13′W) affords anchorage 5 cables W of the NW extremity of the point, in a depth of about 10 m.

Cayo Herradura. Anchorage can be obtained 4 cables WSW of the light (5.195) exhibited from the NW end of Cayo Herradura (10°59′N, 65°23′W), in depths from 7 to 8 m.

2 **Punta Arena.** Good anchorage can be obtained in a depth of 14 m with Punta Arena (10°55′N, 65°25′W) bearing 140°, distant 1·3 miles, and the centre of the W islet of Los Tortuguillos bearing 007°.

Laguna El Carenero

5.199

1 Laguna El Carenero (10°53′N, 65°15′W) is the largest of several lagoons situated on the S coast of Isla la Tortuga. Its main entrance, apparently suitable for boats, lies 2¾ miles W of Punta Oriental.

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ROUTES NORTH AND SOUTH OF ARCHIPIÉLAGO LOS HERMANOS AND ISLA LA BLANQUILLA

General information

Chart 2191

Routes

5.200

1 **North route.** From a position about 10 miles N of Isla Testigo Grande (11°23′N, 63°07′W) the route leads initially WNW, for about 92 miles, passing NE of Archipiélago Los Hermanos, to a position 5 miles NE of Isla La Blanquilla (11°48′N, 65°36′W), and thence W, for a farther 38 miles, to the vicinity of 12°00′N, 65°16′W.

2 **South route.** From a position about 10 miles N of Isla Testigo Grande (11°23′N, 63°07′W) the route leads W, for about 140 miles, to the vicinity of 11°34′N, 65°30′W, passing S of Archipiélago Los Hermanos and Isla La Blanquilla.

Principal marks

5.201

1 **Major lights:**

Isla Testigo Grande Light (11°23′N, 63°07′W) (5.13).

Isla La Blanquilla Light (white round GRP tower, orange bands, 10 m in height) (11°50′N, 64°36′W), exhibited from the middle of the S side of the island.

Directions

(continued from 5.14)

North route

5.202

1 From a position about 10 miles N of Isla Testigo Grande (11°23′N, 63°07′W) the track leads initially WNW, passing:

NNE of a shoal (11°38′N, 63°29′W), reported in 1962 to have a depth of 97 m over it, thence:

2 NNE of an obstruction (11°41′N, 63°39′W) reported in 1942; its charted position is approximate. Thence:

NNE of Isla La Horquilla (11°50′N, 64°26′W), the N–most of the N chain of Archipiélago Los Hermanos (5.204).

3 The track then leads to a position 5 miles N of Punta Manglecito (11°54′N, 64°37′W), the N extremity of Isla La Blanquilla (5.206). Thence the track leads W in deep water to the vicinity of 12°00′N, 65°16′W.

(Directions continue for a route N of Isla La Orchilla at 7.9)

South route

5.203

1 From a position about 10 miles N of Isla Testigo Grande (11°23′N, 63°07′W) the track leads W, passing:

S of an area (11°35′N, 63°29′W) of unexploded ordnance; a shoal, reported in 1975 to have a depth of 60 m over it, lies 1¼ miles NNW of this area. Thence:

2 S of a shoal (11°35′N, 63°38′W), reported in 1975 to have a depth of 67 m over it, thence:

S of Isla Chiquito (11°43′N, 64°24′W), the S–most of the S chain of Archipiélago Los Hermanos (5.204), Thence:

3 S of Punta Cabecera (11°49′N, 64°34′W), the SE extremity of Isla La Blanquilla (5.206); a light (5.201) is exhibited from the S side of the island.

The track then continues W in deep water to the vicinity of 11°34′N, 65°30′W.

(Directions continue for a route S of Isla La Orchilla at 7.10)

Archipiélago Los Hermanos

Description

5.204

1 Archipiélago Los Hermanos (11°46′N, 64°24′W), two chains of barren and rocky islands, lie 40 miles N of Morro de Robledal (11°03′N, 64°23′W), the W extremity of Isla de Margarita; the islands are Venezuelan territory. The islands are generally steep-to.

2 The S chain is comprised of Isla Chiquito (11°43′N, 64°24′W), the S–most and smallest island, Isla Fondeadero, and Islas Pico, the N island and largest.

The N chain is comprised of Isla La Horquilla (11°50′N, 64°24′W), the N–most, Isla Los Morochos, and Islas Grueso (11°48′N, 64°25′W), the S island and largest; it is saddle-backed.

Depths

5.205

1 The channels between the islands have depths of generally 45 m. The passage between Isla Pico, in the S chain, and Isla Grueso, in the N chain has general depths from 27 to 43 m; a 14 m patch lies 8 cables SE of the E extremity of Isla Grueso.

2 In the N chain, depths less than 18 m extend 2½ cables S from Isla La Horquilla; an 11·3 m patch lies 1 cable off the SW extremity of the island. The channel between an unnamed islet, lying close NW of Isla Los Morochos, and the bank fringing the S side of Isla La Horquilla is about 4 cables wide with a depth of 25 m; the passage S of Isla Los Morochos has depths from 25 to 36 m.

Isla La Blanquilla

Description

5.206

1 Isla La Blanquilla (11°48′N, 65°36′W) is about 18 m high and undulating, with clumps of trees, grassy tracks, and outcrops of granite; the E an S sides have crusts of limestone coral overlying granite. The island is Venezuelan territory and is politically associated with Estado Nueva Esparta.

Depths

5.207

1 A 10·4 m patch lies 2 cables SSW of Punta Cabecera (11°49′N, 64°34′W), the SE extremity of Isla La Blanquilla; a rock awash, lies 1½ cables SE of Punta Bobos, the SW extremity of the island. Elsewhere, there are depths of more than 10 m about 2 cables off the S coast of the island.

2 Reefs and rocks, with depths less than 5 m extend up to 2 cables from the W coast of the island. Depths less than 18 m do not extend more than 4 cables from this coast.

A bank, with depths of less than 10 m over it, extends up to 6 cables from the E coast, which is rocky and

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undercut, between Punta Manglecito (11°54′N, 64°37′W), the N extremity of the island, and Punta Cabecera.

Anchorages and mooring

5.208

1 **South coast.** A cove on the S coast of Isla La Blanquilla, midway between Punta Cabecera and Punta Bobos, affords anchorage in a depth of 25 m about 3½ cables S of a red-roofed house standing at the head of the cove.

There is also a mooring buoy (white), close off the S coast, in the vicinity of 11°49′·0N, 64°36′·3W.

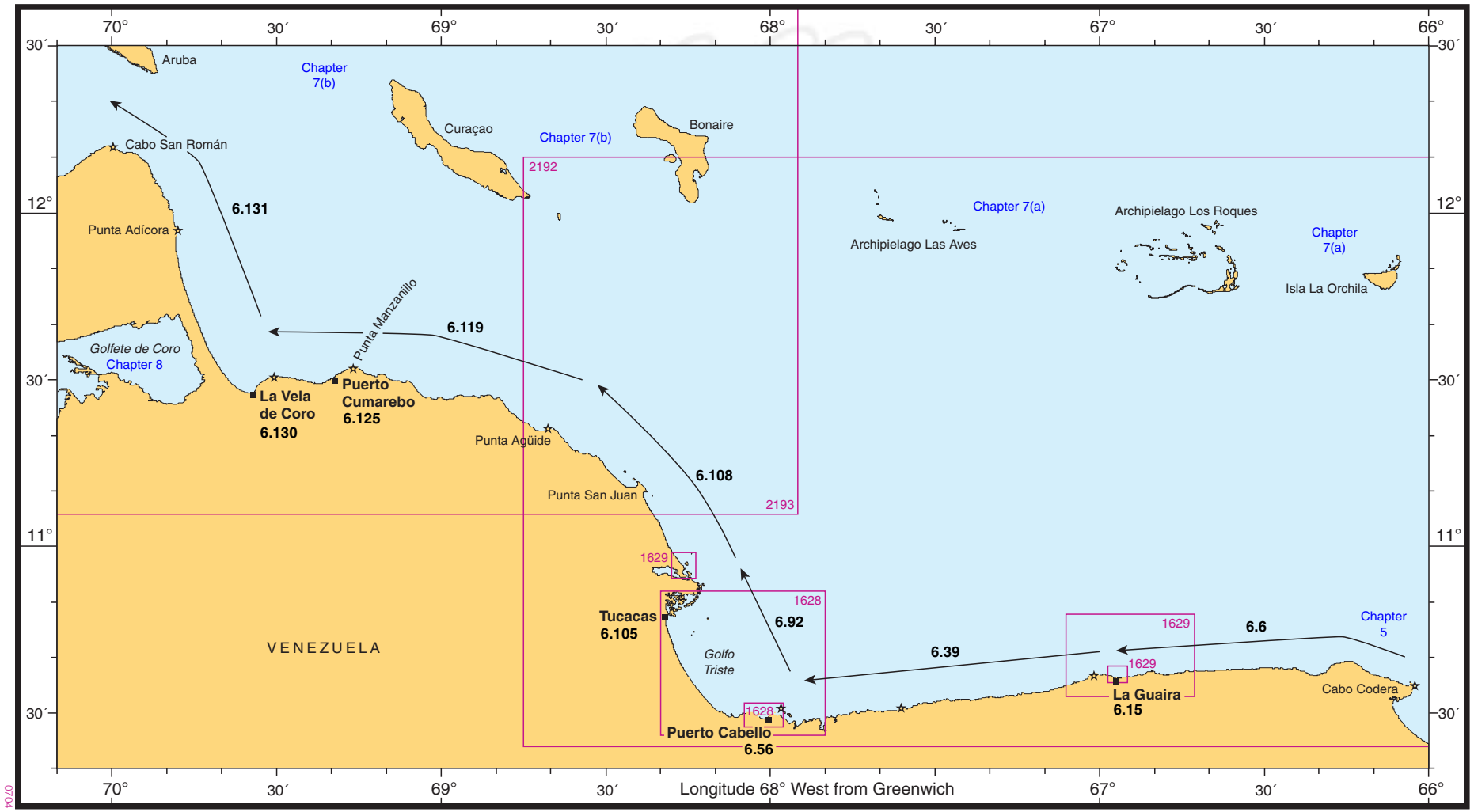
West coast. The best anchorage is off a sandy beach on the W coast of the island 1¼ miles NE of Punta de La Aguada (11°51′·0N, 64°38′·9W). Vessels anchor in a depth of 14 m about 4 cables off the beach, with a house, standing among coconut palms 5 cables inland, bearing 090°.

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Chapter 6 - Venezuela - Cabo Codera to Cabo San Román



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CHAPTER 6

NORTH COAST OF VENEZUELA
CABO CODERA TO CABO SAN ROMÁN

GENERAL INFORMATION

Chart 1966

Scope of chapter

6.1

1 This chapter describes the coastal waters of Venezuela from Cabo Codera (10°35′N, 66°03′W) to Cabo San Román (12°11′N, 70°00′W), 252 miles WNW. The chapter is arranged as follows:

Cabo Codera to Puerto Cabello (6.4).
Puerto Cabello to Cabo San Román (6.89).

Regulations

6.2

1 For regulations concerning vessels entering Venezuelan territorial waters, see 1.47.

Rescue

6.3

1 For information on search and rescue facilities in Venezuelan waters, see 1.62.

CABO CODERA TO PUERTO CABELLO

GENERAL INFORMATION

Chart 2192

Area covered

6.4

1 This section covers the coastal waters from Cabo Codera (10°35′N, 66°03′W) to Puerto Cabello (10°29′N, 68°00′W), 114 miles W. It is arranged as follows:

Cabo Codera to Puerto La Guaira (6.6).
Puerto La Guaira (6.15).
Puerto La Guaira to Puerto Cabello (6.39).
Puerto Cabello including Puerto Borburata and Venterminales Pier (6.56).

Topography

6.5

1 Between Cabo Codera and Puerto La Guaira, 52 miles W, thence to Puerto Cabello, 62 miles farther W, the coast is generally bold and rocky, with some sandy beaches and few distinct points. A great mountain range backs this coast and, at its E end, attains an elevation of 2265 m (7430 ft) at Cerro Caculo (10°29′N, 66°18′W) (Chart 1966). Pico Naiguatá (10°33′N, 66°47′W) (Cerro Naiguatá on Chart 1966), the highest and most prominent peak, rises to an elevation of 2740 m (2764 m (9072 ft) on Chart 1966).

CABO CODERA TO PUERTO LA GUAIRA

General information

Charts 2192, 1629 plan of Approaches to La Guaira

Route

6.6

1 From a position about 5 miles NE of Cabo Codera (10°35′N, 66°03′W) the route leads initially NW, for 13 miles, passing between the mainland coast and Farallón Centinela (10°49′N, 66°06′W) to a position NE of Punta Masparro (10°39′N, 66°14′W). The route then leads W, for a farther 45 miles, to a position about 5 miles N of the head (10°36′·5N, 66°57′·1W) of North Mole, the outer breakwater of Puerto La Guaira.

Submarine cables

6.7

1 Several submarine cables land at a position close ESE of Punta El Cojo (10°37′N, 66°53′W), and there is a restricted area, in which lies another submarine cable, extending 5 cables NNE from Punta Mulatos (10°36′N, 66°55′W). Mariners should not anchor or trawl in the vicinity of these cables.

2 For further information on submarine cables see 1.42.

Principal marks

6.8

1 **Landmarks:**

Monte de Avila (10°33′N, 66°54′W) (Chart 1966), with a distinctive tip on its summit and an elevation of 2155 m (7070 ft).
Hotel (white, red obstruction lights) (Chart 1966), standing 2 miles ESE of Monte de Avila.

Major lights:

2 Farallón Centinela Light (white hexagonal GRP tower, orange stripes, 6 m in height) (10°49′N, 66°06′W).
Puerto La Guaira Light (white tower, orange bands) (10°35′N, 66°57′W); it was reported in 1998 that the structure is difficult to identify in morning haze conditions.

Other aid to navigation

6.9

1 **Racon:**

Farallón Centinela (10°49′N, 66°06′W).

Directions

(continued from 5.187)

Cabo Codera to Punta Fronton del Frailes

6.10

1 From a position about 5 miles NE of Cabo Codera (10°35′N, 66°03′W), from which a light (5.187) is exhibited, the track leads initially NW, passing (with positions relative to Cabo Codera):

NE of the mainland coast lying between Cabo Codera and Punta Masparro, 11½ miles NW; rocks, on which the sea breaks, lie up to 4 cables off this coastline in several places. And:

2 SW of Farallón Centinela (14½ miles N), a prominent pale coloured rock, from which a light (6.8) is exhibited. The NE side of the rock is steep, but its SW side slopes gradually. A rock, on which the sea breaks, lies 2½ cables NNW of Farallón Centinela.

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3 The track then leads W, passing:

N of Piedra del Obispo (13 miles NW), which lies between Punta Masparro and Punta Los Indios (Punta Chuspa on Chart 1966). Piedra del Obispo is a low cape readily distinguished from E or W, but from N it merges with the background and it is then difficult to identify. Thence:

4 N of Bajo Sabana (19 miles WNW), lying 2 miles offshore.

The track then leads to a position N of Punta Fronton del Fraile (22 miles WNW), an indistinct point.

Punta Fronton del Frailes to Puerto La Guaira

6.11

1 From N of Punta Fronton del Frailes (10°38′N, 66°25′W) the track continues W, passing (with positions relative to Punta Naiguatá (10°37′N, 66°45′W)):

N of Punta Camuri Grande (1½ miles E); a light (yellow masonry tower, black bands, 10 m in height) is exhibited from a position 4 cables ESE of the point. Thence:

2 N of Punta Naiguatá, which is low and indefinite, but a coconut plantation on the point makes it easier to identify, especially from E or W. A small harbour is situated on the E side of the point; a light (white post on blue and white building) is exhibited from the N side of the breakwater forming the harbour. Other marks for identifying Punta Naiguatá are a sandy beach E of the point behind which there are some reddish cliffs and, at night, the lights of Pueblo de Naiguatá which stands above the cliffs. Thence:

3 N of Punta Caraballeda (6 miles W), a low point. A breakwater, forming the N side of Puerto del Guaicamacuto (6.14) extends WNW from the point; Punta Caraballeda Light (white concrete tower, red bands) is exhibited from the head of the breakwater.

The track then leads to a position about 5 miles N of the head of North Mole (12¼ miles W), the outer breakwater of Puerto La Guaira (6.15), from which a light (white GRP tower, green bands, 10 m in height) is exhibited.

4 **Useful mark:**

Light (white concrete tower, black bands) exhibited from a position 7½ cables SW of Punta Naiguatá (10°37′N, 66°45′W). This light was reported in 1984 to be almost obscured by shore lights.

(Directions continue, for Puerto La Guaira at 6.32, and for the coastal route W at 6.46)

Anchorages

Ensenada de Corsarios

6.12

1 **Description.** Ensenada de Corsarios (10°35′N, 66°04′W) is entered close W of Punta El Muerto (5.187), the NW extremity of Cabo Codera. The head of this small bay is low and sandy, but rocks extend 1½ cables offshore W of its head.

2 **Anchorage.** Vessels may obtain anchorage in Ensenada de Corsarios SW of Punta El Muerto in a depth of 13 m, over a bottom of sand and shells, about 3 cables offshore.

Ensenada Chuspa

6.13

1 **Description.** Ensenada Chuspa is entered between Punta Los Indios (10°38′N, 66°18′W) (Punta Chuspa on Chart 1966) and Punta Fronton del Fraile, 6½ miles W; the shores of the bay are rocky. When approaching the bay from N or W, care is necessary to give Bajo Sabana a wide berth.

2 **Anchorage.** In Ensenada Chuspa anchorage is best found about 5 cables offshore near Poblado de Chuspa which stands 1½ miles SSW of Punta Chuspa, but the holding ground is only fair and the bay is open to the prevailing winds and swell.

Useful mark:

The lights of Chuspa are a good mark at night.

Small craft

Puerto del Guaicamacuto

6.14

1 **Description.** Puerto del Guaicamacuto (10°37′·2N, 66°50′·8W), also known as Caraballeda Sports Harbour, is situated on the S side of Punta Caraballeda. It consists of an outer part referred to as Marina Mar, and an inner part, Laguna Caribe. Marina Mar is protected from the N by a main breakwater, from the head of which Punta Caraballeda Light (6.11) is exhibited; the SW side is protected by a secondary breakwater.

2 Laguna Caribe is accessed through a short narrow channel, with a depth of approximately 3·4 m in it, entered close S of the secondary breakwater. Caraballeda Yacht Club is situated on the NE side of Laguna Caribe, with a hotel nearby.

3 **Useful marks:**

Lights (white concrete towers, red bands) exhibited from the N and S ends of the secondary breakwater.

PUERTO LA GUAIRA

General information

Chart 1629 plans Approaches to La Guaira and La Guaira

Position

6.15

1 Puerto La Guaira (10°36′N, 66°56′W) is situated on the N coast of Venezuela, 6 miles N of Caracas, the capital of the country.

Function

6.16

1 Puerto La Guaira is the principal seaport of Venezuela and the port for Caracas. The main exports are cocoa, coffee and hides; imports include manufactured products and provisions. Behind the port Ciudad de La Guaira, with a population of about 2 800 000, has spread up the lower slopes of the mountains and to the suburbs of Macuto to the E and Maiquetía to the W.

Traffic

6.17

1 In 1997 the port was used by 1363 vessels with a total of 14 827 846 dwt.

Port Authority

6.18

1 Puertos del Litoral Central SA, Av Soublette, Termina Maritimo de Pasjeros, Puerto de La Guaira, Edo Vargas, Venezuela.

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Limiting conditions

Controlling depths

6.19

1 Depths in the greater part of the harbour of Puerto La Guaira are from 7·0 to 14·5 m.

Deepest and longest berth

6.20

1 Berth No 6 (6.33).

Density of water

6.21

1 1·025 g/cm^3.

Local weather and sea state

6.22

1 **Winds.** The prevailing winds off Puerto La Guaira are the North-east Trades which blow with great regularity from February to June. Calms and W breezes occur frequently from July to October.

Usually once or twice in autumn, *Calderetas*, which are hot sharp blasts from the mountains, have sufficient force to be dangerous to ships not well secured in harbour. These winds are not usually of long duration.

2 Although Puerto La Guaira lies S of the hurricane zone, the effects of these tropical storms are occasionally felt strongly in the harbour. During the hurricane season, ships should be prepared to put to sea at short notice. For further information on hurricanes see 1.157 and *The Mariner's Handbook*.

3 **Sea state.** Heavy and dangerous seas are experienced, chiefly from October to March, and result from strong gales in the Atlantic Ocean or Caribbean Sea; they take the form of heavy ground swells and, in the most severe cases, of long rollers usually coming in groups of three to four at in frequent intervals and having great destructive power. The rollers sometimes begin to show in depths of 13 m in lines about 2 miles long, gradually rising as they approach the coast; a scend is sometimes felt inside the harbour of Puerto La Guaira.

4 It has been reported that, off Puerto La Guaira, a dangerous ground swell is nearly always preceded by calms or variable winds. The regular trade wind is a certain prognostication of good weather. For further information see *The Mariner's Handbook*.

Arrival information

Port radio

6.23

1 There is a port radio station at Puerto La Guaira. For further information see *Admiralty List of Radio Signals Volume 6 (5)*.

Notice of ETA required

6.24

1 An ETA should be sent 72, 48 and 24 hours prior to arrival. A difference in ETA of more than 6 hours should be sent after the last ETA message.

Outer anchorages

6.25

1 **General anchorage.** The main anchorage area off Puerto La Guaira lies from close N of the head of North Mole and extends 1½ miles N and E; limits are shown on the chart. The anchorage is exposed from W, through N, to E, but is generally considered safe except in winter, the season of rollers (6.22).

2 This anchorage should be used only temporarily; it has depths of more than 20 m with good holding ground, over a bottom of sand with scattered rocky patches. A swell of varying magnitude is always present, but vessels usually ride to the wind and are not subject to heavy rolling.

3 **Explosives.** Vessels carrying explosives are required to anchor in an area, SE of the main anchorage, 2 cables NW of Punta Mulatos (10°36′N, 66°55′W).

Pilotage

6.26

1 Pilotage is compulsory and available from 0600 to 2400 local time. The pilot boards about 1 mile NNE of the head of the N breakwater on the W side of the main anchorage.

Tugs

6.27

1 Tugs are compulsory for berthing and unberthing. Vessels more than 140 m in length are obliged to use two tugs.

Harbour

General layout

6.28

1 Puerto La Guaira is an artificial harbour, protected by North Mole which extends 1 mile WNW from the shore. South Mole, standing 5 cables SE of the head of North Mole, shelters the harbour from NW. Inside the harbour there is a turning area 402 m wide.

Fishing

6.29

1 Fishing vessels, which may not show up on radar, are usually encountered in large numbers in the approaches to Puerto La Guaira. At night, these vessels only exhibit lights on the approach of other vessels.

Natural conditions

6.30

1 **Current.** The current is W–going in the offing; near the coast, it is weak and seldom attains a rate exceeding ¼ kn. A counter-current is frequently observed inshore during calms and variable winds, especially in autumn, and sometimes attains a rate of 2½ kn. For further information on currents see 1.141.

2 **Climatic table.** For Caracas/Maiquetía Airport see 1.167 and 1.173.

Principal marks

6.31

1 **Landmarks:**

Monte de Avila (10°33′N, 66°54′W) (Chart 1966) (6.8).

Hotel (6.8), standing 2 miles ESE of Monte de Avila.

Two towers (red framework, red obstruction lights) standing in the vicinity of Punta Mulatos (10°36′N, 66°55′W).

2 El Vigía (grey building, 109 m high) (10°36′N, 66°56′W), a citadel standing on a mountain spur overlooking the city, with a flagstaff 15 m high.

Chimneys and brightly illuminated power station standing 2 cables NE of El Vigía.

Church, with a white clock tower, standing 1½ cables E of El Vigía.

3 Naval academy (grey, three storey building with tower) at Punta Maiquetía (10°36′N, 66°57′W).

Cabo Blanco (10°37′N, 66°59′W), which is steep and composed of bare pale-coloured rock.

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Major lights:

Puerto La Guaira Light (10°35′N, 66°57′W) (6.8).

4 Maiquetía Airport aero light (metal framework tower, 8 m in height) (10°36′N, 67°00′W).

Directions for entering harbour

(continued from 6.11)

6.32

1 From a position about 5 miles N of the head (10°36′·5N, 66°57′·1W) of North Mole, the outer breakwater of Puerto La Guaira, the track leads S to a position about 3 cables W of the head of the North Mole, from which a light (6.11) is exhibited. Thence the track leads ESE, passing (with positions relative to the head of North Mole):

NNE of South Mole (4 cables SSW) from the head of which a light (white GRP tower, red bands, 8 m in height) is exhibited, thence:

2 SSW of the head of North Mole, thence:

NNE of the coastal bank lying between South Mole and Navy Quay (5 cables SE); the N side of the bank, on which there are dangerous wrecks and drying rocks, is marked by a light-buoy (starboard hand).

3 The track then leads directly to the berths in the harbour.

Useful mark:

Light (white GRP tower, red bands, 10 m in height) (10°36′·1N, 66°56′·7W) exhibited from the head of Navy Quay.

Berths

6.33

1 Berths are available alongside the inner part of North Mole and all round the perimeter of the harbour, including both sides of Raymond Quay (10°36′·1N, 66°56′·3W), which projects W from the E side, and the SE and NW sides of the passenger terminal on West Pier, 2½ cables W. The berths are numbered in a clockwise direction round the harbour.

2 Navy Quay is situated on the SE face of South Wall (10°36′·1N, 66°56′·7W); it is for the exclusive use of warships. There is a Ro-Ro terminal at Berth No 1 on North Mole.

The deepest and longest berth is Berth No 6, on North Mole, with a length of 176 m and a depth of about 11 m alongside.

Port services

Repairs

6.34

1 Repairs to engines, and welding, undertaken; ship hoist with a capacity of 650 tonnes; slipway with a capacity of 80 tonnes. The nearest dry dock is at Puerto Cabello.

Other facilities

6.35

1 Divers available; hospital services; Deratting and Deratting Exemption Certificates issued.

Supplies

6.36

1 Fuel supplied by road tanker; fresh water and provisions available.

Communications

6.37

1 There are daily air services from the international airport at Maiquetía (10°36′N, 67°00′W).

Small craft

6.38

1 Within Puerto La Guaira landing from boats can be effected close W of Berth No 1 on North Mole.

PUERTO LA GUAIRA TO PUERTO CABELLO

General information

Charts 2192, 1629 plan of Approaches to La Guaira

Route

6.39

1 From a position about 5 miles N of the head (10°36′·5N, 66°57′·1W) of North Mole, the outer breakwater of Puerto La Guaira, the route leads WSW for 60 miles, well clear of any offshore dangers, to a position 5 miles NNE of Isla Alcatraz (10°30′N, 67°58′W), lying on the NE side of the approaches to Puerto Cabello (6.56).

2 Along this route there are no sheltered harbours E of Puerto Turiamo (10°28′N, 67°51′W) (6.51).

Topography

6.40

1 From Punta Iguana (10°35′N, 67°06′W) to Puerto Turiamo, 44 miles WSW, the coast consists of steep and rocky bluffs, interspersed with sandy and rocky beaches; there are many shallow coves, fringed with palm trees. Behind the coast, ridges extend N from the main mountain range.

2 The coast from Puerto Turiamo to Punta El Peñón, 4½ miles W, is rocky and steep; thence to Punta Brava (10°29′N, 68°01′W), at Puerto Cabello, it is low and composed of sand and coral

Prohibited area

6.41

1 There is a prohibited area E of Puerto Cabello encompassing Puerto Turiamo (6.51) and Cienaga de Ocumare (6.55). The limits are between latitude 10°30′·5N and the coast, and between longitudes 67°47′·7W and 67°52′·5W.

Measured distance

6.42

1 Between Isla Larga (10°29′N, 67°57′W) and Isla Alcatraz, 1¼ miles NW, there is a measured distance:

South-east limit marks. Two towers (black and white stripes) on Isla Larga, in line bearing 216°.

North-west limit marks. Tower (10°30′·5N, 67°58′·5W) (black and white stripes) on the NE side of Isla Alcatraz, in line with Isla Alcatraz Light, bearing 216°.

2 Distance. 3690·8 m (2·002 sea miles).

Running track. 306°/126°.

Submarine cables

6.43

1 Two submarine cables, shown on the chart, land on the mainland at a position 1½ miles SW of Isla Larga (10°29′N, 67°57′W). For further information on submarine cables see 1.42.

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Principal marks

6.44

1 **Landmarks:**

Power station with three chimneys at Punta Arrecife (10°35′N, 67°05′W).

La Mesa (10°23′N, 67°37′W) (Chart 1966), a flat-topped mountain 2240 m (7348 ft) high, standing 7½ miles S of Punta El Palito (Morro Choroní on Chart 1966).

2 Pico Cucharonal (10°24′N, 67°50′W) (Chart 1966), a peak 1850 m (6070 ft) high.

Fortín Solano (10°28′N, 68°01′W), a white circular building standing on a hill above Puerto Cabello; it can be seen at a distance of 20 miles in clear weather.

3 **Major lights:**

Maiquetía Airport aero light (10°36′N, 67°00′W) (6.31).

Puerto La Cruz Light (white and orange GRP framework tower, 12 m in height) (10°32′N, 67°21′W).

4 Punta El Palito Light (white metal framework tower, 4 m in height) (10°31′N, 67°36′W).

Punta Brava Light (white concrete tower, orange bands, 35 m in height) (10°29′N, 68°01′W).

Fortín Solano Light (metal framework tower, 10 m in height) (10°28′N, 68°01′W).

Other aid to navigation

6.45

1 **Racon:**

Isla Alcatraz (10°30′N, 67°58′W).

For further details see *Admiralty List of Radio Signals Volume 2*.

Directions

(continued from 6.11)

6.46

1 From a position about 5 miles N of the head (10°36′·5N, 66°57′·1W) of North Mole, the outer breakwater of Puerto La Guaira, the track leads WSW, passing (with positions relative to Maiquetía Airport aero light (10°36′N, 67°00′W)):

NNW of Cabo Blanco (1 mile ENE) (6.31), thence:

2 NNW of Punta Calera (1 mile WNW), a relatively low point which is flat and covered with vegetation. The point can be identified by a cane plantation close behind it. Lights are exhibited from the heads of the breakwaters forming a yacht harbour (6.53) close E of Punta Calera. Thence:

3 NNW of Punta Arrecife (4½ miles WSW) where there is a power station (6.44); a light is exhibited from the head of a mole on the E side of Punta Arrecife. Thence:

NNW of Punta Iguana (6 miles WSW); a rock awash lies close W of the point. Thence:

4 NNW of Puerto La Cruz (20½ miles WSW) (6.54), from which a light (6.44) is exhibited.

The track then continues WSW, passing (with positions relative to Punta El Palito Light (10°31′N, 67°36′W)):

NNW of Punta Tuja (8 miles ENE), thence:

5 NNW of Punta El Palito (Morro Choroní on Chart 1966), from which a light (6.44) is exhibited. Punta El Palito is a rounded headland 76 m high, appearing detached from the lower land in the vicinity and readily distinguished at a distance of 10 miles. Close SE of the headland there is a small shallow cove with a sandy beach. Thence:

6 NNW of Punta Turiamo (14 miles WSW), the E entrance point of Puerto Turiamo (6.51). Isla Turiamo, from which a light (concrete tower, green and white bands) is exhibited, lies 1 cable W of Punta Turiamo.

7 The track then leads to a position about 5 miles NNE of Isla Alcatraz (22 miles W), the N of five cays fronting the NE side of Puerto Cabello; a light (white GRP framework tower, orange stripes, 15 m in height) is exhibited and a racon (6.45) transmits from the cay. A large part of Isla Alcatraz is occupied by a shallow lagoon, entered at the NW end of the cay close W of the light.

(Directions continue, for Puerto Cabello and Puerto Borburata at 6.76, and for a coastal route NNW at 6.96)

Catia La Mar Marine Terminal

Chart 1629 plan of Approaches to La Guaira

General information

6.47

1 **Position and function.** Catia La Mar Marine Terminal (10°36′N, 67°02′W) is situated 5 miles W of Puerto La Guaira. The terminal handles petroleum products and cement.

Topography. The marine terminal fronts the town of Catia La Mar which extends SSW along a beach from Cabo Carupao (10°37′N 67°02′W) and is backed by low hills; the cape which is low and covered with vegetation, can only be identified at a distance of 5 miles.

2 **Traffic.** In 1997 the terminal was used by 90 vessels with a total of 3 261 691 dwt.

Arrival information

6.48

1 **Outer anchorage.** Vessels awaiting a berth should anchor N of the outer mooring buoys in depths from 13 to 18 m.

Port radio. There is a radio station at Catia La Mar Marine Terminal. For details see *Admiralty List of Radio Signals Volume 6 (5)*.

2 **Pilotage.** Vessels should contact the pilot 2 hours in advance and await the pilot N of 10°36′·8N.

Directions for entering harbour

6.49

1 **Remarks.** There are no specific directions for berthing at the terminal. Local knowledge is required.

Useful marks:

Cement silos and oil tanks standing SE of the terminal.

Light (triangular daymark) exhibited from the head of the cement jetty.

Berths

6.50

1 **Cement jetty.** The jetty extends NNW from the coast, 6 cables SW of Cabo Carupao (10°37′N 67°02′W); there is a depth of about 7 m at the head of the jetty.

Offshore oil berths. These consist of three groups of mooring buoys, situated at the heads of submarine pipelines

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Minor anchorages and harbour

Chart 1628

Puerto Turiamo

6.51

1 **Description.** Puerto Turiamo (10°27′N, 67°51′W), lying within a prohibited area (6.41) is entered between Punta Turiamo and Punta Cambiador, 1¼ miles W. Pueblo de Turiamo, a fishing village standing on flat ground at the head of the inlet, has a population of about 500.

2 **Topography.** The inlet can be identified by Pico Cucharonal (10°24′N, 67°50′W) (6.44), a prominent peak 8 miles S of Punta Turiamo. Isla Turiamo fronts the W side of Punta Turiamo; the islet is rocky and difficult to distinguish from the offing. The shores of Puerto Turiamo are steep and fringed by coral reefs except at its head, from which a shallow bank of sand and mud extends 2 cables.

3 **Pilotage** is compulsory for merchant vessels which should first call at Puerto Cabello to embark the pilot. Customs and other formalities also have to be carried out at Puerto Cabello.

Directions for entering harbour. Puerto Turiamo may be approached from the N on the line of bearing 170° of Pico Cucharonal until Isla Turiamo is sighted. When approaching from the E or W, Puerto Turiamo is readily identified from close offshore as the entrance points are bold.

4 The inlet is entered on the alignment (184°) of two beacons standing on the shore at the head of the inlet, whilst passing about 5 cables W of Isla Turiamo, from which a light (6.46) is exhibited. Laguna de Turiamo is entered at the SE corner of the inlet through a channel 137 m wide.

Anchorage, over a bottom of sand and mud, can be obtained anywhere in Puerto Turiamo as convenient.

5 **Berth.** There is a wharf on the E side of the inlet 2 miles within the entrance. It is 250 m long with depths of 6·5 and 7·5 m alongside the central part; there are depths of less than 5·0 m within 50 m of both ends of the wharf. Lights are exhibited from both ends of the wharf; a rock close off the N end of the wharf is marked by a buoy (W cardinal).

6 **Supplies.** Good fresh water is available at the wharf.

Isla Larga

6.52

1 **Description.** Isla Larga (10°29′N, 67°57′W) is the E and largest of five cays lying off the mainland between Punta El Peñón and Punta Brava; it can sometimes be distinguished at a distance of 18 to 20 miles. Isla Alcatraz (6.46) is the N–most of the cays and Isla Santo Domingo lies between it and Isla Larga. All the cays are sandy and fringed by coral reefs; the only vegetation is scrub and grass.

2 **Anchorage.** Vessels can obtain anchorage between Isla Larga and the mainland in depths from 18 to 20 m, over a bottom of sand and ooze. Care is needed to avoid coral heads lying off the SW side of Isla Larga and the submarine cables (6.43) that land on the mainland. A good berth, shown on the chart, is with the W extremity of Isla Larga bearing 339°, distant 6 cables.

Small craft

Playa Grande Yacht Harbour

6.53

1 **Description.** Playa Grande Yacht Harbour (10°37′N, 67°01′W), situated close E of Punta Calera (6.46), is formed by two breakwaters. The number of craft the harbour can accommodate, the depths and number of berths, and the facilities available are not known.

2 **Useful marks:**

Light (metal tower) exhibited from the head of the E and outer breakwater.

Light (white bands) exhibited from the W breakwater.

Chart 2192

Puerto La Cruz

6.54

1 **Description.** Puerto La Cruz (10°32′N, 67°21′W), a cove midway between Punta Arrecife and Punta El Palito, provides anchorage off a village at its head.

Local knowledge is required.

Cienaga de Ocumare

6.55

1 **Description.** Cienaga de Ocumare (10°29′N, 67°49′W), which lies within a prohibited area (6.41), is an inlet constricted by coral reefs. A narrow channel, with a least depth of 11 m, leads 5 cables to an anchorage.

Local knowledge is required.

PUERTO CABELLO INCLUDING PUERTO BORBURATA AND VENTERMINALES PIER

General information

Chart 1628

Position

6.56

1 Puerto Cabello (10°29′N, 68°00′W) is situated on the SE side of Golfo Triste, 60 miles W of Caracas. Puerto Borburata is situated on the NE seaward side of Puerto Cabello, and is separated from the latter by a narrow strip of land 5 cables wide. Venterminales Pier is situated 1½ miles W of Puerto Cabello, SE of Isla Goaigoaza.

Function

6.57

1 Puerto Cabello is Venezuela's main port for cargo handling and the port of entry for Estado de Carabobo, which is the most heavily industrialised area in Venezuela; the state capital, Valencia, lies 30 km E of Puerto Cabello. The port handles a wide range of cargoes, including containers, automobiles, raw materials, manufactured products, steel and paper, and also serves as a transhipment port.

2 Puerto Borburata handles petroleum products and bulk chemicals. At Venterminales Pier liquid chemicals, including acids and vegetable oils, and bulk cargoes are handled.

Approach and entry

6.58

1 Puerto Cabello, Puerto Borburata and Venterminales Pier are approached from the NE, passing NW of Isla Alcatraz (10°30′N, 67°58′W). Puerto Borburata is then entered between Isla del Rey (10°30′N, 67°59′W) and Punta La Costica, 2¾ cables SW; Puerto Cabello is entered between Punta Brava (10°29′N, 68°01′W) and Isla Goaigoaza, 1¾ miles W.

Traffic

6.59

1 In 1997 Puerto Cabello was used by 2379 vessels with a total of 29 627 065 dwt.

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Port Authority

6.60

1 Puerto Cabello and Puerto Borburata come under the authority of Instituto Puerto Autonomo de Puerto Cabello, Final Calle Puerto Cabello, Edificio IPAPC, piso 6, Puerto Cabello, Estado Carabobo, Venezuela.

Venterminales Pier is operated by Compania Venezolana de Terminales SA.

Limiting conditions

Controlling depths

6.61

1 **Puerto Cabello.** Depths in the harbour range from 7·0 m to 12·8 m; in 1997 lesser depths were reported. A dredging program (2003) has been completed giving a depth of 12·19 m in the entrance channel and in the vicinity of the container berths.

2 **Puerto Borburata.** The channel leading to the terminal has charted depths from about 10·3 to 15·0 m in it.

Maximum authorised draught

6.62

1 The maximum authorised draught for Puerto Cabello is 10.51 m, although restricted access is allowed for deeper draught vessels.

Density of water

6.63

1 1·025 g/cm^3.

Maximum size of vessel handled

6.64

1 **Puerto Cabello.** Vessels with lengths up to 190 m are handled in the main harbour; at Lagoven Oil Terminal, outside the entrance to the main harbour, tankers up to 198 m in length, 28 m beam, 10·4 m draught, and 40 000 dwt use the berth.

2 **Puerto Borburata.** Tankers up to 175 m in length, 21 m beam, 9·4 m draught, and 32 000 dwt can be handled.

Venterminales Pier. Vessels up to 220 m LOA, draught 11·4 m and 40 000 dwt can berth at the terminal.

Arrival information

Port radio

6.65

1 There is a port radio station. For further information see *Admiralty List of Radio Signals Volume 6 (5).*

Notice of ETA required

6.66

1 ETA should be sent 72, 48 and 24 hours prior to arrival, or if a difference in ETA of more than 6 hours occurs after the last ETA message.

Outer anchorages

6.67

1 **Designated anchorages.** Anchorage may be obtained, for different class of vessels, in designated anchorages, the limits of which are shown on the chart, as follows (with positions relative to Punta Brava Light (10°29′N, 68°01′W)):

Alfa anchorage (1½ miles NW).

2 Bravo anchorage (1 mile N).

Charlie anchorage (9 cables W).

Delta anchorage (1½ miles), for vessels in quarantine, off the W side of Isla Goaigoaza.

Echo anchorage (4 miles WNW), for vessels carrying explosives.

3 **Prohibited anchorage.** Vessels are prohibited from anchoring in the harbour entrance of Puerto Cabello, which is crossed by a submarine power cable and water pipeline S of Fortín Libertador (10°29′·1N, 68°00′·6W).

Pilotage

6.68

1 Pilotage is compulsory in the navigable waters S of latitude 10°34′·0N and W of longitude 67°57′·0W. Pilots are readily available by day but require notice at night.

The pilot boards S of latitude 10°31′·0N and between longitudes 68°00′·0W and 68°02′·5W, excluding the entrance to Puerto Cabello and Puerto Borburata. While awaiting a pilot, vessels should anchor or remain under way, but stopped.

2 For further information see *Admiralty List of Radio Signals Volume 6 (5).*

Tugs

6.69

1 Tugs are compulsory for foreign vessels of more than 300 tonnes, both entering and leaving harbour, and when manoeuvring within it. Two tugs are required for vessels exceeding 146 m LOA.

Harbours

General layout

6.70

1 **Puerto Cabello.** This is an almost totally enclosed harbour with a narrow entrance on its W side. There are two outside berths along the mainland coast between the harbour entrance and Isla Goaigoaza, 1¾ miles WNW. Inside the harbour there are several basins in which there are numerous berths. A naval base is situated on the N side of the harbour, and there is a repair yard at its SE end.

2 **Puerto Borburata.** Situated on the NE side of Puerto Cabello this harbour is formed by a small inlet with an oil terminal and tank farm at its head.

Venterminales Pier. This consists of a pier extending 805 m NE from the shore near a power station 1½ miles W of the entrance to Puerto Cabello

Development

6.71

1 At Puerto Cabello a cruise terminal is being built between berths 2 and 4. The E side of the harbour, opposite berths 31 and 32, is being developed (2003) as a container terminal.

Concentration of traffic

6.72

1 It was reported in 1998 that the approach to the port is often congested by shipping early in the morning. When approaching Puerto Cabello a look-out should also be kept out for traffic proceeding to and from El Palito Terminal (6.97), about 7 miles W of Puerto Cabello.

Measured distance

6.73

1 See 6.42.

Principal marks

6.74

1 **Landmarks** (with positions relative to Punta Brava Light (10°29′N, 68°01′W)):

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Puerto Cabello – Venterminales Pier from E (6.70)

(Original dated 2002)

(Photograph – G. Kirk mv Logos II)

Radio tower (metal framework, red and white bands) (8 cables E).
Tower (4 cables E).
2 Water tower (aluminium-coloured, 38 m in height) (7 cables SSE).
Spire of cathedral (7½ cables S).
Tower (9 cables SSE).
3 Fortín Solano (1¾ miles SSW) (6.44).
Power station (2 miles WSW), with a water tower (red and white chequers, obstruction light) and three chimneys, standing on the coast near some large storage tanks.
4 **Major lights:**
Punta Brava Light (10°29′N, 68°01′W) (6.44).
Fortín Solano Light (10°28′N, 68°01′W) (6.44).

Other aid to navigation

6.75

1 **Racon:**
Isla Alcatraz (10°30′N, 67°58′W).

For further details see *Admiralty List of Radio Signals Volume 2*.

Directions for entering harbour

(continued from 6.46)

Puerto Cabello

6.76

1 From a position about 5 miles NNE of Isla Alcatraz (10°30′N, 67°58′W) the track leads SW, passing (with positions relative to Punta Brava Light (10°29′N, 68°01′W)):
NW of Isla Alcatraz (2¼ miles NE), from which a light (6.46) is exhibited and a racon transmits, thence:
2 SE of a dangerous wreck (2½ miles NNW), thence:
NW of Isla del Rey (1 mile ENE).

Thence when a position is reached about 8 cables NW of Punta Brava the track leads S, passing:
E of Bajo Larne (1¾ miles WNW), over which the sea breaks; the N side of the shoal is marked by a light-buoy (starboard hand). Thence:
3 E of Isla Goaigoaza (2 miles W), from which a light (orange GRP tower, white band, 12 m in height) is exhibited; the islet is low and wooded. Thence:
W of Punta Brava, from which a light (6.44) is exhibited. Punta Brava is low and fringed by a coral reef on which the sea breaks heavily. A low sandy tongue of land, on which stands part of a naval base, extends 5 cables SSW from the point to the entrance to the harbour.
4 Thence when a position is reached about 7 cables SW of Punta Brava the track leads E, passing:
N of a dangerous wreck (6½ cables SSW), marked by a light-buoy (N cardinal), thence:
Through the harbour entrance (5 cables S), 100 m wide, marked on its N and S sides by light-buoys (lateral).

Once inside the harbour the berths are directly accessible.

6.77

1 **Useful marks** (with positions relative to Punta Brava Light (10°29′N, 68°01′W)):
Fortín Libertador (4 cables SSW), situated on the N side of the harbour entrance; a light is exhibited from its S side.
Light (1½ miles W) exhibited from the head of Venterminales Pier.
2 Airport aero light (airport control tower) (4 miles WSW).

Puerto Borburata

6.78

1 Follow the directions for Puerto Cabello (6.76) until a position is reached about 1¼ miles NW of Isla del Rey (10°29′·8N, 67°59′·5W). The track then leads S for a short distance and thence SE, passing:

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Puerto Cabello – inner harbour showing Berths 7 and 9 with Berth 15 in background (6.81)

(Original dated 2002)

(Photograph – G. Kirk mv Logos II)

Clear of a light-buoy (safe water), moored 3 cables WNW of the W extremity of Isla del Rey, thence:

2 Through a channel, marked by light-buoys (lateral), lying between Isla del Rey and Punta La Costica.

Thence the track leads to a position 2 cables SE of the SE extremity of Isla del Rey, and then enters Puerto Borburata on the alignment (140°) of the following leading lights:

3 Front light (white GRP tower, black stripes) (10°29′·1N, 67°59′·0W).

Rear light (similar structure) (222 m from front light).

Berths

Venterminales Pier

6.79

1 Venterminales Pier (10°29′·2N, 68°02′·3W) contains three berths as follows:

Berth A, the innermost, situated on the SE side of the pier, can accommodate vessels up to 125 m LOA, draught 7·1 m and 11 000 dwt.

Berths B and C, situated at the outer end of the pier, can accommodate vessels up to 220 m LOA, draught 11·4 m and 40 000 dwt.

Lagoven Oil Terminal

6.80

1 Lagoven Oil Terminal (10°28′·7N, 68°00′·9W), is situated close SW of the entrance to Puerto Cabello. The terminal consists of a submarine pipeline, for discharging petroleum products, extending 2¾ cables N from the shore near a control station. Three mooring buoys, for the use of stern lines, are moored at the end of the pipeline, 2 cables SW of it, and 3 cables WSW of it.

Puerto Cabello

6.81

1 Within Puerto Cabello berths are arranged around all sides of the harbour. They are numbered from 1 to 43, as shown on the chart, in an anti-clockwise sequence:

Longest berth is No 24A; length 295 m.

Deepest berths are No's 31 and 32; depth 12·8 m.

Puerto Borburata

6.82

1 There are two berths at Puerto Borburata as follows:

No 1 Berth at the head of the inlet, used for bunkering only; length 122 m with an allowable draught of 6·1 m alongside.

No 2 Berth, W of No 1 Berth, consisting of a pier with dolphins close off each side of its head; length 175 m with an allowable draught of 9·4 m.

2 Berthing and unberthing are carried out by day only.

Port services

Repairs

6.83

1 Repairs carried out; the following facilities are available:

Dry dock, situated in the SE corner of Puerto Cabello; length 220·5 m, for vessels up to 30 000 dwt.

Ship hoist; capacity 5000 tonnes.

Slipway; capacity 3000 tonnes.

Other facilities

6.84

1 Hospitals; Deratting and Deratting Exemption Certificates issued; floating crane with a capacity of 250 tons.

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Puerto Cabello – inner harbour showing Berths 29 to 32 (6.81)

(Original dated 2002)

(Photograph – G. Kirk mv Logos II)

Supplies

6.85

1 Fuel oil delivered by road tanker, otherwise at bunkering berths at Puerto Borburata or El Palito Terminal; fresh water; provisions available.

Communications

6.86

1 Airport situated near the coast, 4 miles W of Puerto Cabello.

Harbour regulation

6.87

1 Vessels carrying explosives or ammunition may only dock by day, leaving harbour at 1700 and anchoring outside overnight.

Small craft

Balneario Playa Blanca

6.88

1 **Description.** At Balneario Playa Blanca (10°28′·5N, 68°01′·2W), 7 cables SW of the entrance to Puerto Cabello, there is a small boat harbour, formed between two breakwaters. The number of craft the harbour can accommodate, the depths and number of berths, and the facilities available are not known.

2 **Useful marks:**

Light (framework GRP pyramid, white and green bands, 3 m in height) exhibited from the head of the outer breakwater.

Light (framework GRP pyramid, white and red bands, 3 m in height) exhibited from the W breakwater.

PUERTO CABELLO TO CABO SAN ROMÁN

GENERAL INFORMATION

Charts 2192, 2193

Area covered

6.89

1 This section covers the coastal waters from Puerto Cabello (10°29′N, 68°00′W) to Cabo San Román (12°11′N, 70°00′W), 160 miles NW. It is arranged as follows:

Golfo Triste (6.92).

Punta Tucacas to Punta Agüide (6.108).

Punta Agüide to Bahía La Vela de Coro (6.119).

Bahía La Vela de Coro to Cabo San Román (6.131).

Topography

6.90

1 The coast from Puerto Cabello to Cabo San Román, the N extremity of Península de Paraguaná, is generally low and sandy. In the stretch between the vicinity of Punta Agüide (11°21′N, 68°41′W) and Punta Taimataima, 50 miles WNW, it consists of bluffs and cliffy points alternating with sandy beaches and is backed by hills. There are few landmarks.

Dangerous area

6.91

1 An area dangerous for navigation, shown on the charts, is bounded by a line extending N for 14 miles from Cayo del Noroeste (11°13′N, 68°27′W), thence WNW for 23 miles, thence S for 3½ miles to Punta Zamuro (11°27′N, 68°50′W). The area should be given a wide berth due to shoals and inadequate navigational aids.

GOLFO TRISTE

General information

Charts 2192, 1628

Route

6.92

1 Golfo Triste is entered between Punta Brava (10°29′N, 68°01′W) and Punta Tucacas (10°53′N, 68°14′W), 25 miles NW. The gulf is clear of dangers except for three offshore cays in its N part and some shoals off Punta Tucacas. El Palito (6.97), an oil terminal, is situated at the S end of the gulf.

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2 From a position about 5 miles NNE of Isla Alcatraz (10°30′N, 67°58′W) the coastal route leads NNW for 24 miles, across Golfo Triste, to a position about 7 miles ENE of Punta Tucacas.

Topography

6.93

1 The shores of Golfo Triste are mostly low, sandy and backed by mangroves. The land in the interior is lower than within the coast E.

Natural conditions

6.94

1 **Current.** The prevailing NW–going current in the offing is, by the orientation of Golfo Triste, forced N between the offshore cays and mainland. In the S part of the gulf, close inshore, an E–going set with eddies has been observed.

Winds. Land and sea breezes occur, but they sometimes vary from day to day. The sea breeze often blows all night.

2 **Sea state.** The surf is heavy and almost continuous along the sandy beach forming the head of Golfo Triste. Discoloured water, giving the appearance of shoals, may extend up to 3 miles offshore near the mouths of rivers and streams.

Principal marks

6.95

1 **Landmark:**

Oil refinery at El Palito Terminal (10°29′N, 68°07′W) (6.97), with chimneys (red and white, obstruction lights) and a flare. There are also a group of five oil storage tanks (white), grouped on a hill close S of the terminal; they are visible at a distance of about 20 miles in clear weather.

2 **Major lights:**

Punta Brava Light (10°29′N, 68°01′W) (6.44).

Fortín Solano Light (10°28′N, 68°01′W) (6.44).

Directions

(continued from 6.46)

6.96

1 From a position about 5 miles NNE of Isla Alcatraz (10°30′N, 67°58′W) the track leads NNW, passing (with positions relative to Cayo del Norte (10°47′N, 68°12′W)):

ENE of Cayo del Sur (4 miles SW) and Cayo del Medio, 7 cables NE, which are low mangrove-covered cays fringed by coral reefs; a coral shoal, with a depth of 3·0 m over it, lies midway between Cayo del Sur and Cayo del Medio. Thence:

2 ENE of Cayo del Norte, another low mangrove covered cay; a spit with a depth of 7·0 m over it, NE extends 5 cables NE from the cay. Thence:

ENE of a shoal (3 miles NNE), with a depth of 9·5 m over it; between this shoal and Cayo del Norte there is a clear passage. Thence:

3 ENE of several shoals (4¼ miles N), with a least depth of 8·5 m over them, extending 2½ miles SE from Cayo Sombrero.

The track then leads to a position about 7 miles ENE of Punta Tucacas (6 miles NNW), which is fronted by Cayo Sombrero (6.107). Punta Tucacas, the E extremity of a promontory, is low and indistinct with mangrove swamps extending about 1 mile inland. Thence a ridge rises gradually on the promontory towards the W; it is a fair landmark, especially seen from N or S.

4 **Useful mark:**

Airport aero light (10°29′N, 68°04′W) (6.77).

(Directions continue for the coastal route at 6.111)

El Palito Terminal

General information

6.97

1 **Position.** El Palito Terminal (10°29′N, 68°07′W) is situated on the S side of Golfo Triste, about 7 miles W of Puerto Cabello.

Function. The terminal exports petroleum products.

2 **Traffic.** In 1997 the terminal was used by 92 vessels with a total of 3 452 916 dwt.

Port Authority. Port Authority of El Palito, Capetania de Puerto Cabello, Puerto Cabello, Venezuela

Limiting conditions

6.98

1 **Deepest and longest berth.** Berth No 3 (6.102).

Maximum size of vessel. Vessels up to 85 000 dwt with a maximum draught of 14·6 m can be handled.

2 **Local weather.** Sea or swell or both may delay berthing in January, February and March when the North-east Trade Winds are strongest. When alongside, vessels must keep the main engines fully ready to enable unberthing under full power at short notice.

Arrival information

6.99

1 **Port radio.** There is a port radio station at El Palito Terminal. For further information see *Admiralty List of Radio Signals Volume 6 (5)*.

Notice of ETA required. Vessels should send an ETA 72 and 24 hours in advance.

2 **Anchorage.** Vessels can obtain anchorage 5 cables to 1 mile N or W of the E pier.

Pilotage is compulsory. The pilot boards in the anchorage area and is always available.

Tugs. The use of tugs for berthing and unberthing is compulsory.

Harbour

6.100

1 **General layout.** The terminal consists of two piers, part causeway and part trestle, extending 825 m NNE and 1450 m NW from Punta Chavez. There are two berths at the end of both piers.

Current. The current is usually W–going at a rate of 1 kn in the vicinity of the piers.

2 **Landmarks:**

Oil refinery at El Palito (10°29′N, 68°07′W) (6.95).

Three chimneys (red and white bands) at Punta Morón (10°30′N, 68°09′W).

Directions for entering harbour

6.101

1 **Approach.** There are no specific directions for approaching El Palito Terminal, the chart being sufficient guide. It should be noted, however, that on approaching the terminal at night the navigation lights exhibited from Berths No 1 and 2 may be obscured by the numerous background lights of the oil refinery.

2 Vessels berth heading seaward, with two anchors down, secure to buoys and dolphins. The pilot boat is used for moorings. Berth No 1 is approached from the N, berths No 2 and 4 from the E and Berth No 3 from the NW.

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3 **Useful marks:**

Silos Caribe Light (black framework tower, 4 m in height) (10°29′N, 68°06′W), exhibited from the head of a mole.

Lights (aluminium towers, 24 m in height) exhibited from Berths No 1 and 2 at the head of the E pier.

Light (red post, white bands) (10°31′N, 68°11′W).

Berths

6.102

Berth	*Maximum size of vessel*
1 East Pier, NW side, Berth No 1	50 000 dwt, LOA 228 m, draught 12·2 m
East Pier, SE side, Berth No 2	50 000 dwt, LOA 210 m, draught 11·6 m
North-west pier, NW side, Berth No 3	85 000 dwt, LOA 250 m, maximum draught 14·6 m
North-west pier, SE side, Berth No 4	85 000 dwt, LOA 250 m, maximum draught 12·2 m

Port services

6.103

1 **Repairs:** emergency minor repairs only; radar and radio repairs effected; dry dock at Puerto Cabello (6.56).

Other facilities: hospital and dental facilities at Puerto Cabello; limited dirty ballast disposal.

Supplies: fuel and provisions available; fresh water not available.

Communications. Airport, 4 km distant, at Puerto Cabello.

Anchorages

Cayo del Sur

6.104

1 Good anchorage, over a sand and mud bottom, can be obtained W of Cayo del Sur (10°44′N, 10°15′W) (6.96). Depths decrease uniformly to 10 m within 1 or 1¼ miles of the shore.

Tucacas

6.105

1 **Description.** Tucacas (10°48′N, 68°19′W), a small town, stands on the W entrance point of a large shallow lagoon W of Isla Brava, the SW and largest cay on the NW side of Golfo Triste. At one time copper ore was exported from Tucacas, but the harbour has now silted up.

Pilotage. Within an area off the NW shore of Golfo Triste, bounded S by latitude 10°45′N and E by longitude 68°12′W, pilotage is compulsory. A pilot may be obtained through the Port Captain, Puerto Cabello (6.68).

2 **Directions.** When Tucacas is approached from SE, a prominent gap in the ridge extending W from Punta Tucacas (10°53′N, 68°14′W) will be seen about 9 miles W of the point; some white cliffs on the hillside S of the gap will also be distinguished. The line of bearing 306° leads through a clear passage between Cayo del Norte (10°47′N, 68°12′W) and Cayo del Medio, whence the line of bearing 090°, astern, of the S extremity of Cayo del Norte leads to the anchorage S of Punta Brava (10°47′N, 68°18′W).

3 **Anchorage.** Vessels may obtain good anchorage, in depths of about 11 m, 3 to 4 cables S of Punta Brava, the SE extremity of Isla Brava; care should be taken not to get into shoal depths W of this position.

Small craft

Morrocoy National Park

6.106

1 **Description.** Morrocoy National Park, a place of out-standing natural beauty, encompassing an area of cays and lagoons, lies between Punta Brava (10°47′N, 68°18′W) and Punta Tucacas, 7 miles NE. The cays are covered with mangroves and fringed on their seaward sides by low coral points and shallow ledges; they are separated by narrow boat channels leading into the lagoons, some of which are extensive.

2 **Marinas.** Facilities for recreational craft in the park are provided by Marina Flamingo, Indunave Marina, Las Luisas Marina, Marina Morrocoy, Marina Las Canoas and Marina del Medio.

Cayo Sombrero

6.107

1 **Description.** Cayo Sombrero (10°53′N, 68°12′W) is separated from other cays off Punta Tucacas by a channel with a least width of 1 cable, the N entrance to which is tortuous and should be avoided due to many coral heads.

Anchorage and shelter is obtainable in the channel SW of Cayo Sombrero, in a depth of 17 m, approaching from the S only.

2 **Local knowledge** is required.

PUNTA TUCACAS TO PUNTA AGÜIDE

General information

Chart 2192

Route

6.108

1 From a position about 7 miles ENE of Punta Tucacas (10°53′N, 68°14′W) the coastal route continues NNW for 38 miles to a position about 15 miles ENE of Punta Agüide (11°21′N, 68°41′W), keeping outside the dangerous area shown on the chart.

Topography

6.109

1 From Punta Tucacas to Punta Noroeste, 4 miles NW, the coast is fronted by several cays and is indented by Golfo de Guare (Golfo de Cuaro on Chart 1629). From Punta Noroeste to Punta San Juan, 15½ miles NNW, the coast is low and flat with hills about 91 m high rising several miles inland.

2 The coast NW of Punta San Juan remains low and fronted by a beach for about 4 miles; thence the land becomes hilly and the coastline consists of red clay cliffs.

Dangerous area

6.110

1 See 6.91.

Directions

(continued from 6.96)

6.111

1 From the position about 7 miles ENE of Punta Tucacas (10°53′N, 68°14′W) the track leads NNW, passing (with positions relative to Cayo del Noroeste (11°13′N, 68°27′W)):

ENE of several shoals (22½ miles SSE), with a least depth of 8 m over them, lying up to 2 miles NNE and 3 miles N of Punta Tucacas, thence:

2 ENE of Cayo Borracho (19 miles SE), from which a light (white pyramidal framework tower, orange

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bands, 14 m in height) is exhibited; this cay is considerably higher than other cays to the S and is partially covered with vegetation. Thence:

ENE of Cayo La Pena (6½ miles SE) (La Piragua on Chart 1966), a pinnacle rock standing on a coral reef, thence:

3 ENE of Punta San Juan (3¼ miles SE), with a seaward frontage of 2½ miles. The point is fringed by a drying reef and is low with no distinctive features. Thence:

ENE of Cayo San Juan (2 miles SE), which is more easily identifiable than Punta San Juan; the cay is covered with mangroves and is fringed with coral reefs. Thence:

4 ENE of Cayo Noroeste, which is also covered with mangroves and is fringed with coral reefs. A light (white pyramidal metal framework tower, orange bands, 12 m in height) is exhibited from the W side of the cay. Thence:

ENE of Farallón del Saldado (4¼ miles NW), a pinnacle rock lying 2½ cables offshore, thence:

5 ENE of a bank (5½ miles NW), with a depth of 6·4 m over it.

The track then leads to a position about 15 miles ENE of Punta Agüide (15½ miles NW), from which a light (white GRP tower, orange bands) is exhibited. Punta Agüide, a red clay bluff, is about 23 m high but is prominent only from the E; a grove of palm trees and a village stand on its summit. A bank, with a least depth of 8·7 m over it, lies 2½ miles E of Punta Agüide.

(Directions continue for the coastal route at 6.124)

Puerto Chichiriviche

Chart 1629 plan of Puerto Chichiriviche

General information

6.112

1 **Position and function.** Puerto Chichiriviche (10°55′N, 68°16′W) is situated 3 miles NW of Punta Tucacas, on the W side of an inlet. The small town of Chichiriviche stands close W of the inlet's N entrance point. Puerto Chichiriviche was once an oil port, but oil activities have been abandoned; the port now exports cement. The inhabitants are occupied in fishing, agriculture and raising livestock.

2 **Approach and entry.** Puerto Chichiriviche is approached from the E through a channel between dangerous shoals and reef-fringed cays; it should not be attempted at night. The cays are more easily distinguished than the mainland. The port is then entered between Punta Chichiriviche (10°55′N, 68°16′W), known locally as Punta Varadero, and Punta Noroeste, 6 cables NW.

3 **Traffic.** In 1997 the port was used by 17 vessels with a total of 46 066 dwt.

Port Authority. Capetania Puerto de Puerto Cabello, Puerto Cabello, Venezuela.

Arrival information

6.113

1 **Submarine cables.** Two submarine cables, shown on the chart, land on the mainland at a position 1¼ miles NNW of Punta Noroeste (10°55′·6N, 68°16′·2W). For further information on submarine cables see 1.42.

2 **Pilotage** is compulsory within an area off the coast bounded N by latitude 10°59′N, and E by longitude 68°12′W. A pilot is obtained through the Port Captain, Puerto Cabello (6.56). A vessel should await the pilot E of Cayo Peraza (10°55′·8N, 68°15′·3W).

Harbour

6.114

1 **General layout.** The harbour is situated close inside Punta Noroeste (10°55′·6N, 68°16′·2W), the N entrance point of the inlet which leads S and thence WNW into Golfo de Guare (Golfo de Cuaro on Chart 1629). It consists of an anchorage and a wharf.

Landmarks (with positions relative to Punta Noroeste):

Cayo Borracho Lighthouse (3 miles NNE) (6.111).

2 Church spire (1½ cables WSW); a house (black and white stripes on the roof) stands E of the church.

Windmill (4 cables SW).

Oil tank (1 mile SSW).

Directions for entering harbour

6.115

1 **Caution.** The prevailing ENE winds occasionally raise a heavy swell off the entrance and cause a rough sea in the harbour. When passing between the cays and shoals with a following sea, skilful handling of the vessel is required; steering should be carefully watched and sufficient speed maintained to ensure control of the vessel.

2 **Track.** From a position about 3¾ miles ENE of Cayo Borracho Light (10°58′·3N, 68°14′·8W) the track leads SW on the line of bearing, 231°, of the oil tank (6.114) which is visible between Cayo Peraza and Cayo Los Muertos, passing (with positions relative to Cayo Borracho Light):

3 SE of a bank (8 cables SE), with a least depth of 7·8 m over it, lying off the SE side of Cayo Borracho, thence:

NW of a spit (2½ miles SE) (Chart 2192), with a least depth of 8·5 m over it, extending 1¼ miles NNE from an unnamed cay.

4 When about 1¼ miles from Cayo Peraza (10°55′·8N, 68°15′·3W) the track leads S, passing (with positions relative to Cayo Peraza):

E of Cayo Sal (6 cables NNW), thence:

W of shoals (1½ miles E), with a depth of 8·7 m over them, and:

5 E of a bank (2½ cables E), with a least depth of 7·8 m over it, marked on its SE side by two buoys (black and orange and white and orange), lying off the E side of Cayo Peraza.

The track then leads W on the alignment (about 271°) of the house (6.114), with a black and white striped roof, with the church spire, passing (with positions relative to Cayo Peraza):

6 N of Banco Lavendera (7 cables SE), thence:

S of the bank (2½ cables E), with a least depth of 7·8 m over it, lying off Cayo Peraza, thence:

N of the coral reefs fringing Cayo Pelón (4 cables SSW); the N side of the reefs are marked by a buoy (white orange).

7 The track then leads SW to the anchorage or wharf, with the oil tank (1½ miles SW) ahead and Cayo Peraza astern, passing (with positions relative to Cayo Peraza):

SE of Cayo Los Muertos (4 cables W), fringed with reefs; a buoy (white and orange) marks the SE side of these reefs. Thence:

8 NW of Punta Chichiriviche (7½ cables SSW), a low peninsula covered with mangroves.

South-west and S of Punta Chichiriviche there is a tortuous channel, obstructed by many reefs and shoals, which leads into Golfo de Guare (Golfo de Cuaro on Chart 1629).

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Berths

6.116

1 **Anchorage.** Good anchorage can be obtained in depths of about 9 m, over a bottom of sand and mud, anywhere in the W part of the harbour N of latitude 10°55′N, and more than 1½ cables off the W shore.

2 **Wharf.** A wharf, owned by a cement company, stands in Puerto Chichiriviche. The wharf is 120 m long, with a depth of 7·3 m at its head; accommodates vessels up to 80 m in length. Cargo is loaded using a bulk loader on a travelling gantry at approximately 200 tonnes per hour.

Port services

6.117

1 **Supplies:** fresh water; provisions available in limited quantities.

Anchorage

Chart 2192

Bahía San Juan

6.118

1 **Description.** Bahía San Juan (11°11′N, 68°25′W), situated on the W side of the NW end of Punta San Juan (6.111), is sheltered from winds between NE and E. Pueblo San Juan stands on the SE shore of the bay. The approaches to the bay are encumbered by Cayo San Juan (6.111) and Cayo del Noroeste, from which a light (6.111) is exhibited; the passage between Cayo San Juan and reefs extending 2½ cables NW from Punta San Juan is only suitable for small craft.

2 **Anchorages:**

Small vessels. Anchorage is obtainable about 1 mile WSW of Cayo San Juan (11°12′N, 68°25′W) in depths of up to 6·0 m, approached from the N of the cay. The area SE of this position is shallow and only suitable for small craft.

3 Larger vessels. Anchorage is obtainable about 6 cables W of Cayo Noroeste (11°13′N, 68°27′W) in depths of 8·0 m, taking care to avoid a 5·2 m patch lying 1½ miles W of this cay. This anchorage is approached from N of Cayo Noroeste.

PUNTA AGÜIDE TO BAHÍA LA VELA DE CORO

General information

Chart 2193

Route

6.119

1 From a position about 15 miles ENE of Punta Agüide (10°21′N, 68°41′W), keeping outside the dangerous area shown on the chart, the coastal route leads initially WNW, for 41 miles, to a position about 8 miles N of Punta Sabana (11°29′N, 69°07′W). The route then leads W, for a farther distance of 27 miles, to a position about 8 miles NNW of Punta Taimataima (11°30′N, 69°31′W).

Topography

6.120

1 The coast between Punta Agüide and Punta Zamuro, 10 miles NW, is alternatively low and cliffy, and is backed by rolling hills. From Punta Zamuro to Punta Sabana, 16 miles W, the coast consists of sand and clay bluffs with short sandy beaches and some indistinct points; it is backed by cultivated land and scattered houses. In the vicinity of Ensenada Güegüe (11°27′N, 68°58′W), low rolling hills give way to a more mountainous aspect.

2 The coast between Punta Sabana and Puerto Cumarebo, 14 miles W is irregular in shape and fringed with drying reefs. From Puerto Cumarebo to Punta Taimataima, 9½ miles W, the coast consists of sandy beaches backed by irregular sandstone bluffs and sand dunes.

Natural conditions

6.121

1 **Magnetic anomaly.** An abnormal variation has been observed between Puerto Cumarebo (11°29′N, 69°21′W) and Bahía La Vela de Coro, 13 miles W.

Discoloured water. Muddy water from two rivers which discharge NW of Punta Agüide, extends sometimes as far offshore as Bajo Agüide (11°25′N, 68°39′W) (6.124) and Bajo Uveros.

Dangerous area

6.122

1 See 6.91.

Principal mark

6.123

1 **Landmark:**

Cerro de Ricoa (11°26′N, 69°12′W), the E peak of a range extending nearly 20 miles W, standing 5½ miles SW of Punta Sabana; it is a good landmark from all directions.

Directions

(continued from 6.111)

6.124

1 From a position about 15 miles ENE of Punta Agüide (10°21′N, 68°41′W) the track leads initially WNW, passing (with positions relative to Punta Agüide):

NNE of Bajo Agüide (3 miles NNE); a dangerous wreck lies 1 mile SSE of this bank. The red sector of Punta Agüide Light (6.111) covers both the wreck and the shallowest part of Bajo Agüide. Thence:

2 NNE of Bajo Uveros (5 miles NW), thence:

NNE of Punta Zamuro (10 miles NW), which is low and indistinct, but may be identified by the scattered dwellings of a small village. A light (white GRP tower, orange bands) is exhibited from the point.

3 The track then leads to a position about 8 miles N of Punta Sabana, which appears as a knoll when seen from E or W; from N, it blends with the higher hills in the background. From the position N of Punta Sabana the track leads W, passing (with positions relative to Punta Manzanillo (11°32′N, 69°16′W)):

N of Punta Ricoa (5 miles ESE), a high headland with prominent sand cliffs, thence:

4 N of Punta Manzanillo, appearing from E or W as the N end of a ridge sloping gradually to a higher ridge about 5 miles inland. A light (white metal framework tower, orange bands, 15 m in height) is exhibited from the point. Thence:

N of Banco Cumarebo (7¼ miles NW), thence:

5 N of Punta Taimataima (14½ miles WSW), a high rounded bluff, easily identified as the coast turns abruptly SW from it to form Bahía La Vela de Coro. A light (white metal framework tower, orange bands, 9 m in height) is exhibited from the point; the light is difficult to identify from the offing against the background of trees. Thence:

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N of La Vela de Coro Production Platform (16 miles WNW), from which a light (yellow steel pillar) is exhibited.

6 The track then leads to a position about 8 miles NNW of Punta Taimataima (14½ miles WSW).

(Directions continue for the coastal route NNW at 6.136)

Puerto Cumarebo

General information

6.125

1 **Position.** Puerto Cumarebo (11°29′N, 69°21′W) is situated on the N coast of Venezuela, 5½ miles SW of Punta Manzanillo.

Function. The port handles bulk cargoes, vehicular traffic, and petroleum products at Tucupido, 2 miles NE of Cumarebo.

2 **Traffic.** In 1997 the port was used by 23 vessels with a total of 141 037 dwt.

Port Authority. Capetania de Puerto La Vela de Coro, Calle Federacion, La Vela de Coro, Venezuela.

Arrival information

6.126

1 **Outer anchorage.** In the roadstead at Puerto Cumarebo, depths decrease uniformly towards the shore. Anchorage can be obtained in depths of 11 m about 1¼ miles N of the town.

Submarine pipeline. A sewer outfall laid N from the town is marked at its seaward end by a light-buoy (black spherical, white stripes), moored 5½ cables N of Puerto Cumarebo Light.

2 **Pilotage** is compulsory. Vessels should first call at La Vela de Coro (6.130) to obtain a pilot and clearance.

Directions for entering harbour

6.127

1 There are no specific directions for Puerto Cumarebo, the chart being sufficient guide.

Useful marks:

Puerto Cumarebo Light (white masonry tower, 11 m in height) (11°29′N, 69°21′W).

Church steeple standing in the town 2 cables S of Puerto Cumarebo Light.

Oil tanks at Tucupido, 2 miles NE of Puerto Cumarebo Light.

Berths

6.128

1 **General wharf.** At Cumarebo there is a wharf, length 600 m, with a concrete platform. There are depths of 10 m alongside decreasing gradually towards the shore. The wharf is equipped with a conveyor belt for bulk cargo operations.

2 **Tanker berth.** At Tucupido, NE of Cumarebo, there is a trestle shaped pier on which a pipeline 305 m long rests; part of the pipeline is laid underwater and its end is marked by a white buoy. There is a depth of 4·5 m at the berth.

Port services

6.129

1 **Repairs.** None available.

Other facility. Deratting and Deratting Exemption Certificates issued.

Supplies. Fresh water is available at the tanker berth.

Minor harbour

La Vela de Coro

6.130

1 **Position and function.** La Vela de Coro (11°28′N, 69°34′W), a first port of entry, stands in the SE corner of Bahía La Vela de Coro. It is the port for Coro, the capital of Estado Falcón, and operates ferry services to Nederlandse Antillen.

Port Authority. Capetania de Puerto La Vela de Coro, Calle Federacion, La Vela de Coro, Venezuela.

2 **Submarine cable.** A submarine cable, shown on the chart, lands on the mainland on the SW side of Bahía La Vela de Coro. For further information on submarine cables see 1.42.

Pilotage is compulsory. Vessels should await the pilot either at anchor or under way about 3 miles NNW of La Vela de Coro Light.

3 **Useful marks:**

Light (hexagonal GRP tower, green and white bands) (11°29′N, 69°33′W) exhibited from the breakwater at Muaco.

La Vela de Coro Light (11°28′N, 69°34′W).

Custom house standing on the beach at La Vela de Coro; it is a prominent white building with large red panels and a red roof, on which is painted "ADUANA" in white.

4 **Anchorage.** Bahía La Vela de Coro affords anchorage in a depth of 11 m, over a bottom of soft mud, about 2 miles NNW of La Vela de Coro Light, or according to draught, avoiding the submarine cable which lands on the SW side of the bay. With only a moderate breeze a considerable sea is experienced in this bay; Punta Taimataima provides little shelter and breakers are nearly always present at the head of the bay.

5 **Berth.** The berth for La Vela de Coro is situated at Muaco, 1½ miles NNW of the town. It consists of a concrete dock situated at the head of a 100 m long concrete gangway projecting from the shore. There is a depth of 4 m alongside.

6 **Facility.** Deratting and Deratting Exemption Certificates issued.

Small craft. There is a landing place abreast the custom house at La Vela de Coro.

BAHÍA LA VELA DE CORO TO CABO SAN ROMÁN

General information

Chart 2193

Route

6.131

1 From a position about 8 miles NNW of Punta Taimataima (11°30′N, 69°31′W) the coastal route leads NNW, for 35 miles, to a position ENE of Punta Barco (12°09′N, 69°54′W). The route then leads NW, for a farther 15 miles, to the vicinity of 12°20′N, 70°00′W, 8½ miles N of Cabo San Román (12°11′N, 70°00′W).

Topography

6.132

1 The coast between the mouth of Río Seco (11°27′N, 69°36′W) and Punta Adícora, 31 miles NNW, is low and sandy with heavy breakers along it; it is backed by low sandhills, interspersed with swamps and lagoons. The S part of this coast forms the E side of Istmo de Médanos which joins Península de Paraguaná to the mainland; the N part is backed by rugged mountains.

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2 A spur of the central mountain mass on Península de Paraguaná extends 5½ miles ESE from Cerro Santa Ana (11°49′N, 69°57′W) (6.135) (Pan de Santa Ana on Chart 1966) and terminates in a prominent peak, which is usually visible from seaward even when Cerro Santa Ana is obscured by cloud or haze. Pico Arojo (11°57′N, 69°59′W) is the only identifiable peak in an irregular range of hills extending N from Cerro Santa Ana.

3 Between Punta Adícora and Cabo San Román, 19 miles NW, the coast is low and is backed by a plateau about 30 m high, on which there are small trees and scrub. The coast is fringed by reefs, marked by breakers.

Depths

6.133

1 Between the mouth of Río Seco (11°27′N, 69°36′W) and Punta Adícora, 31 miles NNW, within the 20 m depth contour extending up to 6 miles from the coast, depths are irregular.

Local magnetic anomaly

6.134

1 An abnormal variation was reported in 1947 to have been observed between Cabo San Román (12°11′N, 70°00′W) and Aruba, 15 miles N.

Principal marks

6.135

1 **Landmark:**

Cerro Santa Ana (11°49′N, 69°57′W) (Pan de Santa Ana on Chart 1966), the highest peak in the SE part of Península de Paraguaná; although often cloud-covered, on a clear day it can be seen for 60 miles. In winter, when trade winds are strong, a haze usually prevents the mountain being visible for more than 30 miles.

2 **Major light:**

Cabo San Román Light (white octagonal framework tower, orange band, 24 m in height) (12°11′N, 70°00′W).

Directions

(continued from 6.124)

6.136

1 From a position about 8 miles NNW of Punta Taimataima (11°30′N, 69°31′W) the track leads NNW, passing (with positions relative to Punta Adícora (11°57′N, 69°48′W)):

ENE of a patch (20 miles SSE), with a depth of 11·4 m over it, fronting the E side of Istmo de Médanos (6.132), thence:

2 ENE of Punta Adícora, from which a light (white round GRP tower, orange bands) is exhibited; a fishing village stands on Punta Adícora. Vessels required to keep in depths of more than 20 m should pass at least 2½ miles off Punta Adícora; a depth of 9·5 m lies 1¾ miles E of the point which is fringed by a drying reef. Thence:

3 ENE of reefs partly awash, lying up to 2 miles off the coast between Punta Adícora and Punta Brava (4 miles NNW), thence:

ENE of Punta Brava (4 miles NNW). Although low and not easily identified, it is marked by a distinctive clump of mangroves; a prominent white house stands 3½ miles WSW of the point. Thence:

4 ENE of Punta Barco (13½ miles NNW), along the shores of which lie two stranded wrecks.

The track then leads NW, passing (with positions relative to Punta Adícora):

SW of a shoal (18¼ miles N), reported in 1965 to have a depth of 5·9 m over it, thence:

5 SW of a bank (18½ miles N), reported in 1956, with a least depth of 12·8 m over it, and:

NE of Puerto Escondido (15¾ miles NNW). Two radio towers (red and white bands, red obstruction lights, 109 m in height) stand close NW of a large white building at the NW end of Puerto Escondido. Thence:

6 NE of a dangerous wreck (20¼ miles NNW), lying 1½ miles NNE of Cabo San Román; a light (6.135) is exhibited from the cape. Cabo San Román, the N extremity of Península de Paraguaná, is composed of bold red cliffs; the sea breaks heavily on the fringing rocks. A rocky flat-topped hill rises close S of the cape, and there are sand dunes W of it.

7 The track then leads to a position about 8½ miles N of Cabo San Román (19½ miles NNW).

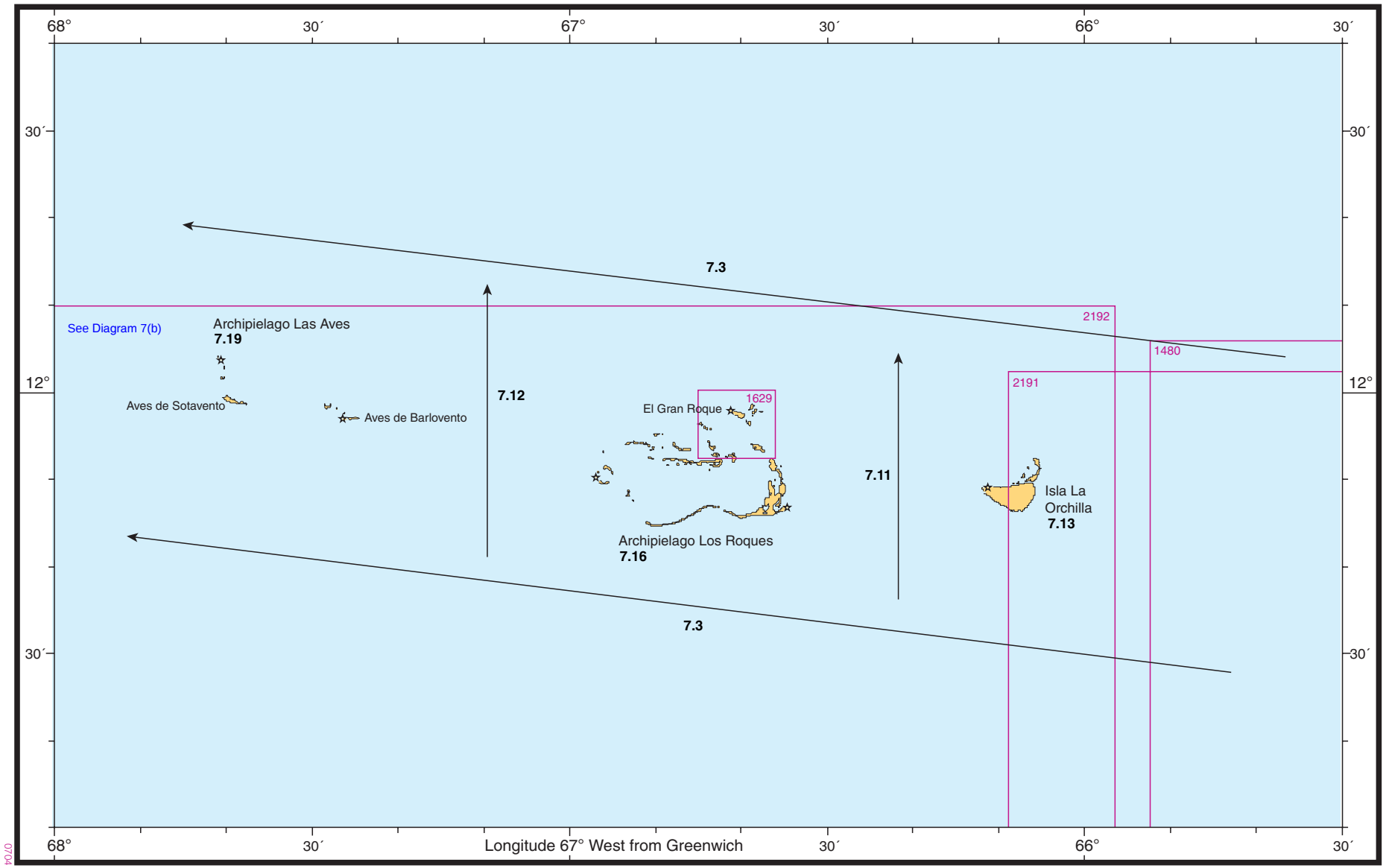
(Directions continue, for an offshore route across the approaches to Golfo de Venezuela at 8.14, and for a coastal route into Golfo de Venezuela at 8.20)

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CHAPTER 7

OUTLYING ISLANDS OF VENEZUELA FROM ISLA LA ORCHILA TO ISLAS DE AVES AND NEDERLANDSE ANTILLEN

GENERAL INFORMATION

Chart 1966

Scope of chapter

7.1

1 This chapter describes Isla La Orchila (11°48′N, 66°09′W) (Isla La Orchilla on Chart 1966), Archipielago Los Roques (11°50′N, 66°44′W) (Islas Los Roques on Chart 1966) and Archipielago Las Aves (12°00′N, 67°33′W) (Islas de Aves on Chart 1966), off-lying islands of Venezuela, and the Benedenwindse Eilanden or leeward group of Nederlandse Antillen (7.24), consisting of Bonaire (12°10′N, 68°17′W), Curaçao (12°12′N, 69°00′W) and Aruba (12°31′N, 69°58′W).

2 The chapter is arranged as follows:

Islas La Orchila to Islas de Aves (7.3).
Routes N and S of Bonaire, Curaçao and Aruba (7.23).
Bonaire (7.37).
Curaçao (7.69).
Aruba (7.155).

Rescue

7.2

1 For information on search and rescue operations for Venezuelan waters see 1.62; for Nederlandse Antillen waters see 1.64.

ISLAS LA ORCHILA TO ISLAS DE AVES

General information

Charts 1966, 2192

Routes

7.3

1 **North route.** From the vicinity of 12°00′N, 65°16′W the route leads WNW for 160 miles, passing NNW of Isla La Orchila (11°48′N, 66°09′W), Archipielago Los Roques (11°50′N, 66°44′W) and Archipielago Las Aves (12°00′N, 67°33′W) to the vicinity of 12°16′N, 67°53′W, about 17 miles NW of Aves de Sotavento.

2 **South route.** From the vicinity of 11°34′N, 65°39′W, the route leads initially W for 92 miles, passing S of Isla La Orchila and Archipielago Los Roques, and thence WNW for a farther 62 miles to the vicinity of 11°48′N, 68°00′W, about 22 miles SW of Aves de Sotavento.

Description

7.4

1 Isla La Orchila, Archipielago Los Roques and Archipielago Las Aves, a chain of three groups of islands and reefs, lie in the N approaches to Puerto La Guaira (6.15) and Puerto Cabello (6.56). The passages between the groups, which are Venezuelan territory, are deep.

Caution

7.5

1 The greatest caution must be observed when approaching these groups, especially from the N, and normally they should be given a wide berth. Depths of 200 m or more are found about 1¾ miles off their N and NE sides and as close as 2½ cables off their S and SE sides. Soundings, if to be relied on, should be continuous.

Firing exercise area

7.6

1 A firing exercise area surrounds Isla La Orchila (11°48′N, 66°09′W). This area, in which navigation is restricted, lies between the following positions:

11°54′·0N, 66°01′·2W; 11°54′·0N, 66°13′·2W; 11°38′·0N, 66°01′·2W, 11°38′·0N, 66° 13′·2W.

The limits are shown on the chart.

Principal marks

7.7

1 **Major lights:**

Cerro Walker Light (white GRP framework tower, orange bands, 6 m in height) (11°49′N, 66°11′W) exhibited from the summit of Cerro Walker (7.11).
El Gran Roque Light (white GRP tower, orange bands, 6 m in height) (11°58′N, 66°41′W).

Other aids to navigation

7.8

1 **Racons:**

Isla La Orchila (11°49′N, 66°11′W).
Aves de Sotavento (12°03′N, 67°41′W).

For further information see *Admiralty List of Radio Signals Volume 2*.

Directions

(continued from 5.202)

North route

7.9

1 From the vicinity of 12°00′N, 65°16′W the track leads WNW, passing:

NNE of a patch (11°50′N, 65°55′W), reported in 1959 to have a depth of 23·8 m (13 fm) (23·0 m (12½ fm) on Chart 2191) over it, thence:

2 NNE of a 17·0 m (56 ft) (18·3 m (60 ft) on Chart 1966) patch (11°57′N, 66°03′W), reported in 1959, lying on a bank extending 9 miles NNE from the N point of Cayo Nordeste, which forms the N side of Isla La Orchila (7.13); a patch, with a depth of 8·0 m (26 ft) over it, lies 6 cables N of Cayo Nordeste. Thence:

3 NNE of a shoal (12°03′N, 66°41′W), reported in 1964 to have a depth of 10·0 m (33 ft) (11·0 m (36 ft) on Chart 1966) over it, lying 6 miles N of El Gran Roque, the N–most cay of Archipielago

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Los Roques (7.16). A light (7.7) is exhibited from El Gran Roque. Thence:

NNE of the N side of Aves de Barlovento (11°59′N, 67°26′W) (7.21), formed by reefs, thence:

4 NNE of the N side of Aves de Sotavento (12°02′N, 67°39′W) (7.22), also formed of reefs. A light (white metal framework tower, orange bands, 20 m in height) is exhibited from a small cay at the NW end of Aves de Sotavento; a racon (7.8) transmits from the same cay.

5 The track then continues WNW, in deep water, to the vicinity of 12°16′N, 67°53′W.

(Directions continue for a route N of Nederlandse Antillen at 7.31)

South route

(continued from 5.203)

7.10

1 From the vicinity of 11°34′N, 65°39′W, the track leads initially W, passing:

S of Burgana Bank (11°47′N, 65°54′W) (Banco Burgaña on Chart 2191) reported in 1959, thence:

S of Isla La Orchila (11°48′N, 66°09′W) (7.13); close SE of the island a light-buoy (safe water) is moored in position 11°46′·1N, 66°07′·2W. Thence:

2 S of Cayo Grande (11°47′N, 66°37′W), the SE–most part of Archipielago Los Roques (7.16); Sebostopol Light (white GRP tower, red and white bands) is exhibited from the SE point of Cayo Grande. Thence:

S of Cayo Salina (11°45′N, 66°49′W) and Cayo Sal, the S–most parts of Archipielago Los Roques, thence:

3 S of Cayo de Agua (11°50′N, 66°57′W), the W–most cay of Archipielago Los Roques; a light (white GRP tower, orange bands) is exhibited from Cayo de Agua.

The track then leads WNW, passing:

4 SSW of Aves de Barlovento (11°59′N, 67°26′W) (7.21); a light (white metal framework tower, orange bands, 17 m in height) is exhibited from the S–most cay of this group. Thence:

SSW of Aves de Sotavento (12°02′N, 67°39′W) (7.22).

5 Thence the track leads in deep water to the vicinity of 11°48′N, 68°00′W.

(Directions continue for a route S of Nederlandse Antillen at 7.36)

Side channels

Between Isla La Orchila and Archipielago Los Roques

7.11

1 From the vicinity of 11°36′N, 66°23′W on the route described at 7.10 a deep water channel leads N between Isla La Orchila and Archipielago Los Roques, passing (with positions relative to Sebostopol Light (11°43′N, 66°35′W)):

E of Cayo Grande, from which Sebostopol Light (7.10) is exhibited, thence:

2 W of the W end (22½ miles ENE) of Isla La Orchila, which is bold. Cerro Walker, the summit of Isla La Orchila with a height of 139 m, stands nearby; a light (7.7) is exhibited from the summit and a racon (7.8) transmits from it. Thence:

3 W of Farallón (22¾ miles ENE), an above-water rock which is steep-to, lying 5 cables N of the W end of Isla La Orchila. Tide-rips occur in the vicinity of Farallón. And:

E of the outer reefs (close N) forming the E side of Archipielago Los Roques. When passing E of Islas Los Roques, it is advisable to keep in depths of not less than 90 m, giving the outer reef a berth of more than 2 miles.

4 The track then leads out into open water joining the route (7.9) passing N of Isla La Orchila and Archipielago Los Roques, in the vicinity of 12°07′N, 66°23′W.

Useful mark:

Light (white hexagonal sided concrete tower, orange bands, 3 m in height) (11°49′N, 66°12′W) exhibited from the pier head (7.15) on the W side of Isla La Orchila.

Between Archipielago Los Roques and Aves de Barlovento

7.12

1 From the vicinity of 11°40′N, 67°10′W on the route described at 7.10 a deep water channel leads N between Archipielago Los Roques and Aves de Barlovento, passing (with positions relative to Cayo de Agua Light (11°50′N, 66°57′W)):

W of Cayo de Agua, from which a light (7.10) is exhibited. Vessels passing W of Cayo de Agua should give the islet a berth of at least 2 miles. Thence:

2 W of a small cay (3¼ miles NNE), lying on a bank with a depth of 7·3 m over it, thence:

W of a shoal (5¼ miles NNE), with a depth of 14·2 m over it; this is the NW–most danger off Archipielago Los Roques. Thence:

E of the reefs forming the E side of Aves de Barlovento.

3 The track then leads out into open water joining the route (7.9) passing N of Archipielago Los Roques and Aves de Barlovento, in the vicinity of 12°13′N, 67°10′W.

Useful mark:

Light (11°57′N, 67°26′W) (7.10) exhibited from the S–most cay of Aves de Barlovento.

Isla La Orchila

Chart 2192

Description

7.13

1 Isla La Orchila (11°48′N, 66°09′W) (Isla La Orchilla on Chart 1966), lying 58 miles N of Farallón Centinela (6.10), is generally low and flat, but has seven distinct hills separated by low valleys on its N side. These hills are visible at a distance of 15 miles and appear as islands when first sighted from either N or S. The highest hill is Cerro Walker (7.11); the hills near the NE end of the island are up to 120 m high.

2 Isla La Orchila is fronted by some low cays lying on a bank, on which there are many coral reefs, extending NNE from its NE end. Mangroves cover some of the cays. Some ruined buildings can be seen on the N end of Cayo Nordeste (11°51′N, 66°06′W), the largest of these cays.

Storm Cay lies 1¼ miles SW of the N point of Cayo Nordeste and at the W end of a V–shaped coral reef. A cay on the NE arm of this reef resembles a breakwater, and at its NE extremity there is a ruined stone beacon which appears as a dark rock.

3 Other dangers fringing Isla La Orchila are described in the directions given at 7.9 and 7.11.

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Puerto Orchila

7.14

1 **Description.** Puerto Orchila (11°51′·5N, 66°06′·0W), lying between the N part of Cayo Nordeste and the cays to the W, is entered from NNW; the entrance channel is 3½ cables wide with depths from 8 to 10 m. The water is very clear and the bottom can be seen everywhere.

Current. Off Puerto Orchila, the prevailing W–going current attains a rate of 1½ kn.

2 **Directions.** The line of bearing 174° of a tangent of the E side of Isla Orchila leads in a least depth of 4·9 m into Puerto Orchila. When within the entrance, a least depth of 6·7 m can be maintained by keeping about ½ cable W of the above track, so as to avoid two patches, with a depth of 4·9 m over them, lying in the centre of the bay, although this leads near the reefs off Storm Cay. Vessels should not pass S of the S extremity of the main portion of Storm Cay.

3 **Anchorage.** Good anchorage can be obtained in the N part of Puerto Orchila in depths from 4 to 8 m.

Other anchorages and berth

7.15

1 **Storm Cay.** Good anchorage is found in a depth of 34 m or more 5 cables SW of Storm Cay (11°51′·3N, 66°06′·8W). Little protection is afforded from the swell and none from the prevailing E or NE wind, but a vessel, if wind-rode, will have her stern lying towards deeper water.

2 **West side of Isla La Orchila.** Anchorage in depths from 16 to 22 m, sheltered from the prevailing winds, can be obtained 3 cables off a white sandy beach on the SW side of the W end of Isla La Orchila.

A pier, with a depth of 6 m alongside, projects from the shore 7½ cables SE of the W end of Isla La Orchilla; a light (7.11) is exhibited from the head of the pier.

Archipielago Los Roques

General information

7.16

1 **Description.** Archipielago Los Roques (11°50′N, 66°44′W) (Islas Los Roques on Chart 1966), a group of many cays on an extensive and dangerous coral reef, lie 22 miles W of Isla La Orchila. In 1972 Archipielago Los Roques was declared a National Park of Venezuela for the protection of its flora and fauna.

2 The cays are all low and do not exceed an elevation of 8 m except for El Gran Roque (11°57′N, 66°41′W), situated on the N side of the group. The W part of El Gran Roque consists of hills, with a thin covering of vegetation broken in places by bare rock, and is 116 m high at its W end. The cays are covered with scrub which is taller in the E and S parts of the group.

3 An outer reef, forming the E side of Islas Los Roques, extends NNE, then NNW, from the SE point of Cayo Grande (7.10) to Cayo del Noreste, 11½ miles NNW. An inner reef, on which there are several cays, extends NNW from the NE side of Cayo Grande. Cayo Grande and Cayo Sal, W of it, form the S side of Islas Los Roques which is steep-to.

4 Between El Gran Roque and Cayo de Agua, 17 miles WSW, many cays and detached reefs form the NW side of a large unsurveyed area which cannot be entered due to innumerable coral heads.

Current. Off Archipielago Los Roques, the current is generally WNW–going with an average rate from 1 to 1½ kn. Close inshore the currents are variable both in direction and rate, especially off the S and W sides of the group. An E–going counter-current has been observed N of the group.

5 **Caution.** For remarks on approaching Archipielago Los Roques see 7.5.

Chart 1629 plan of Puerto El Roque

Puerto El Roque and El Gran Roque

7.17

1 **Description.** Puerto El Roque (11°57′N, 66°39′W), lying close E of El Gran Roque (7.16) is an area mostly enclosed by cays and reefs; it is sheltered under ordinary weather conditions. The water is clear and the reefs and coral heads are easily seen.

2 **Approach and entry.** Four channels give access to Puerto El Roque as follows:

Canal Nordeste, which lies between the W end of Cayo del Noreste (11°57′·7N, 66°38′·0W) and the cays SE of Cayo Francés. The channel has a least depth of 14·0 m on its W side, but a 6·9 m patch lies in mid-channel 3 cables WSW of Cayo del Noreste.

3 Canal Noroeste (11°57′·5N, 66°39′·6W), which lies between reefs fringing the SW end of Cayo Francés and El Gran Roque. The channel is 2 cables wide with depths from 7·3 to 9·0 m in it.

Canal Suroeste (11°56′·8N, 66°40′·0W), lying between the SE side of El Gran Roque and the reef fringing the N side of Cayo Rata, formerly known as Cayo Namans. The channel is 2½ cables wide, with a least charted depth of 10·5 m at its NE end.

4 Canal del Sur (11°56′·2N, 66°39′·0W), which lies between Cayo Pirata and a sandbank and drying reef SE and E, respectively. There are depths of 16·5 to 25·0 m in its W part.

5 **Tidal levels.** Mean maximum range about 0·6 m; mean minimum range about 0·3 m. For further information see the *Admiralty Tide Tables.*

Local knowledge is advisable for entering Puerto El Roque.

Major light:

El Gran Roque Light (11°58′N, 66°41′W) (7.7).

7.18

1 **Directions for entering Puerto El Roque.** For mariners without local knowledge the recommended entrance is through Canal del Sur. If approaching from the E, pass not less than 1 mile N of Cayo Francés and round the prominent W point of El Gran Roque at a distance of about 5 cables. The track then leads SE, passing 7½ cables SW of El Gran Roque, Cayo Rata and Cayo Pirata.

2 Thence the line of bearing 030° of the W extremity of Cayo del Noreste (11°57′·7N, 66°38′·0W) leads, in a least depth of 16·5 m, through Canal del Sur into Puerto El Roque. Care needs to be taken as this track passes close by the reef fringing the SE side of Cayo Pirata.

Clearing bearing. For vessels approaching from the W the following clearing bearing may be of use:

3 The line of bearing 077° of the W extremity of El Gran Roque (11°57′N, 66°41′W) clears all dangers,

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with depths of less than 11 m over them, off the NW side of Archipielago Los Roques; this bearing does not clear a shoal, with a depth of 14·2 m over it, lying 5¼ miles NNE of Cayo de Agua Light (11°50′N, 66°57′W) (7.10), and lies close to the outer reefs farther E.

4 **Useful mark:**

Blackmans Cay (11°53′·7N, 66°38′·4W), with a group of huts on its NW point; the cay is covered with scrubs.

Anchorages:

5 El Gran Roque. An area about 3 miles in extent lying SW of El Gran Roque provides good anchorage for ships of any size, in depths from 16·5 to 40·0 m, and as close as 3 cables off the island.

6 Puerto El Roque. Within Puerto El Roque, anchorage can be obtained almost anywhere. The best berth is in the centre of the E part of the harbour, in depths of up to 25·0 m, in an area of about 2½ cables radius. Care needs to be taken to avoid the drying reefs extending S from Cayo del Noreste and N from a small cay on the SE side of the harbour.

7 **Berths.** There are docking and landing places for recreational vessels on the SW side of El Gran Roque.

Communications. There is an airstrip situated on the SE end of El Gran Roque from which there are services to Caracas.

Archipielago Las Aves

Chart 2192

General information

7.19

1 **Description.** Archipielago Las Aves (12°00′N, 67°33′W) (Islas de Aves on Chart 1966), lying on dangerous coral reefs, are two groups of low cays, covered with phosphate deposits and sand. The two groups are named Aves de Barlovento and Aves de Sotavento; between them there is a clear passage about 5½ miles wide, with depths of up to 713 m in it.

2 **Aid to navigation:**

Racon (12°03′N, 67°41′W), transmitting from a small cay on the NW side of Aves de Sotavento.

For further information see *Admiralty List of Radio Signals Volume 2*.

Directions

7.20

1 There are no specific directions for Archipielago Las Aves. For general remarks on approaching Archipielago Los Aves see 7.5.

Useful marks:

Light (11°57′N, 67°27′W) (7.10) exhibited from the S cay of Aves de Barlovento.

Light (12°03′N, 67°41′W) (7.9) exhibited from a small cay on the NW side of Aves de Sotavento.

Aves de Barlovento

7.21

1 **Description.** Aves de Barlovento (11°59′N, 67°26′W), the E group, is an area of reefs and shoals, nearly circular in shape and about 5 miles in diameter. There are three cays, varying in length from 7½ cables to 1¼ miles, on its SW part, along with several smaller cays; shoal water, with a least charted depth of 7·0 m over it, extends 2 miles W from the cay on which a light is exhibited. The E and N sides of the group consist of an almost continuous drying reef. Heavy breakers occur along this reef.

2 **Channels.** Several channels on the W side of Aves de Barlovento lead from seaward between the reefs and shoals; they should not be attempted without local knowledge.

Aves de Sotavento

7.22

1 **Description.** Aves de Sotavento (12°02′N, 67°39′W), the W group of Archipielago Las Aves, is an area of reefs and shoals situated 8 miles WNW of Aves de Barlovento. A large cay on the S side is mostly covered with mangroves. The E, NE and N sides of the group are formed by a continuous drying reef, marked by heavy breakers, and on which lie several stranded wrecks.

2 At the SW end of the group, a bank, with depths of less than 10·0 m over it, extends 1¼ miles W from the large cay; a patch, with a depth of 3·9 m over it, lies on the edge of this bank 1½ miles NW of the W end of the cay.

Small craft. The channels between the reef and small cays on the W side of the group are only suitable for boats. A mooring buoy is moored in position 11°58′·9N, 67°40′·6W, off the SW side of the large cay.

ROUTES NORTH AND SOUTH OF BONAIRE, CURAÇAO AND ARUBA

GENERAL INFORMATION

Charts 1966, 2193

Area covered

7.23

1 This section describes the through routes along the N and and S sides of the Benedenwindse Eilanden of Nederlandse Antillen (1.107). It is arranged as follows:

North route (7.27).

South route (7.32).

Topography

7.24

1 The Benedenwindse Eilanden or leeward group of Nederlandse Antillen consist of Bonaire (12°10′N, 68°17′W) with Klein Bonaire, Curaçao (12°12′N, 69°00′W) with Klein Curaçao, and Aruba (12°31′N, 69°58′W). All three islands are hilly and readily identifiable by radar; Curaçao, the highest, has been reported to be a good radar target at distances of 23 miles.

Fishing

7.25

1 Small fishing vessels may be found off the islands at anchor without lights.

Natural conditions

7.26

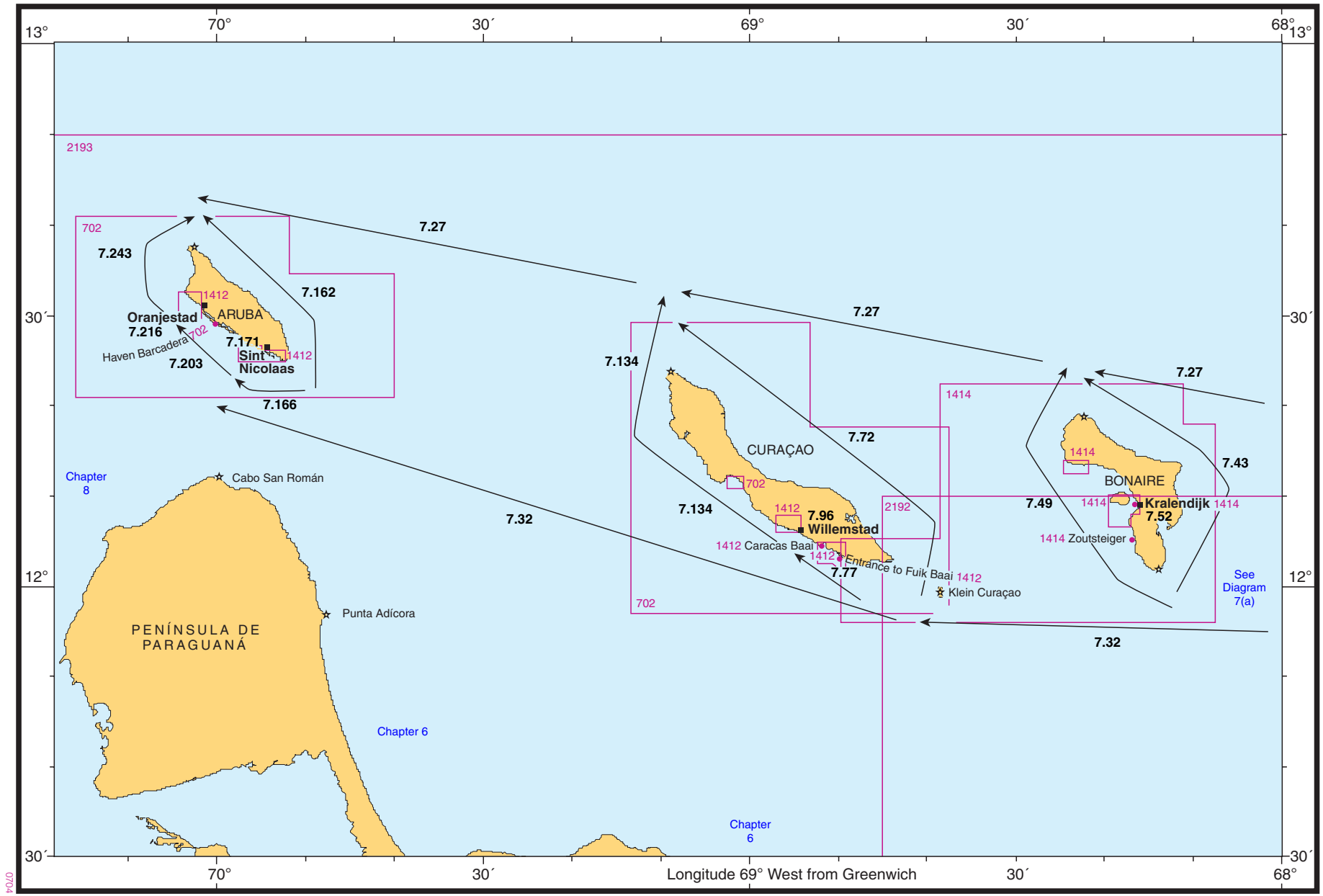
1 **Trade winds.** North-east Trade Winds prevail over all the islands and may vary between ENE and SE.

Current is generally W–going off the islands and may attain rates up to 3 kn.

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Bonaire, Curacao and Aruba



7 (b)

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NORTH ROUTE

General information

Charts 1966, 2193

Route

7.27

1 From the vicinity of 12°16′N, 67°53′W, about 17 miles NW of Aves de Sotavento the route leads WNW for 130 miles, passing NNW of Bonaire, Curaçao and Aruba, to a position about 5 miles N of Noordwestpunt (12°38′N, 70°03′W), the N extremity of Aruba.

Firing practise area

7.28

1 A firing practise area for ships and aircraft exists from 4 to 46 miles NE of Bonaire. For further information see *Annual Summary of Admiralty Notices to Mariners No 5* of the current year.

Local magnetic anomaly

7.29

1 In 1947, a local deflection of the compass was reported to occur between 10 and 15 miles N of Bonaire.

Principal marks

7.30

1 **Landmark:**

Sint Christoffelberg (12°20′N, 69°07′W), the highest peak of Curaçao, with an elevation of 375 m; it has often been mistaken for Brandaris (7.46), the highest peak of Bonaire.

2 **Major lights:**

Boka Spelonk Light (white round stone tower, 21 m in height) (12°13′N, 68°12′W) (Boka Sollon Light on Chart 2193).

Ceru Bentana Light (grey square stone tower, 10 m in height) (12°18′N, 68°23′W) (Seroe Bentana Light on Chart 1966; Seri Bentana Light on Chart 2193).

3 Noordwestpunt Light (grey stone tower, 30 m in height) (12°37′N, 70°03′W).

Directions

(continued from 7.9)

7.31

1 From the vicinity of 12°16′N, 67°53′W, about 17 miles NW of Aves de Sotavento the track leads WNW, passing:

NNE of the E extremity (12°13′N, 68°12′W) of Bonaire (Boka Sollon on Chart 2193); Boka Spelonk Light (7.30) is exhibited from a position close S of the extremity. Thence:

2 NNE of the N extremity (12°19′N, 68°23′W) (7.47) of Bonaire; Ceru Bentana Light (7.30) is exhibited from a position 9 cables SE of the extremity. Thence:

NNE of Noordpunt (12°24′N, 69°09′N), the N extremity of Curaçao from which a light (7.75) is exhibited, thence:

3 NNE of Noordwestpunt (12°37′N, 70°03′W), the N extremity of Aruba from which a light (7.30) is exhibited.

The track then continues WNW to a position about 5 miles N of Noordwestpunt.

(Directions continue W for a route across the N approaches to Golfo de Venezuela at 8.13)

SOUTH ROUTE

General information

Route

7.32

1 From the vicinity of 11°48′N, 68°00′W, about 22 miles SW of Aves de Sotavento the route leads WNW for 123 miles, passing SSW of Bonaire and Curaçao, to a position about 8½ miles SW of Punta Basora (12°25′N, 69°52′W), the S extremity of Aruba, and 8½ miles N of Cabo San Román (12°11′N, 70°00′W).

Firing practise area

7.33

1 A firing practise area exists SW of Curaçao between latitudes 11°47′N, and 11°59′N, and between longitudes 69°00′W and 69°15′W. For further information see *Annual Summary of Admiralty Notices to Mariners No 5* of the current year.

Local magnetic anomaly

7.34

1 See 6.134.

Principal marks

7.35

1 **Major lights:**

Klein Curaçao Light (11°59′N, 68°39′W).

Cabo San Román Light (12°11′N, 70°00′W) (6.135).

Directions

(continued from 7.10)

7.36

1 From the vicinity of 11°48′N, 68°00′W, about 22 miles SW of Aves de Sotavento the track leads WNW, passing:

SSW of Lacre Punt (12°02′N, 68°15′W) (7.47); Willemstoren Light (7.47) is exhibited from a position 7½ cables ENE of the point. Thence:

2 SSW of Klein Curaçao (11°59′N, 68°39′W) (7.75), from which a light is exhibited, thence:

SSW of the approaches to Willemstad (12°07′N, 68°56′W) (7.96), thence:

3 SW of Kaap Sint Marie (12°11′N, 69°03′W), from which a light (7.137) is exhibited, thence:

NNE of a shoal (12°15′N, 69°47′W), reported in 1965 to have a depth of 5·9 m over it, thence:

NNE of a bank (12°15′N, 69°50′W), reported in 1956 to have a least depth of 12·8 m over it.

4 The track then leads to a position about 8½ miles SW of Punta Basora (12°25′N, 69°52′W), the S extremity of Aruba, and 8½ miles N of Cabo San Román (12°11′N, 70°00′W), from which a light (6.135) is exhibited.

(Directions continue, for an offshore route across the approaches to Golfo de Venezuela at 8.14, and for a coastal route into Golfo de Venezuela at 8.20)

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BONAIRE

GENERAL INFORMATION

Charts 2193, 1414

Area covered

7.37

1 This section describes the coastal waters of Bonaire (12°10′N, 68°17′W) and includes descriptions of the port of Kralendijk (7.52) and Goto Terminal (Bopec Terminal) (7.60). It is arranged as follows:

East coast (7.43).
West coast (7.49).

Topography

7.38

1 The S part of Bonaire is very low and sandy, with lagoons and salt pans. The N part is rocky and hilly. The highest peak, at the NW end of the island is Brandaris (7.46). More vegetation covers Bonaire, especially in the hilly part, than Curaçao and Aruba.

Depths

7.39

1 The coasts of Bonaire are steep-to and free from dangers. The water is so clear that the bottom is visible at a considerable depth.

Prohibited anchorage

7.40

1 Within Bonaire National Marine Park, which surrounds both the main island and Klein Bonaire from the HW line to a depth of 60 m, anchoring is prohibited without permission of the Harbourmaster at Kralendijk (7.52).

Traffic

7.41

1 In 1998, Bonaire was visited by 612 vessels with a total of 25 231 401 dwt.

Natural conditions

7.42

1 **Winds.** Off the W coast of Bonaire, the wind almost always blows from E or SE; swell is then slight alongside the piers or in the anchorages. When a hurricane passes close to the island, the wind may blow from any direction and the piers are then untenable.

2 **Current.** In the offing and around the points of Bonaire, the current is generally W–going.

EAST COAST

General information

Chart 1414

Route

7.43

1 From a position about 8 miles S of Lacre Punt (12°02′N, 68°15′W), on the S through route described at 7.32, the route leads initially NNE for 22 miles to a position E of the E extremity of Bonaire, and thence NW, for a farther 20 miles, to join the N through route described at 7.27, at a position about 5 miles N of the N extremity (12°19′N, 68°23′W) of Bonaire.

Topography

7.44

1 Between Lacre Punt and the NE extremity of Bonaire, near Boca Spelonk 12 miles N, the low coast is broken by a number of lagoons. The NE coast of Bonaire, extending 12½ miles WNW from Boca Spelonk, is indented by small coves.

Firing practise area

7.45

1 See 7.28.

Principal marks

7.46

1 **Landmark:**

Brandaris (12°17′N, 68°24′W), a peak 240 m high, which resembles Sint Christoffelberg (7.30) on Curaçao from the offing.

2 **Major lights:**

Boka Spelonk Light (Boka Sollon Light on Chart 2193) (7.30).

Ceru Bentana Light (12°18′N, 68°23′W) (Seroe Bentana Light on Chart 1966; Seri Bentana Light on Chart 2193) (7.30).

Directions

7.47

1 From a position about 8 miles S of Lacre Punt (12°02′N, 68°15′W) the track leads initially NNE, passing (with positions relative to Lacre Punt):

ESE of Lacre Punt, the S extremity of Bonaire, which is a low rocky spit terminating in a sand and coral reef. Two pillars stand within 2½ cables NW of the point. Thence:

2 ESE of Willemstoren Light (white round stone tower, red stripes, 21 m in height) (7½ cables ENE); a stranded wreck lies 3½ cables ENE of the light. Thence:

3 ESE of the entrance to Lac (4½ miles N) (7.48), thence:

ESE of Boca Washikemba (9¼ miles NNE), a small cove; about 5 cables NNW of this cove is the entrance to a small lagoon, which extends about 5 cables inland.

4 The track then leads to a position E of the E extremity (12°13′N, 68°12′W) of Bonaire; Boka Spelonk Light (Boka Sollon Light on Chart 2193) (7.30) is exhibited from a position close S of the extremity. Thence the track leads NW, passing (with positions relative to Boka Spelonk Light):

5 NE of Boca Olivia (5 miles WNW), a large cove, thence:

NE of Boca Onima (7¼ miles NW), a small cove, thence:

NE of Playa Grandi (11¼ miles NW) and Playa Chikitu, which are two beaches, thence:

NE of Boca Cocolishi (11¾ miles NW), another small cove.

6 The track then leads to a position about 5 miles N of the N extremity (12¾ miles NW) of Bonaire, on which stands an old tower; Ceru Bentana Light (7.30) is exhibited from a position 9 cables SE of the extremity.

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Small craft

Lac

7.48

1 **Description.** Lac (12°06′N, 68°14′W) is the largest lagoon on the E coast of Bonaire, but is only suitable for small craft. It has a narrow entrance between reefs 4½ miles N of Lacre Punt. It is reported (2003) that the lagoon is closed to visiting yachts.

Local knowledge is required.

WEST COAST

General information

Chart 1414

Route

7.49

1 From a position about 8 miles S of Lacre Punt (12°02′N, 68°15′W), on the S through route described at 7.32, the route leads initially NW for 24 miles to a position W of Wecua Punt, and thence NNE, for a farther 12 miles, to join the N through route described at 7.27, at a position about 5 miles N of the N extremity (12°19′N, 68°23′W) of Bonaire.

Principal marks

7.50

1 **Landmarks:**

Salt store at Zoutsteiger (12°05′N, 68°17′W).

Brandaris (12°17′N, 68°24′W) (7.46).

Major light:

Ceru Bentana Light (12°18′N, 68°23′W) (Seroe Bentana Light on Chart 1966; Seri Bentana Light on Chart 2193) (7.30).

Directions

7.51

1 From a position about 8 miles S of Lacre Punt (12°02′N, 68°15′W) the track leads initially NW, passing (with positions relative to Lacre Punt):

SW of Lacre Punt (7.47), thence:

SW of Zoutsteiger Pier (4 miles NNW) (7.67), from which lights are exhibited, thence:

2 SW of Punt Vierkant (6 miles NNW), from which a light (white concrete column, red lantern, 7 m in height) is exhibited, thence:

SW of Klein Bonaire (8½ miles NNW), a low and rocky islet W of Kralendijk (7.52); it is separated from Bonaire by a narrow channel (7.56).

3 The track then leads to a position W of Wecua Punt (15½ miles NW), from which a light (white round tower, 11 m in height) is exhibited. Thence the track leads NNE, passing WNW of the NW side of Bonaire, to a position about 5 miles N of the N extremity (12°19′N, 68°23′W) of Bonaire.

4 **Useful marks:**

Willemstoren Light (12°02′N, 68°14′W) (7.47).

Four radio masts (red obstruction lights, elevations up to 213 m) (12°07′N, 68°17′W).

Radio mast (red obstruction light) (12°13′N, 68°19′W).

5 Storage tanks and high loading equipment at Goto Oil Terminal (12°13′N, 68°23′W).

Kralendijk

Chart 1414, with plan of Approaches to Kralendijk

General information

7.52

1 **Position.** Kralendijk (12°09′N, 68°17′W), the capital and seat of Government of Bonaire, is situated on the W side of Bonaire, close SE of Klein Bonaire.



Bonaire – Kralendijk from W (7.52)

(Original dated 1997)

(Photograph – Crown Copyright)

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Function. It is the principal port for Bonaire used by general cargo, container and cruise vessels.

2 **Traffic.** Approximately 22 843 tonnes of general cargo and 2783 teu containers are handled, and over 17 000 cruise passengers visit the port, annually.

Port Authority. Bonaire Port Authority, Fort Oranje Kralendijk, Bonaire, Netherlands Antilles.

Limiting conditions

7.53

1 **Depths.** As a result of hurricane "Lenny" passing the island in 1999, depths different from those charted may exist in the approaches to Kralendijk.

Deepest and longest berth. South Pier (7.57).

Maximum size of vessel handled. Vessels with a maximum LOA of 320 m and up to 100 000 dwt can be handled.

Arrival information

7.54

1 **Port radio.** There is a port radio station at Kralendijk. For further information see *Admiralty List of Radio Signals Volume 6 (5).*

Notice of ETA required. An ETA should be sent 72, 48 and 24 hours in advance.

2 **Outer anchorage.** Anchoring is not possible; see 7.40. Vessels awaiting a berth are required to drift offshore within VHF range.

Pilotage is compulsory for vessels over 50 grt and available 24 hours. The pilot embarks 1 mile SW of the light (12°09′·1N, 68°16′·5W) exhibited from the fort at Kralendijk.

3 **Tugs** are available, and if required should be ordered through the ship's agent.

Harbour

7.55

1 **General layout.** The roadstead, Rede Kralendijk, fronts the port between Klein Bonaire and Kralendijk. The port itself consists of three main berths arranged along the shore fronting the town of Kralendijk.

Current. A weak current sets along the coast off Kralendijk during light winds.

Landmark:

Salt store at Zoutsteiger (12°05′N, 68°17′W).

Directions for entering harbour

7.56

1 Kralendijk is best approached from the SW. The port may also be approached from the NW through a narrow channel separating Klein Bonaire from Bonaire, which has a least navigable width of about 2 cables off Palu Lechi (12°10′N, 68°17′W), but it has not been closely examined.

2 There are no specific directions for entering the port, the chart being sufficient guide. The best times for berthing are between 0600 and 0800, or after 1700.

Useful marks:

Four radio masts (red obstruction lights, elevations up to 213 m) (12°07′N, 68°17′W).

3 Punt Vierkant Light (12°07′N, 68°18′W) (7.51).

Fort (12°09′·1N, 68°16′·5W) at Kralendijk from which a light (white square stone structure, 7 m in height) is exhibited; a radio mast stands close beside the fort.

Roman Catholic church (yellow tower, with red roof) at Kralendijk.

4 Two tanks (12°11′·7N, 68°16′·6W).

Berths

7.57

1 The main berths are as follows (with positions relative to the light (12°09′·1N, 68°16′·5W) at Kralendijk):

North Pier (1 cable NNW), usually used by cruise vessels. Length 68 m, with a depth of 10·0 m alongside; vessels up to 225 m and 30 000 grt berthed.

2 Ro-Ro pier (close N of the light); accommodates vessels up to 5000 grt, with a length of 100 m and draught 5·5 m.

South Pier (1 cable SSW). Length 120 m, with a depth of 10·0 m alongside; accommodates vessels up to 100 000 dwt and 320 m long. A Ro-Ro ramp for small vessels on the E side of South Pier has a depth of 5·0 m.

3 El Paso Airport Pier (position not known). Pier is T–shaped and accommodates tankers up to 6500 tonnes, with a LOA of 105·5 m and 4·8 m draught.

There is also a pier 76 m long projecting from the coast near a fresh water plant 1¾ miles NNW of Kralendijk; close to its head are a dolphin and a mooring buoy.

Port services

7.58

1 **Repairs:** minor repairs carried out; major repair facilities at Curaçao.

Other facilities. Deratting and Deratting Exemption Certificates issued; small hospital at Kralendijk; garbage reception available.

Supplies: fresh water available; fuel supplied by road tanker; provisions available.

2 **Communications.** Air services to Curaçao and Aruba from Flamingo Airport, 1½ km S of Kralendijk; there are also international flights.

Small craft

7.59

1 **Marinas:**

Plaza Resort Marina (12°08′·3N, 68°16′·4W), situated 7 cables S of the main berths at Kralendijk; there is a depth of 2·3 m at HW in the marina. Recreational craft up to 21 m LOA can be accommodated.

Bonaire Nautico Marina situated at Kralendijk. There are depths of up to 2·7 m in the marina, which can accommodate vessels up to 24 m LOA.

2 Harbour Village Marina (12°10′·0N, 68°17′·0W), situated 1 mile N of Kralendijk. There are depths from 3·7 to 4·9 m in the marina which can accommodate vessels up to 46 m LOA. A light is exhibited from the head of the mole on the SE side of the entrance to the marina.

3 **Slipway** situated close N of North Pier (7.57).

Jetty 1½ cables S of South Pier (7.57).

Goto Terminal

Chart 1414 plan of Goto

General information

7.60

1 **Position.** Goto Terminal (12°13′N, 68°23′W), also known as Bopec Terminal, is situated on the NW side of Bonaire, 7½ miles NW of Kralendijk.

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Bonaire – Goto Terminal – W berth from E (7.60)

(Original dated 1997)

(Photograph – Crown Copyright)

Function. Goto Terminal is a transhipment terminal, operated by Bonaire Petroleum Corporation NV. It receives crude oil shipped from its source in ULCC's and stores it in tanks ashore. The oil is then reloaded into large and medium tankers for subsequent unloading at a refinery or other terminal.

2 **Port Authority.** Bonaire Port Authority, Fort Oranje Kralendijk, Bonaire, Netherlands Antilles.

Limiting conditions

7.61

1 **Deepest and longest berth.** Pier No 1 (7.65).

Maximum size of vessel handled. Tankers up to 500 000 dwt with a maximum draught of 28·96 m can berth alongside.

Arrival information

7.62

1 **Port radio.** There is a port radio station at Goto Terminal. For further details see *Admiralty List of Radio Signals Volume 6 (5)*.

Notice of ETA required. Send ETA 72, 48 and 24 hours in advance; tankers from the Mediterranean, Africa and Middle East should also give their ETA 10 and five days in advance. For further details see *Admiralty List of Radio Signals Volume 6 (5)*.

2 **Outer anchorage.** Anchoring is not possible; see 7.40. Vessels awaiting a berth are required to drift offshore within VHF range.

Pilotage is compulsory and available 24 hours a day. The pilot, who is also the berthing master, embarks 1¾ miles SW of the terminal from either a tug or a mooring launch.

3 **Tugs** are available and their use is compulsory; two are used for vessels up to 150 000 dwt, three for vessels between 150 000 and 350 000 dwt and four for vessels above 350 000 dwt.

Harbour

7.63

1 **General layout.** The terminal consists of two piers with a berth at their ends, aligned parallel to the coast. Behind the piers stand numerous storage tanks.

Danger area. Tankers should keep more than 3 miles off the radio station in position 12°13′·1N, 68°19′·3W to avoid danger from induction sparks due to strong radiation from the transmitter.

2 **Landmark:**

Brandaris (12°17′N, 68°24′W) (7.46).

Directions for entering harbour

7.64

1 There are no specific directions for berthing at Goto Terminal.

Useful marks:

The alignment (081°) of leading lights (12°13′·5N, 68°21′·5W) standing together on the coast E of the terminal.

2 Radio masts (red and white, obstruction lights) of a radio station standing 3 miles E of the terminal.

Light exhibited from the side of a storage tank at the terminal.

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Lights exhibited from the breasting dolphins on each side of the pierheads at Goto Terminal.

3 Wecua Point Light (12°14′N, 68°25′W) (7.51).

Berths

7.65

1 Pier No 1 (12°13′·4N, 68°23′·0W) and Pier No 2, standing 3 cables E, project from the shore and have breasting dolphins forming a berthing line on each side of their T–shaped heads; mooring dolphins are set inshore of the berthing line on each side of the piers. Details of the piers are as follows:

2 Pier No 1. Length of operating platform 40 m; depth alongside 33·0 m; allowable draught 28·96 m; accommodates tankers from 30 000 up to 500 000 dwt.

3 Pier No 2. Length of operating platform 15 m; depth alongside 18·0 m; allowable draught 14·63 m; accommodates vessels up to 135 000 dwt.

Port services

7.66

1 **Repairs:** limited repair facilities; major repair facilities at Curaçao.

Other facilities: hospital at Kralendijk; ballast and oily waste reception facilities.

Supplies: fuel available at berths; fresh water and provisions available in small quantities with advance notice.

Communications. Air services to Curaçao and Aruba from Flamingo Airport, at Kralendijk, 16 km distant; there are also international flights.

Minor harbour and terminal

Chart 1414 plan of Zoutsteiger

Salina Pier — Zoutsteiger

7.67

1 **Position and function.** Salina Pier (12°05′N, 68°17′W), situated at Zoutsteiger 3½ miles S of Kralendijk, is a bulk salt loading facility.

Port Authority. Bonaire Port Authority, Fort Oranje Kralendijk, Bonaire, Netherlands Antilles. The pier is operated by Cargill Salt Bonaire NV.

2 **Maximum size of vessel handled.** A vessel of 44 340 grt, 74 973 dwt and a LOA of 797 ft has been berthed.

Port radio. There is a port radio station at Kralendijk (7.52). For further details see *Admiralty List of Radio Signals Volume 6 (5).*

3 **Outer anchorage.** Anchoring is not possible; see 7.40. Vessels awaiting a berth are required to drift offshore within VHF range.

Pilotage is compulsory. The pilot boards 1½ miles W of the pier.

Landmark:

Salt store at Zoutsteiger (12°05′N, 68°17′W).

4 **Directions for entering harbour.** There are no specific directions for berthing, the chart being sufficient guide.

Useful marks:

Willemstoren Light (12°02′N, 68°14′W) (7.47).

Four radio masts (red obstruction lights, elevations up to 213 m) (12°07′N, 68°17′W).

5 Lights (12°05′N, 68°17′W) exhibited from Salina Pier.

Punt Vierkant Light (12°07′N, 68°18′W) (7.51).

Berth. The berth consists of a T–shaped pier projecting 200 m offshore. The head of the pier is 187 m long with a depth of 14 m alongside; there are dolphins on each side of the pierhead. The salt is loaded from a conveyor through a semi-fixed spout.

6 **Repairs:** limited repair facilities; major repair facilities at Curaçao.

Other facility. Hospital at Kralendijk.

Communications. Air services to Curaçao and Aruba from Flamingo Airport, at Kralendijk, 5 km distant; there are also international flights.

Chart 1414

Bonoil Terminal

7.68

1 **Position and function.** Bonoil Terminal (12°11′N, 68°18′W), also known as Curoil Mooring, situated 2½ miles NW of Kralendijk, is used for the discharge of refined petroleum products.

Port Authority. Bonaire Port Authority, Fort Oranje Kralendijk, Bonaire, Netherlands Antilles.

2 **Maximum size of vessel handled.** Vessels of up to 200 m LOA with a draught of 12 m can be berthed.

Port radio. There is a port radio station at Kralendijk (7.52). For further details see *Admiralty List of Radio Signals Volume 6 (5).*

3 **Outer anchorage.** Anchoring is not possible; see 7.40. Vessels awaiting a berth are required to drift offshore within VHF range.

Pilotage is compulsory. The pilot boards 7½ cables W of the terminal's mooring buoys.

Tugs are available and their use is compulsory.

4 **Directions for entering harbour.** There are no specific directions for berthing, the chart being sufficient guide.

Useful mark:

Two tanks (12°11′·7N, 68°16′·6W).

Berth. The terminal consists of two mooring buoys, moored in a depth of 35 m. Cargo is discharged through floating hoses.

5 **Repairs:** limited repair facilities; major repair facilities at Curaçao.

Other facility. Hospital at Kralendijk.

Communications. Air services to Curaçao and Aruba from Flamingo Airport, at Kralendijk, 5 km distant; there are also international flights.

CURAÇAO

GENERAL INFORMATION

Charts 2193, 702

Area covered

7.69

1 This section describes the coastal waters of Curaçao (12°12′N, 69°00′W) and includes descriptions of the ports of Fuik Baai (7.81), Caracas Baai (7.88), Willemstad and Bullenbaai (7.143). It is arranged as follows:

East and north-east coasts (7.72).

South coast – Punt'i Kayon to Willemstad (7.77).

Willemstad (7.96).

West coast – Willemstad to Noordpunt (7.134).

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Topography

7.70

1 Curaçao is hilly and appears barren from the offing. The highest summit is near its NW end at Sint Christoffelberg (12°20′N, 69°07′W) (7.30). The island is reported to be a good radar target at distances up to 23 miles, with charted features identifiable by radar at distances up to 13 miles.

Natural conditions

7.71

1 **Currents.** In the vicinity of Curaçao, the currents are generally W–going and set strongly around the points. Along the SW coast the current may attain rates from 2 to 3 kn. A weaker current may occasionally set E against the prevailing wind and create a short choppy sea which breaks on the shore even when the wind is light.

2 **Wind and weather.** The prevailing winds blow from either ENE or ESE, with an average strength of Force 4. Hurricanes are a rare occurrence.

The average temperature is 27·8°C. The wet season, with an annual rainfall of 570 mm, lasts from mid-October to mid-February.

EAST AND NORTH-EAST COASTS

General information

Charts 2193, 702

Route

7.72

1 From a position about 7 miles S of Punt′i Kayon (12°03′N, 68°44′W), on the S through route described at 7.32, the route leads initially NNE for 10½ miles to a position NE of Punt'i Kayon. The track then leads NW, for a farther 40 miles, to join the N through route described at 7.27, at a position about 8½ miles N of Noordpunt (12°24′N, 69°09′W).

Topography

7.73

1 The NE coast of Curaçao extending from Punt'i Kayon, also known as Oostpunt, to Noordpunt, 32 miles NW, is rocky but generally low. As it has not been closely examined, it should not be approached; a heavy surf breaks on it.

Principal marks

7.74

1 **Landmarks:**

Tafelberg (12°19′N, 69°07′W) and Sint Antonieberg, standing 2 miles SE, which are two prominent hills.

Sint Christoffelberg (12°20′N, 69°07′W) (7.30).

2 **Major lights:**

Klein Curaçao Light (11°59′N, 68°39′W).

Dr Albert Plesman Aero Light (concrete pillar with gallery) (12°11′N, 68°57′W).

Directions

7.75

1 From a position about 7 miles S of Punt'i Kayon (12°03′N, 68°44′W) the track leads initially NNE, passing (with positions relative to Punt′i Kayon):

WNW of Klein Curaçao (6 miles SE) from which a light is exhibited. The island is low, bare and steep-to, especially on the E side; a stranded wreck lies about mid-way along the E shore of the island. Thence:

2 ESE of Punt'i Kayon, the low SE extremity of Curaçao, also known as Oostpunt. The point should be given a wide berth as the current sets towards it.

Thence, when a position is reached about 5 miles NE of Punt'i Kayon, the track leads NW, passing (with positions relative to Dr Albert Plesman Aero Light (12°11′N, 68°57′W)):

3 NE of Sint Jorisbaai (8¼ miles SE), which leads into a lagoon. This is the largest of a number of small indentations and inlets along the NE coast. Thence:

NE of Boka Play'i Kanoa (5 miles E), thence:

NE of Bocht van Hato (3 miles NW), a bight entered between Boca Play'i Kanoa and Playa Grandi, 14 miles NW, thence:

4 NE of the entrance to Bartolbaai (11 miles NW), thence:

NE of Noordpunt (17 miles NW), the N extremity of Curaçao; a light (white round gallery stone tower, red lantern, 6 m in height) is exhibited from a position 6 cables S of the point. Noordpunt may be approached with safety as the current sets away from it.

5 The track then leads to a position about 8½ miles N of Noordpunt, where it joins a N through route described at 7.27.

Anchorage

Klein Curaçao

7.76

1 Temporary anchorage can be obtained SW of Klein Curaçao Light (11°59′N, 68°39′W), about 1 cable from the islet, on a bank with depths of less than 30 m extending 2 cables offshore.

SOUTH COAST — PUNTA'I KAYON TO WILLEMSTAD

General information

Charts 2193, 702

Route

7.77

1 From a position about 7 miles S of Punt'i Kayon (12°03′N, 68°44′W), on the S through route described at 7.32, the route leads NW, for 16 miles along the SW coast of Curaçao, to a position about 3 miles off the entrance to Willemstad (12°07′N, 68°56′W).

Speed

7.78

1 It is requested that vessels proceed at a moderate speed when within 3 miles of the S coast of Curaçao to avoid damage to the beaches.

Principal marks

7.79

1 **Landmark:**

Santa Barbara Hill (12°04′N, 68°50′W) (Tafelberg on Chart 702). With an elevation of 196 m it is the highest hill on the SE part of Curaçao; a radio mast (red obstruction lights) stands on the N side of the summit.

2 **Major light:**

Klein Curaçao Light (11°59′N, 68°39′W).

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Directions

7.80

1 From a position about 7 miles S of Punt'i Kayon (12°03′N, 68°44′W) the track leads NW, passing (with positions relative to Punt'i Kayon):

SW of Punt'i Kayon (7.75), thence:

SW of Lagún Blanku (3¼ miles W), one of the largest lagoons forming the S coast of Curaçao between Punt'i Kayon and Fuik Baai, 5 miles W, thence:

2 SW of the entrance to Fuik Baai (5¾ miles W) (7.81), thence:

SW of the entrance to Spaanse Baai (7 miles WNW) (7.95), thence:

SW of Caracas Baai (7¾ miles WNW) (7.88), thence:

3 SW of a dangerous wreck (9¾ miles WNW), marked by a buoy; the wreck lies 1 cable S of a point on which lies a stranded wreck.

The track then leads to a position about 3 miles SSW of the entrance to Willemstad (12¼ miles WNW) (7.96).

(Directions continue, for Willemstad at 7.121, and for the coastal route NW at 7.137)

Fuik Baai

Charts 702, 1412 plan of Caracas Baai, Spaanse Baai and Fuik Baai, with plan of entrance to Fuik Baai

General information

7.81

1 **Position.** Fuik Baai (12°03′N, 68°50′W) is a narrow lagoon situated on the S coast of Curaçao, in which there is a loading terminal.

Function. The terminal at Fuik Baai is mainly used to export phosphate which is brought from the quarries by cable railway to the loading wharf at Nieuwpoort.

2 **Traffic.** In 1997 the bay was used by 35 vessels with a total of 198 714 dwt.

Port Authority. Curaçao Mining Company, Nieuwpoort 1, Curaçao, Nederlandse Antillen.

Limiting conditions

7.82

1 **Controlling depth.** There is a least charted depth of 8·6 m in the entrance to Fuik Baai on the leading line.

Density of water. 1·025 g/cm^3.

Maximum size of vessel handled. Vessels with a length up to 110 m and a maximum draught of 7·3 m after loading are handled.

Arrival information

7.83

1 **Pilotage** is compulsory. The pilot boards 5 cables SSW of the entrance or in Caracas Baai (7.88). The harbour is entered by day only.

Tugs may be obtained from Willemstad (7.96).

Harbour

7.84

1 **General layout.** The berths of Fuik Baai are arranged along the NE shore of the lagoon opposite the entrance.

Current. In the approach to Fuik Baai there is generally a strong W–going current. In some months, usually August, September and October, strong E–going currents sometimes occur.

2 **Landmarks:**

Santa Barbara Hill (12°04′N, 68°50′W) (Tafelberg on Chart 702) (7.79).

Chimney standing 3 cables NNW of the entrance to Fuik Baai.

Directions for entering harbour

7.85

1 **Caution.** The effects of current and wind should first be determined, when a considerable distance from the narrow entrance, as they are of great importance to an approaching vessel. A following swell at the entrance sometimes make entry difficult.

2 **Nieuwpoort Leading Lights:**

Front light (cross on red and white beacon) (12°03′·2N, 68°49′·7W).

Rear light (triangle on red and white beacon) (50 m from front light).

3 From a position about 1 mile SSW of the entrance to Fuik Baai the alignment (027½°) of these lights leads NNE into the harbour, passing:

WNW of two buoys, moored close off the E side of the channel, thence:

ESE of a buoy, moored close NE of the W entrance point.

4 If berthing at the phosphate wharf, immediately after clearing the entrance, a vessel is turned E on the starboard anchor and berthed heading SE. Skilful handling of a vessel is essential as there is very little room in the harbour; the vessels should be adequately ballasted to ensure safe manoeuvring.

Berths

7.86

1 **Anchorage.** Vessels may obtain anchorage in the NW part of Fuik Baai in depths of up to 13 m.

Alongside berths:

Phosphate wharf (12°03′·3N, 68°49′·8W) with a depth of 8·5 m alongside.

2 West Wharf, length 25 m, standing ½ cable SE of the phosphate wharf. The wharf can accommodate vessels with a draught up to 3·6 m; it is used for handling explosives and other cargoes.

Port services

7.87

1 **Repairs.** Assistance obtainable from Willemstad (7.96).

Other facilities: garbage disposal; hospital at Willemstad; fumigation carried out.

2 **Supplies:** none available; nearest bunkering facilities at Willemstad.

Communications. Curaçao International Airport, 20 km distant.

Caracas Baai

Charts 702, 1412 plan of Caracas Baai, Spaanse Baai and Fuik Baai

General information

7.88

1 **Position.** Caracas Baai (12°05′N, 68°52′W) is an open bay situated on the S coast of Curaçao, 4½ miles SE of Willemstad. The bay is entered between Punta Juba and Lijhoek, 7 cables WNW.

Function. Formerly an oil terminal, Caracas Baai now handles passenger vessels. Some of the largest cruise liners in the world berth here.

2 **Traffic.** Approximately 90 vessels visit the port annually.

Port Authority. Curaçao Ports Authority NV, Postbus 689, Werf de Wilde z/n, Curaçao, Nederlandse Antillen.

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Limiting conditions

7.89

1 **Density of water** is 1·025 g/cm^3.

Maximum size of vessel handled. Vessels up to 320 m LOA, with a maximum draught of 13·7 m are berthed.

Arrival information

7.90

1 **Port radio.** There is no radio station at Caracas Baai; the port radio station at Willemstad is used instead.

Notice of ETA required. Send ETA 72, 48 and 24 hours prior to arrival.

2 **Anchoring.** Depths are too great for anchoring in Caracas Baai. If a berth is not available a vessel should remain underway in the offing.

Pilotage is compulsory for vessels over 50 grt and obtainable from Willemstad. The pilot boards off Lijhoek (12°04′·3N, 68°52′·6W).

3 **Tugs** are compulsory for berthing; obtainable from Willemstad.

Harbour

7.91

1 **General layout.** Caracas Baai contains two berths which are situated on the E side of the bay. The bay is well sheltered by the high land NE and E from the trade winds, which are constant except in August, September and October when the winds are light and variable.

Currents set across the entrance to Caracas Baai and should be allowed for. A vessel should be adequately ballasted to ensure manoeuvrability.

2 **Landmarks:**

Former quarantine building at Punta Juba (12°04′·2N, 68°51′·6W).

Oil storage tanks (12°04′·3N, 68°51′·3W).

Fort Beekenburg (12°04′·5N, 68°51′·6W).

Directions for entering harbour

7.92

1 There are no specific directions for entering Caracas Baai the chart being sufficient guide. The NW side of Caracas Baai is marked by the alignment (043½°) of the following lights in line situated on the N side of the bay:

Front light (cross on beacon) (12°04′·8N, 68°51′·8W).

Rear light (inverted triangle on beacon) (50 m from front light).

2 Vessels berth port side to at Pier No 2 and Pier No 3.

Berths

7.93

1 Berths are as follows:

Pier 2 (12°04′·5N, 68°51′·6W) next to Fort Beekenburg. The pier consists of a T–shaped concrete quay, with a charted depth of 14·3 m alongside; mooring dolphins are situated inshore N and S of the quay.

2 Pier 3, 2 cables SSE of Pier 2. Similar structure to Pier No 2 with a charted depth of 13·7 m alongside.

Port services

7.94

1 **Repairs.** Small repairs can be effected. There are major repair facilities at Willemstad.

Other facilities: hospital at Willemstad; Deratting and Deratting Exemption Certificates issued; oily waste water reception to a barge can be arranged.

2 **Supplies:** fuel supplied by barge from Willemstad; fresh water and provisions obtainable.

Communications. Curaçao International Airport, 15 km distant.

Small craft

Spaanse Baai

7.95

1 Spaanse Baai (12°04′N, 68°51′W) is entered between Punta Santa Barbara and Punta Caballero, close W; it is a narrow channel leading 7 cables N into Spaanse Water, an irregularly shaped and land-locked harbour.

Spaanse Water, with several marinas on its N shore, is the main yachting centre of Curaçao.

WILLEMSTAD

General information

Charts 702, 1412 plan of Willemstad and Schottegat

Position

7.96

1 Willemstad (12°07′N, 68°56′W), which stands on both sides of Sint Anna Baai, is situated on the S coast of Curaçao. The larger part of the town of Willemstad is Otrabanda, on the W side of Sint Anna Baai; the oldest part on the E side is Punda, with the residential areas of Scharloo and Pietermaai farther E.

Function

7.97

1 Willemstad is the capital of Curaçao, and has a population of about 150 000. The port is a tanker transhipment terminal for oil, but there are also refineries on the N side of the harbour which process the oil and export refined petroleum products. Passenger, container and general cargo vessels, for which there are dedicated facilities, are also handled.

Approach and entry

7.98

1 Willemstad is approached from the SW and entered through Sint Anna Baai along the alignment of leading lights.

Traffic

7.99

1 In 1998, the port was used by 2598 vessels with a total of 55 508 797 dwt.

Port Authority

7.100

1 **Postal address.** Curaçao Ports Authority NV, Postbus 689, Werf de Wilde z/n, Curaçao, Nederlandse Antillen.

Web site. www.curports.com.

Limiting conditions

Controlling depth and draught

7.101

1 The coast in the approach to Willemstad is steep-to and clear of offshore dangers. In Sint Anna Baai, the entrance and S part of the port of Willemstad, there is a least charted depth of 14·6 m about 1 cable within the entrance.

2 The maximum permissible draught for entering Sint Anna Baai is 13·7 m.

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Floating bridge
7.102

1 Koningin Emma Pontoon Bridge, a floating bridge, is situated 1½ cables within the entrance to Sint Anna Baai. The bridge, constructed of pontoons, is 140 m long and opens inwards, lying alongside the W shore when fully opened. It is opened promptly at any hour of the day or night; shipping, both inward and outward bound, has priority.

Vertical clearance
7.103

1 Koningin Juliana Bridge, with a vertical clearance of 55 m, spans Sint Anna Baai 3½ cables SW of Fort Nassau (12°07′·1N, 68°55′·5W).

Deepest and longest berth
7.104

1 **Deepest.** Rif Otrabanda (7.125).
Longest. Reparatiekade (general repair quay) (7.128).

Density of water
7.105

1 The density of the water is 1·025 g/cm^3.

Maximum size of vessel handled
7.106

1 Maximum authorised size; length 259 m, draught 13·7 m. However vessels up to 250 000 dwt with a length of 314 m have been handled.

Arrival information

Port radio
7.107

1 There is a port radio station based at Fort Nassau Signal Station (12°07′·1N, 68°55′·5W). For further information see *Admiralty List of Radio Signals Volume 6 (5)*.

Notice of ETA required
7.108

1 ETA should be sent 48 and 24 hours prior to arrival to the Harbour Master through Curaçao Coast Radio Station.

Outer anchorages
7.109

1 There are no outer anchorages; depths in the approaches to Willemstad are too great for anchoring.

Submarine cables
7.110

1 Several submarine cables land on the shore at Punda 2½ cables ESE of the entrance to the port of Willemstad. For further information on submarine cables see 1.42.

Pilotage
7.111

1 Pilotage is compulsory for vessels over 50 grt and available 24 hours. The pilot boards 1 mile SW of the entrance to Sint Anna Baai. While awaiting a pilot, a vessel should heave-to about 3 or 4 miles SW of the entrance.

2 For further details see *Admiralty List of Radio Signals Volume 6 (5)*.

Tugs
7.112

1 Tugs are available and are compulsory for large ships, tankers over 3000 grt, and for all tankers if not gas-free. The requirements are as follows:

Vessel type	*Size*	*Number of tugs*
Tanker	3000 to 16 000 grt	1
Tanker	> 16 000 grt	2
2 Tanker	213–214 m	2
Tanker	> 214 m	3
Dry cargo	229 m or more	2

Regulations concerning entry
7.113

1 **Dangerous cargo.** Vessels carrying explosives, ammunition, radioactive material and other dangerous IMO cargo for discharge at Curaçao, for transhipment, or in transit without transhipment, require permission in writing, obtained prior to arrival, to enter the port.

2 **Draught.** Special regulations are in force specifying the minimum entering and sailing draughts for tankers, according to their size; tankers should not be trimmed more than 3·05 m by the stern. For further details consult the Port Authority (7.100).

Ballast. A vessel should be adequately ballasted to ensure manoeuvrability.

Harbour

General layout
7.114

1 The port of Willemstad consists of Sint Anna Baai, the narrow entrance channel, and an inner bay, much indented, called Schottegat, which together form one of the finest harbours in the West Indies.

Sint Anna Baai extends 7½ cables NNE from its entrance between Waterfort on the E and Riffort on the W; it leads into Schottegat. Both sides of the channel are lined with wharves, used mainly by cruise vessels and bunkering vessels.

2 Within Schottegat the main berthing areas are at Emmastad, on the N side, used mainly by tankers and other vessels for bunkering, and at Admiral Brion Multi-use Terminal, at the E end of the bay, which is used by dry cargo vessels and bunkering vessels; there is a container terminal close S of the multi-user terminal.

3 At the peninsula of Koningsplein, on the NE side of Schottegat, there is a large repair facility with dry docks and alongside repair berths. On the SE side of Schottegat there is a naval base on the peninsula of Parera; Baai van Versali, immediately W of the peninsula, has berths and a repair yard for small vessels.

Signals from Fort Nassau Signal Station
7.115

No	*By day*	*By night*	*Meaning*
1 1	Black ball at half mast	White light	One or more vessels may leave
2	Black ball at masthead	Two red lights	The bridge will be opened for one or more out-going vessels

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	No	By day	By night	Meaning
2	3	Black ball over red flag at masthead	Red light over white light	The bridge is opening for one or more out-going vessels
	4	Red flag at masthead	Red light (shown until the last vessel has passed the bridge)	The last out-going vessel is entering Sint Anna Baai and the next vessels may no longer do so
3	5	Red flag and black cone	Red light over two white lights	The last out-going vessel has passed Nieuwe Werf and the bridge will remain open for one or more in-coming vessels
4	6	Black cone	Two white lights vertically	The bridge if closed will be opened for one or more in-coming vessels; if the bridge is already open for out-going vessels, the last vessel has passed the bridge
5	7	Green flag and black cone	Green light over white light	The bridge is open for one or more in-coming vessels
	8	Green flag	Green light (shown until the last vessel either leaves Sint Anna Baai, or is moored in Sint Anna Baai, or obstructs the harbour)	The last in-coming vessel has passed the bridge and the next vessels may no longer enter
6	9	Red flag over green flag	Red light over green light	The harbour is obstructed by a vessel manoeuvring
	10	Green flag over red flag	Green light over red light	The harbour is obstructed in unexpected circumstances
7	11	Black cylinder	Two green lights vertically	A vessel is shifting berth
	12	International distinguishing pennant, or Morse signal "R"	Morse signal "R" on lamp (the pennant is not displayed at the same time as other signals and not for more than 1 minute)	The pilot signal, or a request for a tug, from a vessel has been heard or seen and has been forwarded
8	13	International code flag "N"	Yellow flashing light	One or more warships may enter or leave

Signals from Koningen Emma Pontoon Bridge 7.116

	No	By day	By night	Meaning
1	1	Blue flag	Blue light	Bridge opening in 5 minutes
	2	One long blast on the siren		Bridge opening within 1 minute; road traffic must stop
2	3	Four long blasts on the siren		The bridge cannot or may not be opened

Signals shown and sounded by vessels 7.117

	No	Signal	Meaning
1	1	By day: black ball at masthead By night: white light over red light (signal is followed by long blast on siren; it may only be given if signals on Fort Nassau indicate that the harbour is clear)	A change of berth is requested
2	2	Two long blasts on whistle or siren	A pilot is requested at once
	3	Three long blasts on whistle or siren	The bridge is requested to be opened
	4	Four long blasts on whistle or siren	The manoeuvre of the vessel is held up temporarily
3	5	Ten short blasts on whistle or siren	There is a FIRE on board
	6	A long, a short, and a long blast on the whistle or siren	Permission is requested to obstruct traffic in Sint Anna Baai
	7	A long and three short blasts on the whistle or siren	Vessel is now clear of Sint Anna Baai after obstruction
4	8	A long, two short, and a long blast on the whistle or siren	A tug is requested
	9	Three short and one long blast on the whistle or siren	Vessel is blocking Sint Anna Baai, or is unmanageable, due to unforeseen circumstances

5 **Additional night signal.** Vessels entering or leaving harbour must not use sound signals between 2200 and 0600 in Sint Anna Baai S of Nieuwe Werf (12°06′·9N, 68°55′·8W). The following signal should be used:

Two red lights, disposed vertically, to request permission for the vessels to obstruct temporarily the navigation of Sint Anna Baai. By extinguishing this signal when leaving harbour, the vessel requests the bridge to be opened; or when entering harbour or shifting berth, the vessel indicates that Sint Anna Baai is again clear.

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6 To avoid confusion, vessels are prohibited from using any sound signals, other than those given above, except those necessary for safe navigation.

Storm signals

7.118

1 Visual storm warning signals are displayed from a flagstaff at Riffort (12°06′·5N, 68°56′·2W). A square red flag with a black square in the centre indicates that winds of 34 kn and more are expected at Curaçao.

Further information concerning storm warnings broadcast by radio are given in *Admiralty List of Radio Signals Volume 3 (2).*

Natural conditions

7.119

1 **Current.** Off the entrance to Sint Anna Baai, the current is almost always W–going with a rate usually less than 1 kn, which it exceeds for a total of 47 days of the year. The current can attain 2½ kn for short periods. Only rarely are large vessels delayed by the current, but it should be taken into account.

2 A counter-current setting E can occur when the W–going current is strong. There is no current in Sint Anna Baai.

Current meters. Near the E entrance point of Sint Anna Baai, meters are attached to a light (black post, 2 m in height) (12°06′·3N, 68°56′·0W), and to a light (aluminium bracket on the inner wall of Waterfort, 1¼ cables N; the latter light is visible only from within Sint Anna Baai.

3 The strength and direction of the current is indicated by coloured lights, disposed vertically, on the meters as follows:

Lights	*Meaning*
Red, white, red, green	More than 2 kn, W–going
White, red, green	1½ to 2 kn, W–going
Red, green	1 to 1½ kn, W–going
Green	Less than 1 kn, W–going
Green, orange	Less than 1 kn, E–going

4 The meters were reported in 1995 not to be working.

Climatic table. See 1.167 and 1.174.

Principal marks

7.120

1 **Landmarks:**

Drie Gebroeders, consisting of Seru Pretu (12°07′·8N, 68°57′·2W), Veerisberg (12°08′·0N, 68°57′·7W) and Jack Evertsz Berg (12°08′·0N, 68°58′·3W), standing 1¾ to 3 miles WNW of Willemstad; maximum elevation 138 m.

2 Fort Nassau (12°07′·1N, 68°55′·5W), with a signal station, standing on a hill, 68 m high.

TV mast (red obstruction lights) (12°06′·8N, 68°55′·5W), with a satellite dish close by.

Koningin Juliana Bridge (12°06′·9N, 68°55′·8W) (7.103).

3 Forts on each side of the entrance to Sint Anna Baai (12°06′·5N, 68°56′·1W).

Television mast



Willemstad – E side of entrance to Sint Anna Baai (7.120)

(Original dated 1998)

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Willemstad – entrance from SSW (7.121)
(Original dated 1998)

(Photograph – Crown Copyright)

Hotel (12°06′·4N, 68°56′·0W), with a prominent illuminated bird-shaped sign on its roof, standing on the sea-front.

4 **Major light:**

Willemstad Light (grey metal column on fort, 17 m in height) (12°06′·4N, 68°55′·9W).

Directions for entering harbour

(continued from 7.80)

General remarks

7.121

1 The effects of current and wind should first be determined, when a considerable distance from the narrow entrance, as they are of great importance to an approaching vessel. The absence of any stream within the entrance should be bourne in mind.

2 Great attention must be paid to the navigational signals from Fort Nassau and Koningin Emma Pontoon Bridge; see tables 7.115 and 7.116. Premature entry is dangerous as the fairway is too narrow for vessels to pass.

Main approach and entry

7.122

1 From a position about 3 miles SSW of the entrance to Willemstad the track leads a short distance NNE to the beginning of the following leading line:

Front light (orange rectangle on black metal mast, yellow bands) (12°06′·6N, 68°56′·0W).

2 Rear light (orange circle on metal mast, 8 m in height) (480 m from front light). It is reported that the topmarks of both lights are difficult to distinguish against the surrounding roofs of the same colour.

3 Thence the track continues along the alignment (023½°) of these lights into Sint Anna Baai, passing (with positions relative to the front light):

WNW of a light-beacon (black post, 2 m in height) (2¾ cables S), thence:

4 WNW of a light-buoy (white) (2½ cables S) marking the edge of the shore bank off the E entrance, thence:

ESE of a light-buoy (red) (2½ cables SW) marking the edge of the shore bank off the W entrance.

5 On passing the light-buoys sufficient headway should be maintained only to offset any adverse effect of current or wind. When about a ½ cable past the light-buoys the track then leads NE towards the pontoon bridge (7.102). When the bridge is open proceed through Sint Anna Baai, in mid-channel, passing under Koningin Juliana Bridge and into Schottegat. A light (orange column, black bands, 7 m in height) is occasionally exhibited from the E side of the N end of Sint Anna Baai.

6 There are no specific directions for approaching the berths in Schottegat, but attention is drawn to the shoal water which fringes the bay, especially in its W part. The edge of the shoal water is marked by light-buoys (white), W of the entrance to Sint Anna Baai, and by light-beacons, E of the entrance.

Alternative approach and entry

7.123

1 Sint Anna Baai may also be approached and entered on the following alternative leading line:

Front light (orange diamond daymark) (12°06′·8N, 68°55′·8W).

Rear light (similar daymark) (580 m from front light).

2 From a position SW of the entrance to Sint Anna Baai the alignment (042°) of these lights leads NE into Sint Anna Baai, passing between the same navigational aids as described in the main directions (7.122), and thence in mid-channel until 1½ cables past the pontoon.

Useful marks

7.124

1 Tower-like building (12°06′·0N, 68°54′·4W), 1¾ miles ESE of the entrance to Sint Anna Baai.

Light (aluminium bracket on wall of fort) (12°06′·5N, 68°56′·0W), exhibited from the E entrance point of Sint Anna Baai.

2 Light (aluminium structure) (12°06′·5N, 68°56′·1W), exhibited from the W entrance point of Sint Anna Baai.

Stadium (12°06′·6N, 68°56′·3W).

Four chimneys (yellow, black tops) (12°06′·8N, 68°57′W) of a desalination plant, about 1 mile WNW of the entrance to Sint Anna Baai.

Basins and berths

Rif Otrabanda

7.125

1 A mega-cruise vessel facility (12°06′·5N, 68°56′·4W) is situated on the Otrabanda sea front, close W of the entrance to Sint Anna Baai. It consists of a T–shaped jetty, with a minimum depth of 15·2 m alongside, able to accept vessels up to 150 000 grt. Lights are exhibited from the ends of the outer arm of the jetty.

Sint Anna Baai

7.126

1 Sint Anna Baai has five berths on its E side and five berths on its W side; Prins Hendrik Werf, situated just

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outside Sint Anna Baai, close W of its N end, is associated with those in Sint Anna Baai. These berths mainly handle cruise vessels.

2 Prins Hendrik Werf is the deepest berth, with a depth alongside of 11·0 m; Grote Werf, situated 1 cable S of Koningin Juliana Bridge on the E side, is the longest, having a length of 217 m.

Schottegat

7.127

1 **Anchorage.** In the W and shallower part of Schottegat, anchorage can be obtained by small vessels but, in order not to obstruct shipping movements, they should not remain at anchor for any length of time. Vessels use two anchors, with the stern secured to a mooring buoy. The holding ground of soft mud is poor.

2 **Emmastad Refinery.** There are ten numbered oil berths, shown on the chart, at Emmastad on the N side of Schottegat; they are used by tankers and bunkering vessels. The berths extend from Pier 1 in Baai van Valentijn (12°07′·5N, 68°56′·3W) to Pier 10 on the E side of the peninsula of Asiento, 1 mile E; dolphins stand off some of the piers.

The largest berth is Pier 8 (12°07′·4N, 68°55′·4W) which can accommodate vessels up to 100 000 dwt, with a LOA of 259 m and a maximum draught of 13·7 m.

3 **Admiral Brion Multi-use Terminal** (12°07′·2N, 68°54′·6W). This terminal, situated at the E end of Schottegat, contains six numbered berths used for the handling of break-bulk, cars, lumber, steel and general cargo. The berths are each 305 m long; the maximum draught allowed alongside is 10·0 m.

There is a Ro-Ro ramp at the root of Berth No 6. There are also Ro-Ro facilities for a ferry service (7.131).

4 **Container terminal** (12°07′·0N, 68°54′·7W). Situated close S of Admiral Brion Multi-use Terminal the container terminal consists of one long quay with Ro-Ro facilities at its E end. The quay is 500 m long with three berths, and a least charted depth of 11·0 m alongside.

Port services

Repairs

7.128

1 The Curaçao Dry Dock Company carries out repairs of all kinds at its Beatrix Yard (12°07′·5N, 68°55′·0W), situated in the NE corner of Schottegat. The yard also maintains working barges, with diving and welding equipment, for the use of vessels at anchor or at berths alongside. At the yard there are two dry docks and a floating dock as follows:

2 Beatrix Dock. Accommodates vessels up to 30 481 dwt, length 193 m, beam 26 m and a draught of 6·1 m.

Antilia Dock. Accommodates vessels up to 155 500 dwt, length 280 m with a draught forward of 6·2 m and a draught aft of 8·2 m.

3 Curaçao Dock. This is a floating dry dock moored at the W end of Reparatiekade; length 165 m, inside width 29 m, with a lifting capacity of 10 000 tonnes.

There are also several alongside berths at the yard, the largest being Reparatiekade situated on the SE side; this quay is 503 m long with charted depths of 11·5 m alongside.

Other facilities

7.129

1 Hospital; salvage vessels available; Deratting and Deratting Exemption Certificates issued; ballast and oily waste reception facilities; fumigation carried out.

Supplies

7.130

1 Fuel available; the port of Willemstad is the busiest bunkering port in the Caribbean. Fresh water and provisions are also obtainable.

Communications

7.131

1 A ferry service operates from Willemstad connecting Curaçao with Venezuela, Bonaire and Aruba. There are scheduled air services from Curaçao International Airport, 10 km distant.

Small craft

Pier

7.132

1 Marlchle Pier (12°06′·3N, 68°55′·8W), an L–shaped pier situated on the sea front ESE of Waterfort, is suitable for small craft.

Repairs

7.133

1 Small craft can be repaired at yards in Baai van Versali (12°06′·9N, 68°55′·3W) and Batipaña Baai (12°07′·2N, 68°56′·1W), where there are slipways.

WEST COAST — WILLEMSTAD TO NOORDPUNT

General information

Chart 702 plan of Curaçao

Route

7.134

1 From a position about 3 miles off the entrance to Willemstad (12°07′N, 68°56′W) the route leads initially NW, for 21 miles, to a position about 4 miles W of the S entrance point (12°18′N, 69°09′W) of Sint Kruis Baai. Thence the route leads NNE, for a farther 14 miles, to a position about 8½ miles N of Noordpunt, where it joins the N through route described at 7.27.

Topography

7.135

1 From the W entrance point of Sint Anna Baai to Kaap Sint Marie, 8¾ miles NW, the coast is irregular in shape, cliffy in places, and is indented by Piscaderabaai (12°08′N, 68°58′W), Sint Michielsbaai (12°09′N, 69°00′W) and Bullenbaai (12°12′N, 69°02′W).

2 Between Kaap Sint Marie (12°11′N, 69°03′W) and the S entrance point of Sint Kruis Baai, 8¾ miles NW, the coast is backed by hills rising at their NW end to an elevation of 115 m. Thence to Noordpunt, 5¾ miles N, the coast is bordered by cliffs except at some small beaches.

Principal marks

7.136

1 **Landmarks:**

Drie Gebroeders hills (7.120), standing 1¾ to 3 miles WNW of Willemstad.

White oil tanks (12°11′N, 69°01′W), standing on the shore of Bullenbaai (7.143).

Sint Christoffelberg (12°20′N, 69°07′W) (7.30).

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Directions

(continued from 7.80)

7.137

1 From a position about 3 miles off the entrance to Willemstad (12°07′N, 68°56′W) the track leads initially NW, passing (with positions relative to Kaap Sint Marie (12°11′N, 69°03′W)):

SW of the entrance to Piscaderabaai (6½ miles SE) (7.150), thence:

2 SW of the entrance to Sint Michielsbaai (4¼ miles SE) (7.138), thence:

SW of Kaap Sint Marie, the W entrance point of Bullenbaai (7.143). A light (red square metal tower, 6 m in height) is exhibited from the point. Thence:

3 SW of Punta Halvedag (4 miles NW), thence:

SW of Boka Santa Marta (6¼ miles NW), the shallow outlet from Santa Martabaai.

Thence when a position is reached about 4 miles W of the S entrance point (12°18′N, 69°09′W) of Sint Kruis Baai (7.152), the track leads NNE, passing (with positions relative to Kaap Sint Marie):

4 WNW of Westpunt (13 miles NNW), the NW extremity of Curaçao, thence:

WNW of Noordpunt (13½ miles NNW) (7.75); a light (7.75) is exhibited from a position 6 cables S of the point.

The track then leads to a position about 8½ miles N of Noordpunt.

5 **Useful marks:**

Four chimneys (12°06′·8N, 68°57′W) (7.124), standing 1 mile WNW of the entrance to Sint Anna Baai.

Sint Michielsbaai

General information

7.138

1 **Position and function.** Sint Michielsbaai (12°09′N, 69°00′W), about 4 miles NW of Willemstad, is an open bay sheltered from the prevailing winds and sea. It affords a good and safe anchorage for ships unable to enter Sint Anna Baai due to deep draught, quarantine, or dangerous cargo, and is used for carrying out underwater cleaning and minor repairs.

2 **Traffic.** In 1997 the bay was used by four vessels with a total of 27 083 dwt.

Port Authority:

Postal address. Curaçao Ports Authority NV, Postbus 689, Werf de Wilde z/n, Curaçao, Nederlandse Antillen.

3 Web site. www.curports.com.

Arrival information

7.139

1 **Port radio.** The port radio station (7.107) at Willemstad covers movements at Sint Michielsbaai.

Notice of ETA required. An ETA should be sent to the vessel's Curaçao agents 72, 48 and 24 hours before arrival.

Pilotage is compulsory. As the pilot comes from Willemstad, the Harbour Master there should be notified well in advance by radio.

2 **Tugs** are available from Willemstad and are normally used for berthing; vessels up to 213 m LOA use one tug and vessels over 231 m two tugs. Tugs are not required for unberthing.

Directions for entering harbour

7.140

1 There are no specific directions for entering Sint Michielsbaai, the chart being sufficient guide.

Berths

7.141

1 At Sint Michielsbaai there is a deep water mooring buoy facility, laid 1 cable offshore in a depth of 40 m. A vessel is secured by the stern to the mooring buoy, and with the bow facing seaward, a short scope of cable is paid out on one anchor, in deep water, to steady it.

2 **Jetty.** There is a jetty in the bay which can accommodate tugs and lighters.

Port services

7.142

1 **Repairs.** Minor repairs carried out; the nearest major repair facility is at Willemstad (7.128).

Other facilities: floating crane; some cargo can be worked by lighters; ballast and slop facilities available; nearest hospital at Willemstad.

Communications. Curaçao International Airport, 6 km distant.

Bullenbaai

Chart 702, Curaçao, with plan of Bullenbaai

General information

7.143

1 **Position.** Bullenbaai (12°12′N, 69°02′W), situated half way along the SW coast of Curaçao, is entered 6 miles NW of Willemstad. An oil terminal stands on the E side of the bay.

2 **Function.** At the oil terminal crude oil is discharged from VLCCs into storage tanks for transhipment in smaller tankers or transfer by pipeline to the refineries at Emmastad (7.127); refined products are piped from Emmastad to the terminal for loading.

3 **Topography.** Bullenbaai is an open bay sheltered from the prevailing trade winds by hills rising from its head.

Traffic. The oil terminal handles approximately 200 vessels annually.

Port Authority:

4 Postal address. Curaçao Ports Authority NV, Postbus 689, Werf de Wilde z/n, Curaçao, Nederlandse Antillen.

Web site. www.curports.com.

Limiting conditions

7.144

1 **Deepest and longest berth.** Pier No 4 (7.148).

Density of water is 1·025 g/cm^3.

Maximum size of vessel handled. Vessels up to 540 000 dwt, with a LOA of 411 m and a draught of 28·9 m can be handled.

Arrival information

7.145

1 **Port radio.** There is port radio station at the terminal. For further information see *Admiralty List of Radio Signals Volume 6 (5).*

Notice of ETA required. Send ETA 72 and 24 hours prior to arrival; amendments of more than 6 hours should be notified immediately. For further information see *Admiralty List of Radio Signals Volume 6 (5).*

2 **Outer anchorages.** There are no anchorages in Bullenbaai as the bay is too deep. If unable to berth, vessels should remain underway within VHF range of the terminal.

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Pilotage is compulsory and available at all times. Pilots are not stationed at Bullenbaai, but instead are requested from the Harbour Master at Willemstad. The pilot boards 5 cables S of Kaap Sint Marie (12°11′N, 69°03′W). For further information see *Admiralty List of Radio Signals Volume 6 (5).*

3 **Tugs.** The use of tugs is compulsory. Two tugs assist tankers up to 150 000 dwt on arrival and departure, but three tugs are required to berth those more than 150 000 dwt, and four tugs are required for those more than 350 000 dwt.

Regulations concerning entry:

4 Draught. Harbour regulations are in force specifying the minimum entering and sailing draughts for tankers, according to their size; tankers should not be trimmed more than 3·05 m by the stern. For further details consult the Port Authority.

5 Ballast. A vessel should be adequately ballasted to ensure good manoeuvrability.

Harbour

7.146

1 **General layout.** Bullenbaai Terminal, situated in the E part of the bay, contains several berths arranged along the shore, all within 1 mile NW of Pier No 1 (12°11′·0N, 69°01′·1W).

Landmark:

White oil tanks (12°11′N, 69°01′W), standing on the shore of Bullenbaai

Directions for entering harbour

7.147

1 Bullenbaai is entered on the following leading line:

Front light (red daymark) (12°12′·1N, 69°02′·1W).

Rear light (red daymark) (240 m from front light).

From a position S of Kaap Sint Marie (12°11′N, 69°03′W), from which a light (7.137) is exhibited, the alignment (043°) of these lights leads NE into the W part of the bay.

2 The berths at the N end of the terminal may then be approached along the following second leading line:

Front light (on tank) (12°11′·7N, 69°01′·2W).

Rear light (on tank) (620 m from front light).

The alignment (095°) of these lights leads E towards Pier No 5. For berthing in the N half of the terminal the alignment (123°) of the following lights in line are of use:

3 Front light (on tank) (12°11′·2N, 69°00′·9W).

Rear light (on tank) (200 m from front light).

Vessels are berthed port side to, with the assistance of mooring launches and tugs (7.145); they can be berthed or unberthed at any time.

4 **Useful marks:**

Light (12°10′·9N, 69°00′·9W) exhibited from a position 2 cables SE of Pier No 1.

Radio mast (red obstruction lights, elevation 81 m) (12°11′·0N, 69°00′·7W).

Berths

7.148

1 There are six T–shaped piers at the terminal; all the piers are flanked by dolphins. The largest is Pier No 4 (12°11′·6N, 69°01′·3W), with an approximate depth of 30·5 m alongside; this berth can handle vessels up to 540 000 dwt with a LOA of 411 m.

2 Tugs berth at a jetty between Piers No's 2 and 3.

Port services

7.149

1 **Repairs.** Minor repairs carried out; the nearest major repair facility is at Willemstad (7.128).

Other facilities: de-ballasting and tank cleaning facilities available; Deratting and Deratting Exemption Certificates issued; the nearest hospital is at Willemstad.

2 **Supplies.** Fuel, fresh water and provisions are obtainable.

Communications. Curaçao International Airport, 8 km distant.

Minor anchorages

Chart 702, Curaçao

Piscaderabaai

7.150

1 Piscaderabaai (12°08′N, 68°58′W), an unimportant inlet extending about 1½ miles N from its entrance, is now silted up. However, good temporary anchorage, with a bottom of sand, can be obtained close off the entrance to the inlet, but depths increase rapidly seaward.

Daaibooibaai

7.151

1 Daaibooibaai (12°13′N, 69°05′W) is a small cove situated 2¼ miles NW of Kaap Sint Marie. It affords temporary anchorage in an emergency to a small vessel, which should approach at slow speed. Enough cable should be veered for the anchor to touch bottom and hold in a depth of 55 m, when an additional 50 m of cable should be paid out.

Sint Kruis Baai

7.152

1 **Description.** Sint Kruis Baai (12°18′N, 69°09′W), at the head of which lies the shallow cove of Boka Santa Krus, is situated on the NW coast of Curaçao. The bay affords anchorage about 1½ cables offshore abreast the entrance to Boka Santa Krus; it is sheltered from the prevailing wind and there is no current. The bay has no settlement or good road communication.

2 **Caution.** A dangerous wreck, as shown on the chart, lies close offshore in the entrance to Boka Santa Krus.

Directions. A vessel should approach Sint Kruis Baai, at slow speed, on the line of bearing 079° of the S entrance point of Boka Santa Krus, with the anchor lowered to a depth of 35 m, and come to when the anchor touches bottom.

3 **Small craft.** Recreational vessels may find anchorage farther N of the previously described anchorage.

Knipbaai

7.153

1 Knipbaai (12°21′N, 69°09′W) provides temporary anchorage in an emergency for a small vessel. The bay should be approached slowly and anchorage obtained as described for Daaibooibaai (7.151).

Westpuntbaai

7.154

1 **Description.** Westpuntbaai, entered 1½ miles N of Knipbaai, can be identified by a large church at the village of San Pedro (12°22′·2N, 69°09′·1W) and a sandy beach between high rocks. The bay is sheltered from the prevailing winds and could be used in an emergency, but it does not afford safe anchorage and the depths are considerable close inshore. Currents within the bay are negligible.

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2 **Directions.** The anchorage is approached, at slow speed, on the line of bearing 070° of the church, with the anchor lowered to a depth of 50 m until it holds when about 1 cable offshore. The vessel should then go astern and let go a second anchor, to prevent swinging too near the shore. depths increase rapidly seaward of this berth.

ARUBA

GENERAL INFORMATION

Charts 2193, 702 plan of Aruba

Area covered

7.155

1 This section describes the coastal waters of Aruba (12°31′N, 69°58′W) and is arranged as follows:

East coast (7.162).
South coast – Punta Basora to Sint Nicolaas (7.166).
Sint Nicolaas (7.171).

2 South-west coast – Sint Nicolaas to Oranjestad (7.203).
Oranjestad (7.216).
North-west coast – Oranjestad to Noordwestpunt (7.243).

Topography

7.156

1 The island of Aruba is slightly hilly with a few isolated peaks and sparse vegetation. The NE coast of Aruba is rocky and indented by small coves. The SW and W coasts are low. Much of the SW coast is fronted by barrier reefs with lagoons inside them; some of the reefs are covered with mangroves.

2 Aruba has been reported to be a good radar target at a distance up to 19 miles, with charted features identifiable by radar at distances up to 15 miles.

Depths

7.157

1 The coasts of Aruba are generally steep-to, except off Punta Basora (12°25′N, 69°52′W) and the W coast N of Manchebo (12°33′N, 70°04′W), also known as Westpunt, where banks with depths of less than 20 m extend up to 1 mile offshore; 4 miles W of Noordwestpunt (12°38′N, 70°03′W) there is an isolated patch with a depth of 19·9 m (16·2 m on Chart 2193) over it. Off the SW coast, no dangers exist outside the barrier reefs.

Hazards

7.158

1 **Transhipment area.** Transfer of liquid cargo between tankers takes place regularly in an area, shown on the charts, WSW of Aruba. Such tankers should be given a wide berth as they are usually underway and unable to manoeuvre, but may be at anchor.

2 **Fishing.** Many small fishing vessels may be found anchored up to 3 miles offshore S of Aruba, often without lights.

Traffic

7.159

1 In 1997, Aruba was visited by 209 vessels with a total of 11 307 757 dwt.

Pollution

7.160

1 To avoid the risk of pollution of beaches, tankers are recommended not to anchor off the W and SW coasts of Aruba N of Haven Barcadera.

Natural conditions

7.161

1 **Current.** In the vicinity of Aruba, a W–going current usually prevails and may attain a considerable rate between the islands and round the points. When the trade wind is strong, a W–going current with rates from 1 to 3 kn may be expected along the SW coast of the island.

When the trade wind is weak or during variable or W winds, which usually occur from October to December, the current may set E and attain a rate of 2 kn.

2 **Winds.** Although Aruba is generally considered to be outside the hurricane belt of the Caribbean Sea, destructive hurricanes struck the island in 1954 and 1955. The prevailing trade wind sometimes carries dense smoke seaward from the oil refineries on Aruba, and the resultant haze may obscure the island until within a distance of 6 miles.

EAST COAST

General information

Chart 702 plan of Aruba

Route

7.162

1 From a position about 3 miles SE of Punta Basora (12°25′N, 69°52′W), the SE extremity of Aruba, the route leads initially N, for 6½ miles, and thence NW off the E coast of the island, for a farther 18 miles, to a position about 3 miles N of Noordwestpunt (12°38′N, 70°03′W).

Caution

7.163

1 The NE coast of Aruba is exposed to heavy breakers and should not be approached.

Principal marks

7.164

1 **Landmarks:**

Tank (12°27′N, 69°54′W).
Cerro Jamanota (12°29′N, 69°56′W), the highest hill on Aruba. It is surmounted by a radio mast from which red obstruction lights are exhibited.

2 Radio mast, from which red obstruction lights are exhibited, standing on Arikok (12°31′N, 69°57′W).
Tank (12°33′N, 70°00′W) standing on Cerro Jaburibari; Cerro Plat, 4 cables E of the tank, is the highest peak in this part of the island.
Tank (12°35′N, 70°01′W) standing on Cerro Alto Vista.

3 **Major light:**

Noordwestpunt Light (12°37′N, 70°03′W) (7.30).

Directions

7.165

1 From a position about 3 miles SE of Punta Basora (12°25′N, 69°52′W) the track leads initially N, passing (with positions relative to Punta Basora):

E of Punta Basora; a patch, with a depth of 9 m over it, lies 5 cables ENE of the point. Cerro Colorado, a very dark hill, rises steeply from the coast 2½ cables N of Punta Basora. Thence:

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2 E of a patch (1 mile NE), with a depth of 10 m over it, thence:

E of Boca Grandi (1½ miles N), a small shallow indentation, fringed on its N side by a drying reef.

Thence when a position is reached about 5 miles NNE of Punta Basora, the track leads NW, passing (with positions relative to Noordkaap (12°33′N, 69°57′W)):

3 NE of a point (1½ miles SE) fringed by drying rocks, thence:

NE of Noordkaap; Santa Lucia, a hill 1 mile SW of Noordkaap, is 103 m high. Thence:

NE of Andicuri (close W), a bay; Mativididiri, a hill, rises from the coast on the W side of the bay. Thence:

4 NE of a bluff (5½ miles NW), backed by Cerro Grandi, thence:

NE of California (7¾ miles NW), a small projection, fringed by a drying reef, which forms the NE side of Noordwestpunt.

The track then leads to a position about 3 miles N of Noordwestpunt (7¾ miles NW) (7.31), from which a light (7.30) is exhibited.

5 **Useful marks:**

Two water towers (12°25′·6N, 70°52′·5W) standing 6 cables NW of Punta Basora.

Church (12°34′·8N, 70°00′·6W), standing near the coast 4¼ miles NW of Noordkaap.

SOUTH COAST — PUNTA BASORA TO SINT NICOLAAS

General information

Chart 702 plan of Aruba

Route

7.166

1 From a position about 3 miles SE of Punta Basora (12°25′N, 69°52′W) the route leads initially W for 6 miles, and thence NW for a farther 13½ miles, to a position off the NW entrance to Sint Nicolaasbaai about 2½ miles SE of Reef Berth No 2 (12°26′N, 69°56′W).

Topography

7.167

1 Between Punta Basora and a point 1 mile W, the coast is irregular in shape and low. The coast NW of the point is then formed by a lagoon and by Sint Nicolaasbaai; both the lagoon and Sint Nicolaasbaai are fronted by reefs and islands.

Submarine cable

7.168

1 A submarine cable, shown on the chart, lands on the SE end of Aruba at a position about 1 mile W of Punta Basora; anchoring is prohibited in the vicinity of the cable. For further information on submarine cables see 1.42.

Principal mark

7.169

1 **Landmark:**

Tank (12°27′N, 69°54′W).

Directions

7.170

1 From a position about 3 miles SE of Punta Basora (12°25′N, 69°52′W) (7.165) the track leads initially W for 6 miles and then NW, passing (with positions relative to Punta Basora):

SW of Indiaanskop (1¾ miles W), a small islet on the coastal reef from which a light (metal framework tower) is exhibited, thence:

2 SW of a light-buoy (special, position approximate) (3 miles WSW), thence:

SW of the entrance (2 miles W) to the SE part of Sint Nicolaasbaai, marked by a light-buoy and light-beacons (7.193), thence:

3 SW of the NW entrance (3 miles WNW) to Sint Nicolaasbaai; lights (7.191) are exhibited from both sides of the entrance.

The track then leads to a position about 2½ miles SW of Reef Berth No 2 (4 miles WNW).

4 **Useful marks:**

Two water towers (12°25′·6N, 70°52′·5W) standing 6 cables NW of Punta Basora.

Three chimneys (12°25′·8N, 69°53′·4W) at Sint Nicolaas.

(Directions continue, for the coastal passage at 7.207 and for Sint Nicolaasbaai at 7.191)

SINT NICOLAAS

General information

Charts 702 plan of Aruba, 1412 plan of Commandeurs Baai and Sint Nicolaasbaai

Position

7.171

1 Sint Nicolaas (12°26′N, 69°54′W), fronted by Sint Nicolaasbaai and a lagoon to the SE, is situated on the S coast of Aruba 9½ miles SE of Oranjestad.

Function

7.172

1 The port of Sint Nicolaas is primarily an oil terminal importing and trans-shipping crude oil, and exporting refined products from the large Coastal-El Paso oil refinery situated close by. Dry bulk cargoes such as sulphur and petroleum coke are also handled.

Approach and entry

7.173

1 Sint Nicolaas is approached from the SW. The main berthing area, in Sint Nicolaasbaai, is entered through a channel at the NW end of the bay. The lagoon SE of Sint Nicolaasbaai, in which dry bulk berths are situated, is entered through a channel situated close SE of the exit channel from Sint Nicolaasbaai.

Traffic

7.174

1 In 1997, the port was used by 131 vessels with a total of 7 853 390 dwt.

Port Authority

7.175

1 Coastal Aruba Refining Company NV, Postbus 2150, Lagoweg z/n, Sint Nicolaas, Aruba.

Limiting conditions

Controlling depths

7.176

1 **Reef berths** (12°26′N, 69°56′W) (7.194). There is a least charted depth of 22·0 m alongside Reef Berth No 1 Coastal.

Sint Nicolaasbaai (7.195):

North-west entrance channel. Least charted depth 13·4 m; maximum allowable draught 11·9 m.

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2 South-east exit channel. Least charted depth 12·8 m; maximum allowable draught 12·2 m.

HDS Berth (7.197) approach channel. Least charted depth 10·4 m.

Draught requirements
7.177

1 For the safe handling of tankers in all normal weather conditions the following minimum draughts are recommended:

DWT	*Draught forward*	*Draught aft*
2 10 000 to 20 000	2·4 m	5·5 m
20 000 to 30 000	3·0 m	6·1 m
30 000 to 40 000	4·3 m	6·7 m
40 000 to 50 000	4·3 m	7·3 m
50 000 to 90 000	4·9 m	7·9 m

3 Ships arriving or sailing with a part cargo only are also recommended to conform to these minimum draughts and a maximum of 3·0 m trim by the stern.

Deepest and longest berth
7.178

1 Reef Berth No 2 Wickland (12°26′N, 69°56′W) (7.194).

Density of water
7.179

1 The density of the water is 1·025 g/cm^3.

Maximum size of vessel handled
7.180

1 The maximum size of vessel handled is 550 000 dwt at Reef Berth No 2 Wickland.

Arrival information

Port operations
7.181

1 Shipping movements in Sint Nicolaasbaai are monitored by television.

Port radio
7.182

1 There is a port radio station. For details see *Admiralty List of Radio Signals Volume 6 (5).*

Notice of ETA required
7.183

1 ETA should be sent 72, 48 and 24 hours prior to arrival through Curaçao Coast Radio Station. For further details see *Admiralty List of Radio Signals Volume 6 (5).*

Outer anchorages
7.184

1 **Transhipment area.** An anchorage particularly suitable for VLCCs is found in position 12°24′N, 70°06′W, in the transhipment area (7.158) where the depth is 46 m, about 10 miles WSW of Sint Nicolaasbaai. Tankers are requested not to anchor off the Venezuelan coast.

2 **Prohibited anchorage.** Vessels are prohibited from anchoring in the vicinity of the reef berths, between the coast and an arc, radius 5 cables, centred on the root of Reef Berth No 1 Coastal (12°26′N, 69°56′W).

It is also recommended that vessels should not anchor E or SE of Indiaanskop (12°25′N, 69°54′W).

Pilotage
7.185

1 Pilotage is compulsory for merchant vessels and available at all times. The pilot boards in the following positions:

Reef berths. Between 2 and 2½ miles W of the reef berths.

2 Inner harbour of Sint Nicolaasbaai. About 1¼ miles WSW of the NW entrance to Sint Nicolaasbaai.

HDS and petroleum coke berth. Between 1½ to 2 miles SW of the HDS harbour entrance.

3 For further details see *Admiralty List of Radio Signals Volume 6 (5).*

Tugs
7.186

1 Tugs are available and their use is compulsory. Two are normally used for berthing and unberthing in Sint Nicolaasbaai; a third tug is used when a tanker is at the maximum allowed draught of 12·2 m.

At the reef berths, NW of Sint Nicolaasbaai, four tugs are normally used for tankers of more than 220 000 dwt.

Regulation concerning entry
7.187

1 Vessels over 152·4 m in length are only berthed in daylight.

Harbour

General layout
7.188

1 The port of Sint Nicolaas is made up of the following four berthing areas:

Reef berths (12°26′N, 69°56′W) situated 5 cables NW of the W entrance to Sint Nicolaasbaai.

2 Sint Nicolaasbaai (12°25′·9N, 69°54′·5W) protected from the SW by a narrow island and reef 7½ cables long. The channel NW of the island is used only for entering; the SE channel serves as an exit.

3 Reef anchorages (12°25′·6N, 69°54′·6W) seaward of the island fronting Sint Nicolaasbaai.

Lagoon (12°25′·5N, 69°53′·7W) SE of Sint Nicolaasbaai.

Currents
7.189

1 During a steady trade wind, the current generally sets W with rates from 1 to 3 kn; it is also noticeable within Sint Nicolaasbaai. When the trade wind is weak, an E–going eddy with rates from ¾ to 1 kn may occur; in the last 3 or 4 months of the year, when the wind is variable and sometimes blows from the W, this counter-current may attain a rate of 2 kn.

Principal marks
7.190

1 **Landmarks:**

Three chimneys (12°25′·8N, 69°53′·4W).

Sint Nicolaas can also be identified by the numerous oil tanks in the vicinity of the port and, at night, by the extensive lighting.

Directions for entering harbour
(continued from 7.170)

Sint Nicolaasbaai
7.191

1 **Caution.** Great attention must be paid to the current when approaching the harbour entrance.

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Track. From a position about 2½ miles SE of Reef Berth No 2 (12°26′N, 69°56′W) the track leads initially NE for 1½ miles to the pilot boarding position 1¼ miles WSW of the NW entrance to Sint Nicolaasbaai. The track then leads ENE on to the following leading line:

2 Front light (four lights in the form of a diamond) (12°26′·1N, 69°54′·3W).

Rear light (similar structure) (240 m from front light).

The alignment (083°) of these lights leads through a channel with a least width of ¾ cable into Sint Nicolaasbaai, passing:

SSE of the coastal bank, with depths of less than 5 m over it, fringing the NW entrance point; a light (metal column) is exhibited from the point. Thence:

3 NNW of the bank extending W from the NW end of the island fronting Sint Nicolaasbaai; the W extremity of the bank is marked by a light-buoy (special). Thence:

NNW of a light-beacon (dolphin) standing ½ cable ENE of the W point of the island.

Once inside the bay the berths are directly accessible.

Lagoon south-east of Sint Nicolaasbaai

7.192

1 For vessels bound for the berths (7.197) in the lagoon SE of Sint Nicolaasbaai, having embarked a pilot, proceed to a position about 5 cables W of Janet Light-beacon (12°25′·5N, 69°54′·0W) at the beginning of the following leading line:

Front light (beacon) (12°25′·5N, 69°53′·6W).

Rear light (beacon) (140 m from front light).

2 The alignment (087°) of these lights leads E to a turning basin S of the berth, passing (with positions relative to Janet Light-beacon):

Close S of Janet Light-beacon, thence:

N of a light-beacon (1 cable SE), forming part of the exit leading line from Sint Nicolaasbaai, thence:

3 S of a light-beacon (1¼ cables ENE) marking the coastal bank; an obstruction, the position of which is approximate, lies on this bank next to an islet ¾ cable W of the beacon. Thence:

N of an obstruction (2 cables ESE), the position of which is approximate, lying off the N end of another islet; a light (beacon) is exhibited from the N end of this islet.

4 The track then leads NE to the berths.

Directions for leaving harbour

Sint Nicolaasbaai

7.193

1 From a position close W of the finger piers in Sint Nicolaasbaai the track leads SE for a short distance to the following leading line:

Front light. Janet Light-beacon (12°25′·5N, 69°54′·0W).

Middle light (beacon) (180 m from front light).

2 Rear light. Indiaanskop Light (5 cables from front light) (7.170).

The alignment (139°) of these lights leads through the SE channel, which has a least width of ¾ cable, passing (with positions relative to Janet Light-beacon):

SW of an elongated spit of land from the head (2½ cables NNW) of which a light (pile) is exhibited, thence:

3 NE of a light-beacon (2 cables NW) (pile) standing close off the SE point of the island fronting Sint Nicolaasbaai.

Thence when a position is reached close NE of a light-buoy (special) moored 1½ cables SE of the island and on the edge of the bank extending from it, the track then leads SSW out into open water, passing between the light-buoy and Janet Light-beacon.

Berths

Reef berths

7.194

1 The reef berths (12°26′N, 69°56′W), also known as Lago Seaberths, are two T–shaped jetties, named Reef Berth No 1 Coastal and Reef Berth No 2 Wickland, designed for the use of VLCCs:

Reef Berth No 1 Coastal. Handles vessels up to 300 000 dwt, with a maximum draught of 22·8 m.

2 Reef Berth No 2 Wickland. Handles vessels up to 550 000 wt, with a maximum draught of 32·0 m.

Vessels are always berthed port side to, using the starboard anchor. Both berths are equipped with a doppler traffic system for measuring a vessel's approach velocity; when the vessel is receding or approaching at a speed less than 3·7 m a minute, the light is always green. Vessels should be ready to leave the berths at short notice.

3 It was reported in 1994 that these berths were not in use.

Sint Nicolaasbaai

7.195

1 In Sint Nicolaasbaai three finger piers (12°25′·9N, 69°54′·2W) with six berths, numbered from the SE, project W from the NE side of the bay; they are for the use of tankers. West Pier, with a line of dolphins close W of it, on the N side of the bay is no longer used.

2 The largest berth is No 3 South which can handle vessels up to 90 000 dwt, with a length of 274 m and a maximum draught of 12·2 m.

Reef anchorages

7.196

1 There are three numbered anchorage berths (12°25′·6N, 69°54′·6W), as shown on the chart, located outside the island and reef fronting Sint Nicolaasbaai. They are partly sheltered from the trade wind and provide anchorage for vessels up to 100 000 dwt. The bottom in these anchorages is uneven and deeply shelving, with depths of between 20 and 100 m within 500 m of the reef.

2 The use of these anchorages, primarily for limited tank cleaning and repairs, needs prior permission from the marine office of the Port Authority (7.175). It is advisable to employ a pilot for anchoring; for information on pilotage see 7.185.

Lagoon south-east of Sint Nicolaasbaai

7.197

1 **Berths.** There are two large commercial berths on the N side of the lagoon SE of Sint Nicolaasbaai:

HDS Berth (12°25′·6N, 69°53′·7W) which handles dry bulk cargoes such as sulphur; it is flanked by dolphins. Used by vessels up to 50 000 dwt, with a maximum length of 213 m and a maximum draught of 9·6 m. Vessels normally berth starboard side to.

2 Petroleum coke berth, situated close E of the HDS Berth. Used by vessels up to 75 000 dwt, with a maximum length of 244 m and a maximum

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draught of 12·5 m. Vessels normally berth starboard side to.

Mooring. A mooring buoy is moored 4 cables SE of HDS Berth.

Port services

Repairs
7.198

1 Repairs undertaken. Repairs involving immobilisation of a vessel berthed alongside require permission from the Port Authority.

Other facilities
7.199

1 Medical and dental services; Deratting Certificates issued; de-ballasting facilities available; garbage collection; fumigation arranged through agent.

Supplies
7.200

1 Fuel oil; fresh water and stores are available.

Communications
7.201

1 There are scheduled air services from Queen Beatrix International Airport, 14 km NW, at Oranjestad.

Small craft

Rodgers Lagoon
7.202

1 **Description.** Rodgers Lagoon (12°25′·3N, 69°53′·1W), which forms the SE part of the large lagoon SE of Sint Nicolaasbaai, has facilities for small craft. There are landing stages on the N side of the lagoon and an anchorage, as shown on the chart, on its SE side.

2 **Directions.** The lagoon can be approached from the W through the channel leading to HDS Berth (7.197), described at 7.192, or from the SSW on the alignment (033°) of leading lights (triangular beacons) (12°25′·4N, 69°53′·0W) which lead NNE from seaward across a protecting reef in a depth of 1·5 m.

SOUTH-WEST COAST — SINT NICOLAAS TO ORANJESTAD

General information

Chart 702 plan of Aruba

Route
7.203

1 From a position about 2½ miles SE of Reef Berth No 2 (12°26′N, 69°56′W) the route leads NW along the SW coast of Aruba, for 10 miles, to a position off the entrance to Oranjestad (7.216) about 3 miles SW of Manchebo (12°33′N, 70°04′W). Manchebo is also known as Westpunt.

Topography
7.204

1 Between the reef berths, 5 cables WNW of the entrance (12°26′N, 69°55′W) to Sint Nicolaasbaai, and Paardenbaai, about 8 miles NW, a narrow barrier reef fronts the coast up to a distance of 5 cables. The reef is steep-to on the seaward side, but lagoons within it are generally shallow. Much of the reef is covered with mangroves. Breaks in the barrier reef give access to Commandeurs Baai, Haven Barcadera and Paardenbaai.

2 Between the NW side of Paardenbaai and Manchebo, 1 mile NW, the coast is low.

Current
7.205

1 In the open sea, the current is W–going with an approximate rate of 1 to 2 kn. This W set can be stronger, but a rate of 3 kn rarely occurs. Occasionally there is no current, or instead an E set which then does not exceed 2 kn. At times, when the W set is strong and close to the barrier reef, an E set of approximately ½ kn may occur inside the reef. The effect of this set will rarely be noticed as the influence of the wind is mostly in the opposite direction and stronger.

Principal marks
7.206

1 **Landmarks:**

Tank (12°28′N, 69°57′W).

Cerro Jamanota (12°29′N, 69°56′W) (7.164).

Tank (12°30′, 69°58′W).

2 Two tanks (12°29′N, 69°59′W) at Haven Barcadera.

Tank (12°31′N, 69°58′W) on the summit of Urataca, a hill 107 m high.

Directions
(continued from 7.170)

7.207

1 From a position about 2½ miles SW of Reef Berth No 2 (12°26′N, 69°56′W) the track leads NW, passing (with positions relative to Manchebo (12°33′N, 70°04′W):

SW of the entrance (8¾ miles SE) to Commandeurs Baai (7.215), thence:

SW of the entrance (5 miles SE) to Haven Barcadera (7.208), thence:

2 SW of the SE exit channel (2½ miles SE) of Paardenbaai, marked by light-beacons (7.235); a stranded wreck lies on the barrier reef 5 cables SE of this channel. Thence:

SW of the NW entrance (1 mile SSE) to Paardenbaai, marked by a light-buoy (7.234) and light-beacons (7.234).

3 The track then leads to a position 3 miles SW of Manchebo, the W extremity of Aruba identified by hotels. The point is also known as Westpunt.

Useful marks:

Radio mast (elevation 87 m, red obstruction lights) (12°29′N, 69°58′W).

Hooiberg (12°31′·1N, 69°59′·6W), a hill from which an aero light (tower, 19 m in height) is exhibited.

4 Aero light (12°30′·4N, 70°00′·3W) exhibited from Queen Beatrix International Airport.

Radio mast (red obstruction lights) (12°32′·3N, 70°01′·9W) standing NE of Paardenbaai from which red obstruction lights are exhibited.

(Directions continue, for the coastal route at 7.245, and for Oranjestad at 7.234)

Haven Barcadera

Chart 702 plan of Haven Barcadera

General information
7.208

1 **Position.** Haven Barcadera (12°29′N, 70°00′W) is situated on the SW side of Aruba, 2½ miles SE of Oranjestad.

Function. Haven Barcadera serves as the industrial harbour for Aruba.

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2 **Traffic.** In 1997 the port was used by 94 vessels with a total of 706 263 dwt.

Port Authority. Port of Oranjestad and Barcadera, L G Smith Boulevard 23, Oranjestad, Aruba.

Limiting conditions

7.209

1 **Controlling depth.** There is a least charted depth of 11·1 m in the entrance channel.

Density of water is 1·025 g/cm^3.

2 **Maximum size of vessel handled.** Vessels up to 230 m with a maximum draught of 9·75 m are berthed; vessels with LOA greater than 125 m may only berth during daylight. In exceptional circumstances vessels up to 245 m may be handled.

Arrival information

7.210

1 **Port radio.** There is a port radio station at Oranjestad (7.216). For details see *Admiralty List of Radio Signals Volume 6 (5).*

Notice of ETA required. Send ETA 48 and 24 hours prior to arrival. For details see *Admiralty List of Radio Signals Volume 6 (5).*

2 **Outer anchorage.** Anchorage may be obtained 2½ miles SE of Haven Barcadera, nearly 1½ cables outside the barrier reef, in a depth of 50 m, with a group of chimneys (12°28′·6N, 69°58′·5W) bearing 346°.

Pilotage is compulsory and available at all times. A pilot is obtained from Oranjestad and is embarked about 1 mile SW of the entrance to Haven Barcadera. For further information see *Admiralty List of Radio Signals Volume 6 (5).*

3 **Tugs** are available from Oranjestad, and the use of them is strongly advised.

Harbour

7.211

1 **General layout.** Haven Barcadera is situated inside a narrow lagoon entered from the W through a gap about 1 cable wide in the barrier reef. The harbour contains one quay located on the NE side of the lagoon; a turning basin off the quay is 300 m wide.

2 **Winds.** The prevailing winds are slightly S of E. During ESE winds, the land offers less protection and therefore the winds have more effect. The current is not felt within the entrance, and a ship is then influenced by the wind until secured.

3 The force of the wind usually diminishes before dawn and the first hours of daylight are most favourable for entering harbour. This is a generalisation, but not a fixed rule. Ships enter and leave at all hours. However, under favourable circumstances, manoeuvring time will be shorter and therefore early morning berthing is desirable.

4 **Currents.** See 7.205.

Landmarks:

Tank (12°30′, 69°58′W).

Two tanks (12°29′N, 69°59′W) at Haven Barcadera.

Directions for entering harbour

7.212

1 From the pilot boarding area (12°28′·5N, 70°01′·0W), 1 mile SW of the entrance to Haven Barcadera, the track leads NNE to the beginning of the entrance leading line:

Front light (mast) (12°29′·0N, 69°59′·8W).

Rear light (similar structure) (107 m from front light).

2 The alignment (093°) of these lights then leads through the entrance, passing (with positions relative to the front light):

N of a light-buoy (special) marking the edge of the bank extending W from the SE entrance point (4 cables W), and:

3 S of the drying reef fringing the NW entrance point (5½ cables WNW); a light-beacon stands close ESE of the point. Thence:

N of No 4 Light-beacon (3½ cables W) marking the edge of the drying reef inside the SE entrance, thence:

4 S of No 5 Light-beacon (2¾ cables WNW) marking the edge of the coastal bank.

The track then leads SE into the turning basin off the berth; the S and W limits of the turning basin are marked by No's 1, 2 and 3 Beacons.

Useful marks:

Group of chimneys (12°28′·6N, 69°58′·5W) at Spaans Lagoen, a small inlet.

5 Radio mast (elevation 87 m, red obstruction lights) (12°29′N, 69°58′W).

Aero light (12°30′·4N, 70°00′·3W) exhibited from Queen Beatrix International Airport.

Berth

7.213

1 The berth at Haven Barcadera consists of a concrete quay 350 m in length, with charted depths of 10·7 to 10·3 m alongside; at the SE end there is a shoal patch, with a depth of 8·2 m over it. The maximum draught allowed alongside is 9·75 m

Port services

7.214

1 **Repairs** can be carried out.

Other facility. Hospital at Oranjestad.

Supplies: fuel oil supplies; fresh water not obtainable; provisions obtainable.

Communications. There are scheduled air services from Queen Beatrix International Airport, 3 km NW, at Oranjestad.

Small craft

Commandeurs Baai

7.215

1 **Description.** Commandeurs Baai, a narrow lagoon extending 1½ miles NW from the vicinity of the reef berths (12°26′N, 69°56′W) at Sint Nicolaas, has general depths from 3 to 12 m. The lagoon is used by fisherman and is only suitable for small craft. The entrance, at the NW end of the lagoon, is a narrow channel, with a least charted depth of 2·9 m in it.

2 **Directions.** From a position about 5 cables SW of the entrance to Commandeurs Baai the lagoon is entered on the following leading line:

Front light (two lights disposed vertically on a mast) (12°27′·1N, 69°56′·8W).

Rear light (similar structure) (34 m from front the light).

3 The alignment (057½°) of these lights leads NE, into the lagoon, passing:

Between light-beacons marking the seaward side of the entrance, thence:

NW of a buoy (can, special) marking the edge of the reef forming the SE entrance point.

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4 The track then leads E, for a short distance and thence SE in mid-channel towards the SE end of the lagoon. The edge of barrier reef inside the lagoon is marked by two light-beacons.

Berth. There is a pier inside the lagoon, 8 cables SE of the entrance; lights are exhibited from its head and NW corner.

ORANJESTAD

General information

Charts 702, 1412 plan of Paardenbaai

Position
7.216

1 Oranjestad (12°31′N, 70°02′W) is situated on the NW side of Aruba. The harbour of Oranjestad lies along the NE shore of Paardenbaai, which is protected from the SW by a reef of coral and stones on which lie several islets.

Function
7.217

1 Oranjestad is the principal town on Aruba and the seat of government of the island. In 1998 the population was 29 000. The port handles containers, general cargo, liquid cargoes and passengers; about 165 000 tonnes of cargo are handled annually.

Approach and entry
7.218

1 The harbour of Oranjestad is approached from the SW. Gaps in the reef fronting the harbour provide two channels. The NW channel is used for entering the harbour; the SE channel serves as the exit.

Traffic
7.219

1 In 1997 the port was used by 694 vessels with a total of 5 543 782 dwt.

Port Authority
7.220

1 Port of Oranjestad and Barcadera, L G Smith Boulevard 23, Oranjestad, Aruba.

Limiting conditions

Controlling depths
7.221

1 **Entrance channel.** There is a least charted depth of 11·0 m in the NW channel, which has a width of 1 cable between the coastal bank and reefs.

Exit channel. The SE channel has a least charted depth of 10·7 m and a least width of 1 cable between the reefs and coastal bank.

Deepest and longest berth
7.222

1 Container terminal (7.237).

Density of water
7.223

1 The density of the water is 1·025 g/cm^3.

Maximum size of vessel handled
7.224

1 Vessels up to 250 m in length with a maximum draught of 9·1 m are handled. The largest vessel to have berthed was RMS *Queen Elizabeth II* of 65 683 tons.

Arrival information

Port radio
7.225

1 There is a port radio station. For details see *Admiralty List of Radio Signals Volume 6 (5).*

Notice of ETA required
7.226

1 ETA should be sent 48 and 24 hours prior to arrival through Curaçao Coast Radio Station. For further information see *Admiralty List of Radio Signals Volume 6 (5).*

Outer anchorage
7.227

1 Vessels can anchor outside the barrier reef, but the bottom shelves steeply and the services of a pilot are advised; a suitable berth is near the NW channel of Paardenbaai. Vessels are anchored only by day.

Pilotage
7.228

1 Pilotage is compulsory for vessels of more than 50 grt and is available at all times. The pilot boards 1 mile SW of the entrance to the NW channel; vessels should close this channel as near as is prudent and make a lee for the pilot boat. See also *Admiralty List of Radio Signals Volume 6 (5).*

Tugs
7.229

1 Tugs are available and are recommended for large vessels and those in ballast.

Regulation concerning entry
7.230

1 **Draught.** Special regulations are in force specifying the minimum entering and sailing draughts for tankers, according to their size. For details consult the Port Authority.

Ballast. Vessels entering the port should be adequately ballasted.

Harbour

General layout
7.231

1 The berthing areas for the port of Oranjestad are arranged along the NE shore of Paardenbaai. They consist of a container terminal (12°31′·6N, 70°02′·7W) at the NW end, two basins, Westhaven and Oosthaven separated by a projecting wharf, and at the SE end a main wharf. Another basin for small craft, Schoenerhaven, lies close E of the main wharf.

Natural conditions
7.232

1 **Winds.** Within Paardenbaai, the trend of the channel is almost across the direction of the prevailing wind, so that large vessels and those in ballast must exercise great caution, especially at night, to avoid the reef to leeward. Some difficulty may be experienced in berthing at the main wharf when the trade wind is blowing, and it is then preferable to enter either Westhaven or Oosthaven head to wind.

2 **Current.** See 7.205.

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Principal marks

7.233

1 **Landmarks:**

White circular water tower (12°31′·5N, 72°01′·9W). Roman Catholic church standing close NW of the water tower.

Directions for entering harbour

(continued from 7.207)

7.234

1 **Caution.** Great attention should be paid to the current (7.205) when approaching the NW entrance to Oranjestad.

Track. From a position about 3 miles SW of Manchebo (12°33′N, 70°04′W) the track leads initially NE to the pilot boarding area (12°31′N, 70°04′W) and thence NNE to the entrance of the NW channel. The NW channel is then entered along the following leading line:

2 Front light (three lights disposed vertically on black mast, yellow bands, dayglow yellow framework, diamond topmark, 23 m in height) (12°31′·5N, 70°02′·6W), exhibited from the N side of a sand-coloured building.

Rear light (five lights in the form of a diamond, black mast, yellow bands) (430 m from front light).

3 The track leads into the harbour on the alignment (110°) of these marks, which are inconspicuous during the day, passing (with positions relative to the front light:

SSW of the coastal bank extending 3 cables S from Punta Brabo (8½ cables NW), the edge of which is marked by two light-beacons, and:

4 NNE of the bank extending 3½ cables NW from an islet (3 cables W) which forms the SE entrance point of the channel. The NW extremity of the bank is marked by a light-buoy (special) and the edge of the barrier reef close E of the islet is marked by a light-beacon.

5 Once inside the track leads directly to the berths.

Useful mark:

In 1998 it was reported that a prominent radio mast stood, approximately on the same alignment (110°) of the entrance leading line, behind the rear leading light structure, and could safely be used to keep within the channel.

Directions for leaving harbour

7.235

1 Vessels departing from Oranjestad leave through the SE channel, which is marked by numbered light-beacons (concrete columns). There are no specific directions for passing through this channel, but attention is drawn to an isolated patch (12°30′·6N, 70°02′·1W), with a depth of 9·4 m over it, lying on the E side at the seaward end of the channel.

Basins and berths

Anchorage

7.236

1 Paardenbaai provides anchorage for two vessels, not exceeding 100 m in length, W and S of the main wharf (7.237).

Alongside berths

7.237

1 The port of Oranjestad contains the following berthing areas (with positions relative to the front entrance leading light (12°31′·5N, 70°02′·6W) (7.234)):

Container terminal (close NW). The terminal quay is 250 m long with a charted depth of 11·2 m alongside.

2 Westhaven and Oosthaven (close SE). There are four berths, E, F, G and H, in these two basins. Berth H on the N side of Westhaven is the largest, with a length of 198 m and a reported depth of 10·3 m alongside. At the head of Westhaven there is a ferry terminal with Ro-Ro facilities.

3 Main wharf (2 cables SE). Contains berths B, C, D, and E, with a combined length of 527 m; there is a least charted depth of 8·5 m between Berth B and Berth C.

Port services

Repairs

7.238

1 Radar, radio and gyro repairs can be carried out, otherwise only minor ship repairs, but advance notice is necessary.

Other facilities

7.239

1 Good hospital and dental services; Deratting Certificates issued; compass adjustment can be arranged through the Harbour Master; no facilities for dirty ballast reception; waste oil disposal available.

Supplies

7.240

1 Fuel oil, fresh water and provisions are available.

Communications

7.241

1 Regular sea communication by vehicle ferry with Willemstad (7.96); scheduled air services from Queen Beatrix International Airport, 3 km distant.

Small craft

Schoenerhaven

7.242

1 Schoenerhaven (12°31′·3N, 70°02′·2W), situated at the SE end of the port, is entered between two finger piers. There are charted depths from 1·5 to 2·5 m in the basin, which is used by local traffic. On the SE side of the basin there is a marina for recreational craft.

NORTH-WEST COAST — ORANJESTAD TO NOORDWESTPUNT

General information

Chart 702 plan of Aruba

Route

7.243

1 From a position about 3 miles SW of Manchebo (12°33′N, 70°04′W), also known as Westpunt, the route leads initially NW for 3 miles and thence N, for a farther 7 miles, keeping outside an anchorage area (7.246), to a position 5 miles WNW of Noordwestpunt (12°38′N, 70°03′N). The route then leads ENE for 5 miles to a position about 3 miles N of Noordwestpunt.

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Principal marks

7.244

1 **Landmarks:**

Three hotels, which are prominent, standing at the head of the bay between Manchebo and Noordwestpunt.

Tank (12°35′N, 70°01′W) standing on Cerro Alto Vista.

2 **Major light:**

Noordwestpunt Light (12°37′N, 70°03′W) (7.30).

Directions

(continued from 7.207)

7.245

1 From a position about 3 miles SW of Manchebo (12°33′N, 70°04′W) (7.207) the track leads initially NW to a position 4½ miles W of Manchebo. Thence the track leads N, passing (with positions relative to Manchebo):

2 W of the coastal bank extending up to 1 mile offshore from Pos Chikito (1½ miles NNE). There are charted depths of 1·1 and 1·4 m on this bank, respectively, 5 cables WSW and 5 cables NW of Pos Chikito; a submarine pipeline extends 7 cables W from the point. There is also a light-buoy (special) moored 2¼ miles W of Pos Chikito. Thence:

3 W of a stranded wreck (2¼ miles N), marked on its S side by a light-buoy, thence:

W of another stranded wreck (3¾ miles N), marked on its SW side by a light-buoy. The wreck lies on the edge of an area of foul ground, the limits of which are shown on the chart. Thence:

4 W of Noordwestpunt (4½ miles N), from which a light (7.30) is exhibited; the coastal bank extends 1¼ miles NW of this point. Thence:

W of an isolated patch (6½ miles NNW), with a depth of 19·9 m (16·2 m on Chart 2193) over it.

5 Thence when a position is reached 5 miles WNW of Noordwestpunt (12°38′N, 70°03′N) the track leads ENE, passing NNW of a light-buoy (special) (7¼ miles N), to a position about 3 miles N of Noordwestpunt.

Useful mark:

Windmill (12°34′·0N, 70°02′·7W) standing 4 cables NE of Pos Chikito.

Anchorage

Maintenance anchorage

7.246

1 **Description.** A maintenance anchorage has been established W of the NW coast of Aruba, between Manchebo and Noordwestpunt; the limits are shown on the chart. The anchorage is reserved exclusively for vessels undergoing maintenance below the water-line. In addition, it was reported in 1992 that any tankers using the anchorage must be less than 150 000 dwt and in ballast.

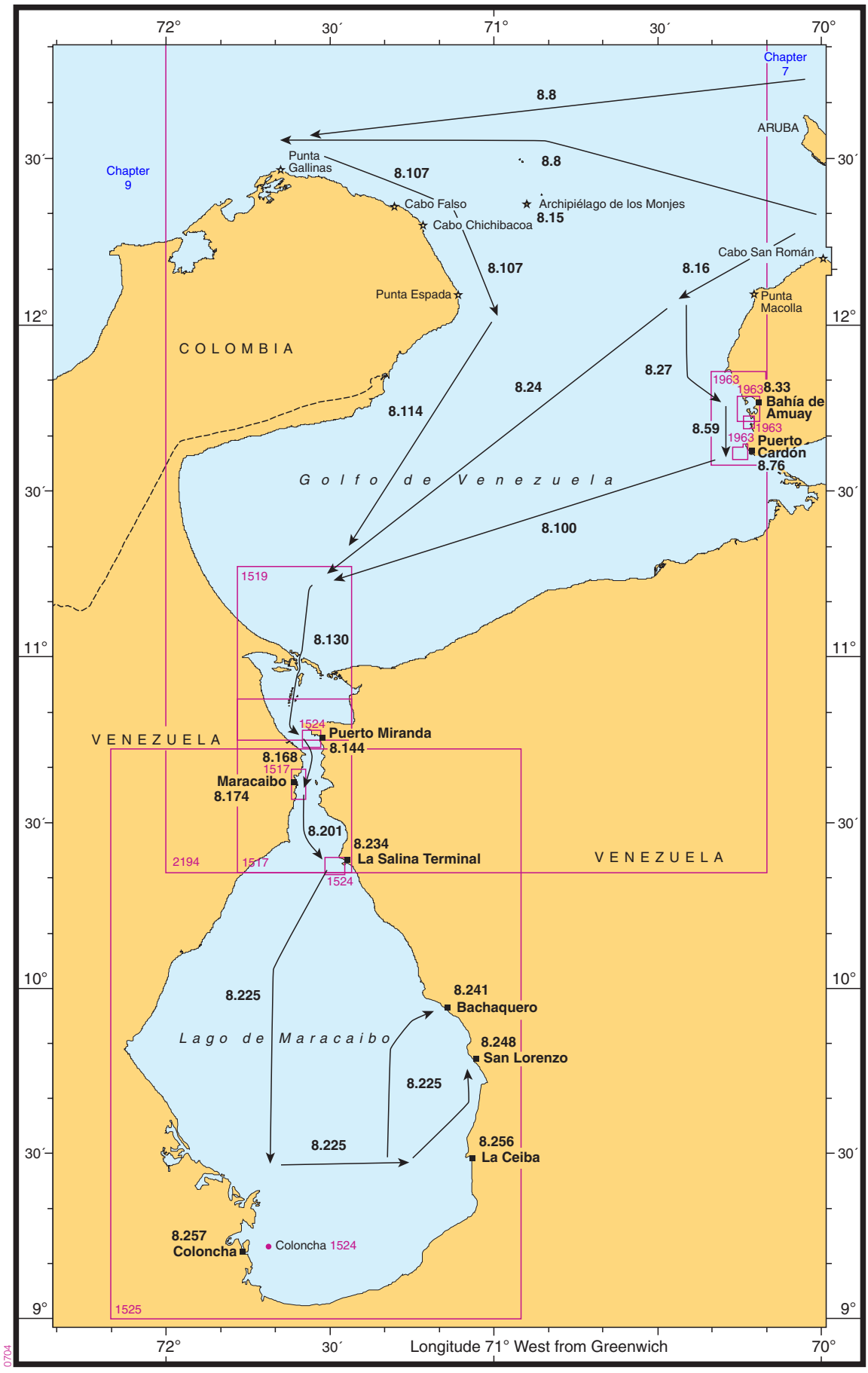
2 A pilot must be employed for anchoring as care is needed to not obstruct the approach to Oranjestad and avoid an abandoned submarine cable extending W and N from the coast close S of Basiruti (12°35′N, 70°03′W).

Facilities. Tug and launch services are available at the anchorage for stores and personnel, but the normal clearance formalities will be applicable. Deratting can be arranged.

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Chapter 8 - Golfo de Venezuela - Canal de Maracaibo - Lago de Maracaibo



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CHAPTER 8

GOLFO DE VENEZUELA — CANAL DE MARACAIBO — LAGO DE MARACAIBO

GENERAL INFORMATION

Chart 1966

Scope of chapter

8.1

1 The area covered by this chapter comprises the coastal waters of Golfo de Venezuela, entered between Cabo San Román (12°11′N, 70°00′W) and Punta Gallinas (12°28′N, 71°40′W), 98 miles WNW, and the waters of Lago de Maracaibo, which is nearly landlocked. Lago de Maracaibo is approached through Canal de Maracaibo, a dredged channel entered from Bahía el Tablazo, the SW part of Golfo de Venezuela.

2 The whole area is an important outlet for one of the world's greatest oil producing regions. Crude oil and refined oil products are exported. The region supplies Nederlandse Antillen, various ports in North America and Europe, and the refining ports on the E side of Golfo de Venezuela. Puerto de Maracaibo (10°39′N, 71°36′W), on the W side of Canal de Maracaibo, is the main port of entry and the second largest general cargo port of Venezuela.

3 The chapter is arranged as follows:

Golfo de Venezuela and approaches (8.5).
Canal de Maracaibo (8.122).
Lago de Maracaibo (8.225).

Limits of Puerto de Maracaibo

8.2

1 The jurisdiction of the Captain of the Port at Maracaibo has the following limits:

The coast extending W and S from the boundary of the Republic of Colombia close N of Castilletes (11°51′N, 71°20′W) to Punta de Oribor (10°57′N, 71°29′W).

2 Islas de San Carlos (11°02′N, 71°43′W), Isla de Toas, Isla Zapara and Isla Pescaderos.

The entire shores of Lago de Maracaibo, with the entrances to Río Escalante and Río Catatumbo at the SW end of the lake.

Regulations

8.3

1 For regulations concerning vessels entering Venezuelan territorial waters, see 1.47.

Rescue

8.4

1 For information on search and rescue facilities for Venezuelan waters see 1.62.

GOLFO DE VENEZUELA AND APPROACHES

GENERAL INFORMATION

Charts 1966, 2193, 2194

Area covered

8.5

1 This section covers the coastal waters of Golfo de Venezuela, and its outer approaches between Aruba (12°31′N, 69°58′W) and Punta Gallinas (12°28′N, 71°40′W). Península de Paraguaná, the E side of the gulf, is almost separated from the mainland by Golfete de Coro. The section is arranged as follows:

2 Routes across the outer approaches to Golfo de Venezuela (8.8).
East side – Cabo San Román to Punta Macolla (8.16).
Through route – Punta Macolla to Canal de Maracaibo (8.24).

3 East side – Punta Macolla to Bahía de Amuay (8.27).
Bahía de Amuay (8.33).
East side – Bahía de Amuay to Punta Cardón (8.59).
Punta Cardón (8.76).
South-east side – Punta Cardón to Canal de Maracaibo (8.100).

4 West side – Punta Gallinas to Punta Espada (8.107).
West side – Punta Espada to Canal de Maracaibo (8.114).

Submarine cables

8.6

1 Two submarine cables have been laid into Golfo de Venezuela, from 8½ miles N of Cabo San Román (12°11′N, 70°00′W) on the E side, and from 4 miles N of Punta Gallinas (12°28′N, 71°40′W) on the W side. Both cables land at Barrio Miramar, on the E shore of Bahía Boca de Las Piedras (11°42′N, 70°13′W) (8.62).

2 A third submarine cable is laid across the S part of Golfo de Venezuela from Bahía Boca de Las Piedras in a generally WSW direction, passing N of the entrance to Canal de Maracaibo, to land close NW of Boca Paijana (11°08′N, 71°49′W).

3 The positions of the cables are shown on the charts. Mariners should not anchor or trawl in the vicinity of these cables. For further information on submarine cables see 1.42.

Natural conditions

8.7

1 **Discoloured water.** In Golfo de Venezuela the water is generally discoloured due to the discharge from Lago Maracaibo and to the mud washed off the banks along the coast of Península de Paraguaná and in Golfete de Coro (11°35′N, 70°00′W). Patches of yellowish water, resembling shoals, are seen in various parts of the gulf, but no significance need be attached to them except when close to its shores.

2 **Currents.** Coastal currents set SW along the NW shore of Golfo de Venezuela and then turn E along the S shore. These currents turn N near Punta Peñas (11°17′N, 70°29′W) and are dissipated in the middle of the gulf; along the S shore, their axis is just outside depths of 9 m where they sometimes attain a rate of 1 kn, but their effect is not great during the strong North-east Trade Winds. A

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SW–going current, with a rate from ½ to 1 kn, sets along the E shore of the gulf.

3 **Winds.** Early in the year, winds from between NNE and ENE are strong; they are strongest from 1400 to 0200, raising a heavy sea. The wind generally moderates about 0800.

ROUTES ACROSS THE OUTER APPROACHES TO GOLFO DE VENEZUELA

General information

Charts 1966, 2193, 2194

Routes

8.8

1 The following two routes across the outer approaches to Golfo de Venezuela are described:

North of Aruba to Punta Gallinas. From a position about 5 miles N of Noordwestpunt (12°37′N, 70°03′W) an offshore route leads W, for 96 miles in deep water, to a position about 8 miles N of Punta Gallinas (12°28′N, 71°40′W).

2 South of Aruba to Punta Gallinas. From a position about 8½ miles SW of Punta Basora (12°25′N, 69°52′W), the S extremity of Aruba, and 8½ miles N of Cabo San Román (12°11′N, 70°00′W), this route initially leads WNW for 56 miles, passing NNE of Archipiélago de Los Monjes, to a position about 5 miles N of Bajo Puerto Santo (12°31′N, 70°56′W). The route then leads W, for a farther 45 miles, to a position about 8 miles N of Punta Gallinas (12°28′N, 71°40′W).

Transhipment area

8.9

1 There is a transhipment area WSW of Aruba, as shown on the charts. For further information see 7.158.

Natural conditions

8.10

1 For information on currents and discoloured water in the vicinity of Punta Gallinas see 8.109.

Principal marks

8.11

1 **Landmark:**

The hills of Aruba (12°31′N, 69°58′W).

Major lights:

Noordwestpunt Light (12°37′N, 70°03′W) (7.30).

Cabo San Román Light (12°11′N, 70°00′W) (6.135).

2 Monjes del Sur Light (white conical concrete tower, red band, 10 m in height) (12°21′N, 70°54′W) standing on the S islet of Archipiélago de Los Monjes.

Cabo Falso Light (white and red tower, 22 m in height) (12°21′N, 71°19′W).

3 Chimaré Light (white and red tower, 22 m in height) (12°24′N, 71°28′W).

Punta Gallinas Light (tower, red and white bands) (12°28′N, 71°40′W).

Other aid to navigation

8.12

1 **Racon:**

Monjes del Sur Light (12°21′N, 70°54′W).

For further information see *Admiralty List of Radio Signals Volume 2*.

Directions

(continued from 7.31)

North of Aruba to Punta Gallinas

8.13

1 From a position about 5 miles N of Noordwestpunt (12°37′N, 70°03′W) the track leads W, passing:

N of Bajo Puerto Santo (12°31′N, 70°56′W), the N–most danger of Archipiélago de Los Monjes (8.15), thence:

N of an isolated patch (12°30′N, 71°31′W), with a depth of 7·3 m over it, lying off the Colombian coast, 4½ miles NNW of Punta Chimaré.

2 The track then leads to a position about 8 miles N of Punta Gallinas (12°28′N, 71°40′W), from which a light (8.11) is exhibited. Punta Gallinas is the N extremity of Península de La Guajira (8.115); it is low and has a sandy beach. The stranded wreck of a tanker, lying 3 cables N of Punta Gallinas, was reported in 1969 to have been readily identified by radar; the wreck had broken in two in 1973.

(Directions continue for a coastal route at 9.10)

South of Aruba to Punta Gallinas

(continued from 6.136 and 7.36)

8.14

1 From a position about 8½ miles SW of Punta Basora (12°25′N, 69°52′W), the S extremity of Aruba, and 8½ miles N of Cabo San Román (12°11′N, 70°00′W) the track leads WNW, passing (with positions relative to Monjes del Sur Light (12°21′N, 70°54′W)):

2 NNE of Monje del Este (3¼ miles NE), which is 43 m high, thence:

NNE of Monjes del Norte (7¾ miles N), which consist of five rocks up to 41 m high, thence:

NNE of Bajo Puerto Santo (10 miles N).

3 Thence from a position about 5 miles N of Bajo Puerto Santo the track leads W, passing N of an isolated patch (37 miles WNW), with a depth of 7·3 m over it, to a position about 8 miles N of Punta Gallinas (45 miles WNW) (8.13). A light (8.11) is exhibited from the point.

(Directions continue for a coastal route at 9.10)

Adjacent islands

Archipiélago de Los Monjes

8.15

1 **Description.** Archipiélago de Los Monjes (12°25′N, 70°53′W) is a group of barren islets and rocks lying from 18 to 23 miles off the Colombian coast. The islets and rocks of the group are generally steep-to and the passages between them are clear of known dangers. The individual islands are described in the directions (8.14 and 8.112) for the routes which pass NNE and SW of the group.

2 **Caution.** The islets are difficult to distinguish at night.

Anchorage. Vessels may obtain anchorage close W of Monjes del Sur (12°21′N, 70°54′W) (8.112).

EAST SIDE — CABO SAN ROMÁN TO PUNTA MACOLLA

General information

Charts 2193, 2194

Route

8.16

1 From a position about 8½ miles N of Cabo San Román (12°11′N, 70°00′W) the coastal route leads SW, for 28 miles along the NW coast of Península de Paraguaná, to a position about 12 miles W of Punta Macolla (12°06′N, 70°12′W).

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Topography

8.17

1 The coast between Cabo San Román and Punta Macolla, 13½ miles SW, consists of sand dunes interspersed with low rocky cliffs; it is mostly fringed by rocky ledges.

Prohibited area

8.18

1 Passage in the inshore waters W and S of Punta Macolla is prohibited, as shown on the charts; for further information see 8.29.

Principal marks

8.19

1 **Landmark:**

White house (not charted) with a cupola standing near Punta Macolla (12°06′N, 70°12′W), in the town of La Macolla; the house is prominent from W and SW.

2 **Major lights:**

Cabo San Román Light (12°11′N, 70°00′W) (6.135).

Punta Macolla Light (black metal tower, concrete base, 35 m in height) (12°06′N, 70°12′W).

Directions

(continued from 6.136 and 7.36)

8.20

1 From a position about 8½ miles N of Cabo San Román (12°11′N, 70°00′W) the track leads SW, passing (with positions relative to Cabo San Román):

NW of Cabo San Román (6.136), thence:

NW of Morro de Chaure (4¼ miles WSW), thence:

NW of Punta Macana (9½ miles SW).

2 The track then leads to a position about 12 miles W of Punta Macolla (13½ miles SW), from which a light (8.19) is exhibited. Punta Macolla is a low projection on which there are sand dunes about 15 m high and a few mangroves.

(Directions continue, for a through route to Canal de Maracaibo at 8.26 and for a coastal route to Bahía de Amuay and Punta Cardón at 8.31)

Anchorages

Punta Baroa to Punta Macana

8.21

1 Between Punta Baroa (12°12′, 70°02′W) (not named on chart) and Punta Macana, 8½ miles SW, shelter from E winds can be obtained in depths of less than 18 m. Vessels should not get into depths less than 11 m as the coastal bank is steep-to.

Punta Macolla

8.22

1 Off Punta Macolla (12°06′N, 70°12′W), outside the prohibited area (8.18), anchorage can be found in depths of not less than 11 m by approaching the point with care. Strong trade winds raise an uncomfortable swell at this anchorage.

Small craft

Landing places

8.23

1 Landings on the shore may be made under the lee of the following points:

Punta Baroa (12°12′, 70°02′W) (not named on chart) in moderate weather.

Morro de Chaure (12°10′N, 70°04′W), which can be identified by two sand dunes.

2 Punta Macana (12°07′N, 70°08′W).

Punta Macolla (12°06′N, 70°12′W).

THROUGH ROUTE — PUNTA MACOLLA TO CANAL DE MARACAIBO

General information

Chart 2194

Route

8.24

1 From a position about 12 miles W of Punta Macolla (12°06′N, 70°12′W) the through route leads SW across the middle of Golfo de Venezuela, for 85 miles, to a position close N of EM Light-buoy (11°13′·9N, 71°33′·6W).

Principal marks

8.25

1 **Major lights:**

Punta Macolla Light (12°06′N, 70°12′W) (8.19).

Punta Espada Light (white and red tower) (12°06′N, 71°08′W).

Castilletes Light (white and red tower) (11°51′N, 71°20′W).

Directions

(continued from 8.20)

8.26

1 From a position about 12 miles W of Punta Macolla (12°06′N, 70°12′W) the track leads SW, passing (with positions relative to Punta Perret Light (11°48′N, 71°20′W)):

SE of a drying rock (31¾ miles NE), which was reported in 1933 by the sailing vessel *Chance*. Its charted position is doubtful; an unsuccessful search was made for the rock in 1940 and again in 1970. A dangerous wreck lies 4 miles W of the reported rock. Thence:

2 NW of a dangerous wreck (33½ miles SE), thence:

NW of two dangerous wrecks (28½ miles SSE); the charted mast on the S–most wreck was reported not visible in 1997. Thence:

SE of a dangerous wreck (14¾ miles S), marked on its E side by a light-buoy (non-IALA), thence:

3 NW of a stranded wreck (31 miles S); the wreck was reported in 1997 not to be visible. Thence:

SE of a dangerous wreck (28¼ miles SSW), the position of which is approximate; a mast is visible on the wreck. Thence:

SE of another dangerous wreck (29½ miles SW), the position of which is approximate.

4 The track then leads to a position close N of EM Light-buoy (safe water) (11°13′·9N, 71°33′·6W).

(Directions continue for Canal de Maracaibo at 8.140)

EAST SIDE — PUNTA MACOLLA TO BAHÍA DE AMUAY

General information

Charts 2193, 2194, 1963 plan of Punta Salinas to Punta Cardón

Route

8.27

1 From a position about 12 miles W of Punta Macolla (12°06′N, 70°12′W) the coastal route leads initially S, for 16½ miles, keeping outside a prohibited area, to a position

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E of Punta Los Taques, and thence SE, for a farther 8 miles, to a position about 4 miles W of Punta Adaro (11°44′N, 70°14′W), the S entrance point of Bahía de Amuay.

Fishing

8.28

1 Numerous unlighted fishing boats with nets may be encountered up to 8 miles off the E shore of Golfo de Venezuela.

Prohibited area

8.29

1 Passage is prohibited in the coastal waters within an area, shown on the charts, between Punta Macolla (12°06′N, 70°12′W) and Punta Los Taques, 17 miles SSW. The prohibited area is used for fishing.

Principal marks

8.30

1 **Landmarks:**

White house near Punta Macolla (12°06′N, 70°12′W) (8.19).

Water tower (11°47′N, 70°12′W) standing E of the N end of Bahía de Amuay.

Cerro Santa Anna (11°49′N, 69°57′W) (6.135).

2 **Major lights:**

Punta Macolla Light (12°06′N, 70°12′W) (8.19).

Punta Gorda Light (radio tower) (11°38′N, 70°14′W). In 1983 it was reported that the light was difficult to see at night due to the background lighting and flares; in 1992 it was reported that the radio tower was not visible by day.

Directions

(continued from 8.20)

8.31

1 From a position about 12 miles W of Punta Macolla (12°06′N, 70°12′W) the track leads initially S, passing (with positions relative to Punta Macolla):

W of a dangerous wreck (9½ miles SW), lying within the prohibited area (8.29), thence:

2 W of Punta Salinas (15½ miles SSW), a white sandy spit easily distinguished from N by three clumps of mangrove trees standing on it.

The track then leads SE, passing SW of Punta Los Taques (16½ miles SSW) (8.32), to a position about 4 miles W of Punta Adaro (21½ miles S), in the approaches to Bahía de Amuay.

(Directions continue, for Bahía de Amuay at 8.52, and for a coastal route S to Punta Cardón at 8.61)

Anchorage and repair yard

Bahía Los Taques

8.32

1 **Description.** Bahía Los Taques (11°49′N, 70°16′W) is entered close E of Punta Los Taques, a low sandy spit on which there is a fishing village. A church stands in the middle of the town of Los Taques, near the head of the bay, 1¼ miles ENE of the point.

2 **Anchorage.** Good anchorage can be obtained in Bahía Los Taques in depths of 9 to 13 m (30 to 42 ft), over a bottom of sand and shells. The anchorage should be approached on the line of bearing 075° of a conspicuous white house standing on a cliff 1½ miles E of Punta Los Taques.

3 **Repair yard.** In 1992 work was in progress on the construction of a jetty and buildings, 1½ miles S of Punta Los Taques. In 1994 it was reported that this was to be a ship repair yard.

BAHÍA DE AMUAY

General information

Chart 1963, plan of Punta Salinas to Punta Cardón and plan of Bahía de Amuay

Position

8.33

1 Bahía de Amuay (11°45′N, 70°13′W) is situated on the E side of Golfo de Venezuela, along the SW coast of Península de Paraguaná.

Function

8.34

1 The port of Bahía de Amuay is primarily a tanker terminal exporting refined petroleum products, although dry bulk cargoes such as petroleum coke are also handled.

Approach and entry

8.35

1 The port is approached from the W and entered between Punta Chiriguare (11°45′·5N, 70°14′·3W), the S extremity of Morro de Amuay, and Punta Adaro 1¼ miles S. Within the entrance, the bay opens out but its N and S parts are mostly shallow.

Traffic

8.36

1 In 1997 the port was used by 311 vessels with a total of 13 466 697 dwt.

Port Authority

8.37

1 Lagoven SA, Judibana Edo Falcon, Amuay Bay, Venezuela.

Limiting conditions

Controlling depths

8.38

1 There is a charted depth of 13·1 m (43 ft) in the channel leading to the berths and in the turning basin off them.

Deepest and longest berths

8.39

1 The largest and deepest berths are No's 1 and 2 at Pier No 1, Punta Judibana (8.54).

Tidal levels

8.40

1 Mean maximum range about 0·4 m; mean minimum range about 0·1 m. For further information see the *Admiralty Tide Tables.*

Density of water

8.41

1 1·025 g/cm^3.

Maximum size of vessel handled

8.42

1 Vessels up to 305 m in length with a draught of 12·8 m are handled.

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Arrival information

Port radio

8.43

1 There is a port radio station at Bahía de Amuay. For further information see *Admiralty List of Radio Signals Volume 6 (5).*

Notice of ETA required

8.44

1 An ETA should be sent 72 hours prior to arrival. For further information see *Admiralty List of Radio Signals Volume 6 (5).*

Outer anchorages

8.45

1 **Main anchorage.** Vessels awaiting a berth can obtain good anchorage in an area, the limits of which are shown on the chart, about 1 mile W of Punta Chiriguare (11°45′·5N, 70°14′·3W). In the anchorage there are depths from 9 to 30 m (30 ft to 20 fm) over a bottom of mud and shell. Care should be taken to avoid a shoal, with a least depth of 8.8 m (29 ft) over it, lying 6 cables NW of Punta Chiriguare.

2 **Reserve anchorage.** There is a smaller reserve anchorage situated close SW of Punta Adaro, 1¼ miles S of Punta Chiriguare. The limits are shown on the chart.

Submarine cables

8.46

1 Several submarine cables are laid across the approaches to Bahía de Amuay; anchoring and trawling in the vicinity of them is prohibited. For further information see 8.6.

Pilotage

8.47

1 Pilotage is compulsory and available 24 hours a day. The pilot boards from a tug 1½ miles SW of Punta Chiriguare (11°45′·5N, 70°14′·3W). For further information see *Admiralty List of Radio Signals Volume 6 (5).*

Tugs

8.48

1 Tugs are available and their use is compulsory; two tugs are used for vessels less than 80 000 dwt and three for vessels greater than 80 000 dwt.

Harbour

General layout

8.49

1 Alongside berths are located on the S side of the entrance channel to the port at Punta Adaro (11°44′N, 70°14′W) and on the the E shore of Bahía de Amuay at Punta Judibana (11°44′N, 70°13′W).

Currents

8.50

1 Within Bahía de Amuay a slight S set is encountered off the pierheads at Punta Judibana.

Principal marks

8.51

1 **Landmarks** (with positions relative to Punta Judibana (11°44′N, 70°13′W)):

White house (4½ miles NNW) near Los Taques.
Water tower (2¼ miles NNE).
Two prominent towers, about 61 m high and brightly illuminated at night, at the oil refinery close E.

2 Two radio towers (1½ miles E), 107 m high, from which obstruction lights are exhibited.
White house (1½ miles SE).

Directions for entering harbour

(continued from 8.31)

8.52

1 From a position about 4 miles W of Punta Adaro (11°44′N, 70°14′W) the track leads generally E for 3½ miles, passing (with positions relative to Punta Adaro):
S of a dangerous wreck (3¼ miles WNW), thence:
N of a light-buoy (1½ miles W), moored S of the pilot boarding area.

2 The track then leads to the beginning of the following entrance leading line:
Front light (orange diamond-shaped daymark on aluminium water tank) (11°45′·1N, 70°12′·4W).
Rear light (similar structure) (365 m from front light).

3 The alignment (074¾°) of these lights leads ENE through the entrance channel, marked by light-buoys, passing (with positions relative to Punta Adaro):
NNW of Punta Adaro, thence:
NNW of the bulk-handling berth (3½ cables NE) (8.54), thence:

4 SSE of a shoal (6½ cables NNE), lying near the middle of the entrance and close N of the fairway, with a least depth of 2·1 m (7 ft) over it, thence:
NNW of Punta Culata (6 cables NE).

5 Thence the track leads into a turning basin adjacent to the berths (8.54), off Punta Judibana. The edges of the basin are marked by light-buoys.

Berths

Inner anchorage

8.53

1 Small vessels can anchor within Bahía de Amuay, taking care to avoid the entrance channel and the turning basin off the berths at Punta Judibana.

Alongside berths

8.54

1 **Punta Adaro** (11°44′N, 70°14′W). A T–shaped jetty, with a berth at its head, extends NNW from the shore close NE of Punta Adaro. The berth is used for dry bulk cargoes and can handle vessels up to 80 000 dwt, with a draught of 12·7 m and a LOA of 240 m.

2 **Punta Judibana** (11°44′N, 70°13′W). Four finger piers, providing eight berths, are joined by a common causeway to Punta Judibana. The berths, numbered 1 to 8 from the S, handle tankers. Berth's No 3 and 4 also handle dry cargo ships. The largest and longest berths are No's 1 and 2; they can handle vessels up to 130 000 dwt, with a draught of 12·8 m and a LOA of 305 m.

Port services

Repairs

8.55

1 Only emergency repairs of a minor nature undertaken; the nearest dry docks are at Puerto Cabello (6.56) and Willemstad (7.96); radio and radar repairs effected.

Other facilities

8.56

1 Hospital and dental services; dirty ballast can be discharged; no oily waste reception facilities.

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Supplies

8.57

1 Fuel oil, fresh water and provisions are available.

Communications

8.58

1 Scheduled air services from Josefa Camejo International Airport, 12 km distant from Bahía de Amuay.

EAST SIDE — BAHÍA DE AMUAY TO PUNTA CARDÓN

General information

Charts 2193, 2194, 1963 plan of Punta Salinas to Punta Cardón

Route

8.59

1 From a position about 4 miles W of Punta Adaro (11°44′N, 70°14′W), the S entrance point of Bahía de Amuay, the coastal route leads S for 7 miles to a position about 5 miles WNW of Punta Cardón (11°37′N, 70°13′W).

Principal marks

8.60

1 **Landmarks:**

White house (11°44′N, 70°12′W).

Two radio masts (11°38′N, 70°14′W) standing on Punta Gorda.

2 **Major light:**

Punta Gorda Light (11°38′N, 70°14′W) (8.30).

Directions

(continued from 8.31)

8.61

1 From a position about 4 miles W of Punta Adaro (11°44′N, 70°14′W) the track leads S, passing (with positions relative to Punta Adaro):

W of Punta las Piedras (1½ miles SSE), the N entrance point of Bahía Boca de las Piedras (8.62); the point is low and the village of Las Piedras with a custom house stands close N of it. A stranded wreck lies 2 cables NW of Punta las Piedras. Thence:

2 W of Meneven Shoal (2 miles S) (8.66), not named on the chart; it has a least depth of 4·6 m (15 ft) over it. Thence:

W of Punta Carirubana (2¾ miles SSE); stranded wrecks lie 1½ cables N of the point. The pilot boarding area (8.125) for Canal de Maracaibo is situated 3 miles WSW of Punta Carirubana. Thence:

3 W of Punta Zarobon (4½ miles S); a stranded wreck lies 2½ cables NW of the point. Thence:

W of Punta Gorda (6¼ miles S), which is cliffy. A light (8.30) is exhibited from a position 4 cables E of the point.

4 The track then leads to a position about 5 miles WNW of Punta Cardón (7¾ miles S), a low sandy point. A sandy spit, with depths of 2·0 m (6 ft) or less over it, extends 1 mile WSW from La Puntica, the S extremity of Punta Cardón. An isolated shoal, with a depth of 2·0 m (6 ft) over it, was reported in 1980 to lie 9 cables W of Punta Cardón.

5 **Useful mark:**

Guaranao Light (11°40′·0N, 70°12′·8W) (8.73).

(Directions continue, for a route to Canal de Maracaibo at 8.104, and for Puerto Cardón at 8.94)

Bahía Boca de las Piedras

Chart 1963 plan of Ensenada de las Piedras

General information

8.62

1 **Position.** Bahía Boca de las Piedras (11°42′N, 70°13′W) is situated on the E side of Golfo de Venezuela, 2 miles S of Bahía de Amuay.

Function. The bay, which is well sheltered, is a transfer port for crude oil tankers.

2 **Approach and entry.** Bahía Boca de las Piedras is approached from the W and entered between Punta las Piedras (11°42′·7N, 70°13′·3W) and the N extremity of Punta Carirubana, 8 cables S; it can be identified by several villages and water tanks near its shores.

3 **Traffic.** In 1997 the port was used by five vessels with a total of 84 962 dwt.

Port Authority. Las Piedras Port Authority, Port Office, Las Piedras, Estado Falcon, Venezuela.

Limiting conditions

8.63

1 **Controlling depth.** There is a least charted depth of 8·2 m (27 ft) in the approach to Muelle Naval (11°42′·1N, 70°13′·2W).

Deepest and longest berth. Muelle Naval (8.67).

2 **Local weather.** Strong North-east Trade Winds, occurring in winter, sometimes make it difficult for a vessel to berth at Muelle Naval.

Arrival information

8.64

1 **Outer anchorage.** Anchorage is best obtained about 1 mile NW of Muelle Naval in depths from 16 to 24 m (53 ft to 13 fm), keeping well clear of the submarine cables shown on the chart; the bottom is sand or mud but the holding ground is poor. This anchorage is generally used only by vessels awaiting a berth. Good anchorage is reported nearer the pier in depths of 11 m (36 ft).

2 **Submarine cables.** Several submarine cables land at the head of Bahía Boca de las Piedras; anchoring and trawling in the vicinity of them is prohibited. For further information see 8.6.

Pilotage is compulsory and available 24 hours a day. The pilot boards about 1 mile WNW of the head of Muelle Naval.

Tugs. Tugs are available.

Harbour

8.65

1 **General layout.** Berths in Bahía Boca de las Piedras are provided by three piers, two of which extend from the E shore of the bay; a third pier extends W from Punta Avencasa on the SW side of the bay.

Landmark:

White house (11°44′N, 70°12′W).

Directions for entering harbour

8.66

1 From a position about 2 miles WSW of Punta las Piedras (11°42′·7N, 70°13′·3W) the track leads E, passing N of Meneven Shoal, lying 8½ cables SW of Punta las Piedras with a least depth of 4·6 m (15 ft) over it, into the bay. Meneven Shoal, which is not named on the chart, is marked on its NE side by a light-buoy (isolated danger); vessels should pass at least 2 cables clear of the shoal.

2 Deep draught vessels heading for Muelle Naval are advised to keep to the N of a light-buoy moored 2 cables WSW of the head of Muelle Naval.

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Useful marks:

Light (green pyramidal concrete tower, white bands, 3 m in height) exhibited from the head of Muelle Naval (11°42′·1N, 70°13′·2W).

3 Radio mast (red obstruction light) (11°42′·0N, 70°12′·5W).

Berths

8.67

1 The following berths are situated in Bahía Boca de las Piedras (with positions relative to Punta las Piedras (11°42′·7N, 70°13′·3W)):

Muelle de las Piedras (3 cables E) projecting 1¾ cables WSW from the N part of the bay.

2 Muelle Naval (6 cables S) projecting 5 cables WNW from the SE part of the bay.

Muelle de Avencasa (1 mile SSW) projecting 1¾ cables WSW from the N extremity of Punta Carirubana.

3 No details are known of the alongside berths provided by these piers.

Port services

8.68

1 **Facility.** Hospital maintained by oil company.

Supplies. Fresh water supplied in limited quantities.

Communications. Scheduled air services from Josefa Camejo International Airport.

Puerto Guaranao

Chart 1963 plan of Punta Salinas to Punta Cardón

General information

8.69

1 **Position.** Puerto Guaranao (11°40′N, 70°13′W) is situated on the E shore of Caleta Guaranao, 4½ miles S of Bahía de Amuay. Caleta Guaranao is entered between Punta Guaranao (11°40′·8N, 70°13′·1W) and Punta Zarobon, 8 cables S.

2 **Function.** Puerto Guaranao is a general cargo port. It was reported in 1997 that the port is to become a regular exporter of bananas.

Topography. The shores of Caleta Guaranao are cliffy except at Salina Guaranao, its head, which is low and sandy.

3 **Traffic.** In 1997 the port was used by 37 vessels with a total of 673 679 dwt.

Port Authority. Las Piedras Port Authority, Port Office, Las Piedras, Estado Falcon, Venezuela.

Limiting conditions

8.70

1 **Deepest and longest berth.** New pier (8.74).

Arrival information

8.71

1 **Port radio.** There is a port radio station at Puerto Guaranao. For further information see *Admiralty List of Radio Signals Volume 6 (5)*.

Notice of ETA required. An ETA should be sent 72 hours prior to arrival.

Outer anchorage. Anchorage may be obtained 5 cables off the shore of Caleta Guaranao in a depth of about 9 m (30 ft), over a bottom of mud.

Pilotage is compulsory. The pilot boards 1 mile W of the pierheads. For further information see *Admiralty List of Radio Signals Volume 6 (5)*.

Tugs. A tug is available.

Harbour

8.72

1 **General layout.** The harbour, situated on the E shore of Caleta Guaranao at Salina Guaranao, consists of two main piers extending WSW from the shore, each with berths on both sides.

Landmark:

Two radio masts (11°38′N, 70°14′W) standing on Punta Gorda.

2 **Major light:**

Punta Gorda Light (11°38′N, 70°14′W) (8.30).

Directions for entering harbour

8.73

1 From a position about 1½ miles WNW of Punta Zarobon (11°39′·8N, 70°13′·4W) the track leads ENE passing (with positions relative to Punta Zarobon):

Through the pilot boarding position (8 cables NW), as shown on the chart, thence:

2 NNW of an area of shoaling (3½ cables NNW) lying WSW of the pier heads.

The track then leads to the beginning of an approach channel marked by light-buoys (5 cables N), and thence SE for a short distance through the channel to the berths at the piers.

3 **Useful marks:**

Lights exhibited from the heads of the piers (11°40′·2N, 70°13′·0W).

Guaranao Light (orange GRP tower, white band, 10 m in height) (11°40′·0N, 70°12′·8W).

Water tower (11°40′·1N, 70°12′·4W).

Berths

8.74

1 The harbour has two main piers with four general cargo berths as follows:

Old pier, the N–most one, contains Berth's 1 and 2, with, respectively, lengths of 159 and 120 m and depths of 10·0 and 7·3 m alongside.

2 New pier, S of the old pier, contains Berth's 3 and 4. Both berths are 180 m long with depths of 10·0 m alongside.

There are two other berths for coastal vessels and a breakwater where there is a ferry terminal.

Port services

8.75

1 **Facility.** Deratting carried out.

Supplies. Fuel can be obtained from either Bahía de Amuay (8.33) or Puerto Cardón (8.76).

Communications. Scheduled air services from Josefa Camejo International Airport.

PUERTO CARDÓN

General information

Chart 1963 plan of Punta Salinas to Punta Cardón and plan of Punta Gorda to Punta Cardón

Position

8.76

1 Puerto Cardón (11°37′N, 70°14′W), an open sea port, is situated on the E side of Golfo de Venezuela, 7 miles S of Bahía de Amuay.

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Function
8.77

1 The port serves a large oil refinery and is primarily used for exporting petroleum products, although dry cargo vessels can be handled.

Port limits
8.78

1 Puerto Cardón is bounded within the following limits:
North limit. 11°30′00″N.
West limit. 70°14′25″W.
South limit. 11°36′38″N.

Approach and entry
8.79

1 Puerto Cardón is approached from the W and entered between Punta Gorda (11°38′N, 70°14′W) (8.61) and Punta Cardón (8.61), 1½ miles SSE.

Traffic
8.80

1 In 1997 the port was used by 307 vessels with a total of 12 381 318 dwt.

Port Authority
8.81

1 Maraven SA, Refineria Cardón, Punto Fijo, Estado Falcon, Venezuela.

Limiting conditions

Deepest and longest berth
8.82

1 Jetty No 4 (8.95).

Density of water
8.83

1 The density of the water is 1·026 g/cm^3.

Maximum size of vessel handled
8.84

1 Vessels up to 148 221 dwt with a draught of 13·0 m have been handled.

Arrival information

Port radio
8.85

1 There is a port radio station at Puerto Cardón. For further information see *Admiralty List of Radio Signals Volume 6 (5).*

Notice of ETA required
8.86

1 An ETA should be sent 72 hours prior to arrival.

Outer anchorages
8.87

1 Anchorage may be obtained within 2½ miles of the jetties of Puerto Cardón in depths of up to 30 m (16 fm), over a bottom of mud with some patches of small stones, sand and shells. The holding ground is reported to be good.

Pilotage
8.88

1 Pilotage is compulsory and available 24 hours a day. The pilot boards 6 cables W of the jetties, but will not board a vessel standing too far off. For further information see *Admiralty List of Radio Signals Volume 6 (5).*

Tugs
8.89

1 Tugs are available and compulsory for berthing; their movements are directed by the pilot.

Regulation concerning entry
8.90

1 Vessels arriving at Puerto Cardón should be adequately ballasted.

Harbour

General layout
8.91

1 The port consists of four jetties projecting about 2¼ cables offshore, NNW of Punta Cardón.

Development
8.92

1 In 1995 a pier was under construction off Punta Gorda. The pier is approximately 300 m long and extends W from the vicinity of 11°38′·0N, 70°14′·2W.

Principal marks
8.93

1 **Landmark:**
Two radio masts (11°38′N, 70°14′W) standing on Punta Gorda.
Major light:
Punta Gorda Light (11°38′N, 70°14′W) (8.30).

Directions for entering harbour
(continued from 8.61)

8.94

1 From a position about 5 miles WNW of Punta Cardón (11°37′N, 70°13′W) the track leads E directly to the berths at Puerto Cardón, passing (with positions relative to Punta Gorda Light (11°38′N, 70°14′W)):
N of a patch (2 miles SW), with a depth of 16·4 m (53 ft) over it, thence:

2 S of a patch (1 mile W), with a depth of 14·9 m (49 ft) over it, thence:
N of an isolated shoal (1¾ miles SSW), reported in 1980 to have a depth of 2·0 m (6 ft) over it, lying NW of the spit extending SW from La Puntica (8.61). The shoal's charted position is approximate.

3 Vessels are secured heading inshore at all berths and are advised to have the outboard anchor ready for letting go before approaching the jetties. Berthing and unberthing can take place at any time.

Useful marks (with positions relative to Punta Gorda Light):

4 The alignment (about 061°) of leading lights (front light, concrete structure; rear light, metal structure) exhibited from Jetty No 1 (6½ cables S).
The alignment (about 061°) of leading lights (front light, concrete structure; rear light, metal structure) exhibited from Jetty No 2 (5 cables SSW).

5 Lights (concrete structures) exhibited from the heads of Jetties No's 3 and 4 (8 cables S and 5 cables SW, respectively).
Gas flares and the bright lights of the refinery.
Two chimneys (broad red and white bands, obstruction lights) (1 mile E) about 122 m high.

6 Chimney (red and white bands, obstruction lights) (5 cables SSE).
White church (1 mile SSE), which is prominent, standing on a cliff.

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Berths

8.95

1 The four jetties along the coast S of Punta Gorda are numbered 4, 2, 1 and 3 from N; Jetty No 3 projects from Punta Botija (11°37′·2N, 70°13′·9W). The largest and deepest berth is at Jetty No 4 where vessels up to 130 000 dwt with a draught of 13·7 m can be loaded.

Port services

Repairs

8.96

1 Only emergency repairs of a minor nature undertaken; the nearest dry docks are at Puerto Cabello (6.56) and Willemstad (7.96); radio and radar repairs effected.

Other facilities

8.97

1 Ballast disposal and tank cleaning facilities available; hospital and dental services.

Supplies

8.98

1 Fuel oil, fresh water and provisions available.

Communications

8.99

1 Scheduled air services from Josefa Camejo International Airport, 30 km distant.

SOUTH-EAST SIDE — PUNTA CARDÓN TO CANAL DE MARACAIBO

General information

Chart 2194

Route

8.100

1 From a position about 5 miles WNW of Punta Cardón (11°37′N, 70°13′W) the route leads WSW, across the SE part of Golfo de Venezuela for 78 miles, to a position close N of EM Light-buoy (11°13′·9N, 71°33′·6W), at the beginning of Canal de Maracaibo.

Topography

8.101

1 Between Punta Codore (11°21′N, 70°16′W) and the entrance to Canal de Maracaibo, 80 miles WSW, the coast is low with sandy beaches backed by dunes and occasional cliffs. Midway along this coast Punta Capana (11°06′N, 71°01′W), an indefinite point, is backed by a hillock 10 m high and a conspicuous hillock, 12 m high, stands near the coast 9 miles WSW of the point. Between the conspicuous hillock and a point (10°57′N, 71°31′W), about 21 miles W and 1 mile E of Isla Zapara, the coast is also backed by dense mangroves making the point prominent from seaward.

2 The mountains of the interior are visible at a considerable distance in clear weather. From Cerro de la Teta (11°10′N, 69°43′W) (Chart 1966), 1253 m (4110 ft) high, the range extends SW towards Lago de Maracaibo and gradually decreases in elevation.

Jurisdiction

8.102

1 The S side of Golfo de Venezuela is under the jurisdiction of the Port Captain at La Vela de Coro (11°28′N, 69°34′W) (6.130).

Principal marks

8.103

1 **Landmark:**
Two radio masts (11°38′N, 70°14′W) standing on Punta Gorda.

2 **Major light:**
Punta Gorda Light (11°38′N, 70°14′W) (8.30).

Directions

(continued from 8.61)

8.104

1 From a position about 5 miles WNW of Punta Cardón (11°37′N, 70°13′W) the track leads WSW, passing (with positions relative to Borojó Light (11°12′N, 70°47′W)):
NNW of Punta Codore (31½ miles ENE). Two patches, with depths of 11·0 m over them lies 6½ miles NNW and 9 miles WNW of Punta Codore. Thence:

2 NNW of a dangerous wreck (16½ miles NE), lying of the coast near Punta Peñas. An ODAS light-buoy is moored 10 miles NNW of Punta Peñas; submerged equipment associated with the buoy covers an area of radius 100 m. Thence:
NNW of Punta Santa Clara (4 miles ENE), which is backed by a hill 18 m high, thence:

3 SSE of a dangerous wreck (21¼ miles N), thence:
NNW of a patch (15½ miles NW), with a depth of 13·2 m over it, lying 13½ miles NNW of Punta Borojó. A prominent hill, 35 m high, rises from a bluff point 2 miles WSW of Punta Borojó. Thence:

4 NNW of two dangerous wrecks (24½ miles WNW); the charted mast on the S–most wreck was reported not visible in 1997. Thence:
NNW of a stranded wreck (31¾ miles WNW); the wreck was reported in 1997 not to be visible. Another dangerous wreck lies 8½ miles SSW of the stranded wreck. Thence:

5 SSE of a dangerous wreck (42 miles WNW), the position of which is approximate; a mast is visible on the wreck. Thence:
SSE of another dangerous wreck (46¼ miles WNW), the position of which is approximate.

6 The track then leads to a position close N of EM Light-buoy (safe water) (11°13′·9N, 71°33′·6W).

Useful mark:
Borojó Light (GRP cylinder, orange and white bands) (11°12′N, 70°47′W) exhibited from a position 4½ miles ENE of Punta Borojó.

(Directions continue for Canal de Maracaibo at 8.140)

Anchorage

8.105

1 Anchorage with good holding ground can be obtained all along the SE and S side of Golfo de Venezuela, but there is no shelter from the prevailing winds. The bottom is generally composed of sand, with stretches of soft mud and occasionally rocks closer inshore. The shore should be approached with caution owing to shoal patches.

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Small craft

Chart 2193

Golfete de Coro

8.106

1 **Description.** Golfete de Coro is entered between Punta Cardón (11°37′N, 70°13′W) and Punta Codore, 16 miles S, and extends E for about 30 miles to Istmo de Médanos (6.132). No reliable surveys of the gulf exist, but it is shallow and fouled by many coral heads; it should not be entered without local knowledge, and then only in small boats.

2 **Submarine pipelines** cross the gulf N from Punta Boca de Arajó (11°24′N, 70°10′W) and NNW from Punta Caimán (11°34′N, 70°08′W). For further information on submarine pipelines see 1.14.

WEST SIDE — PUNTA GALLINAS TO PUNTA ESPADA

General information

Chart 2194

Route

8.107

1 From a position about 8 miles N of Punta Gallinas (12°28′N, 71°40′W) the route leads initially ESE, for 25 miles, to a position NNE of Cabo Falso (12°21′N, 71°19′W), and thence SE, for a farther 27 miles, to a position about 7 miles E of Punta Espada (12°06′N, 71°08′W).

Topography

8.108

1 The coast in the vicinity of Punta Gallinas (8.13) is low and difficult to distinguish, but it becomes rocky with cliffs up to 18 m high about 3½ miles E of the point. From Punta Taroa (12°27′N, 71°34′W) to Cabo Falso, 16 miles ESE, is generally low and sandy; it is fringed by foul ground.

2 Between Cabo Falso and Cabo Chichibacoa, 6½ miles SE, the coast consists of low sand dunes, some covered with vegetation, until within 2½ miles of Cabo Chichibacoa, whence it becomes cliffy. From Cabo Chichibacoa to Punta Espada, 14 miles SSE, the coast is formed by sand dunes as far as Punta Santa Cruz (12°11′N, 71°10′W) and then becomes rocky in places; it is backed by hills and small mountain ranges.

Natural conditions

8.109

1 **Currents.** Between Punta Gallinas (12°28′N, 71°40′W) and Monje del Este (12°23′N, 70°51′W), the current sets W during the greater part of the year and attains a maximum rate of about 1¾ kn. In October and November, an E–going current has been observed during calm weather.

2 In 1950, a S set was reported to have occurred in the vicinity N of Punta Gallinas and to have divided into a SW and SE set nearer the point. The current was reported to set SE along Península de La Guajira and directly across Archipiélago de Los Monjes at a very pronounced rate until S of Monjes del Sur, where it apparently met the W set from the passage between Aruba and Península de Paraguaná, then recurved to the N and W.

3 **Discoloured water.** Patches of discoloured water, due to counter-currents and resembling shoals, are frequently encountered off this part of the coast. Such patches should be approached with caution. In 1941, discoloured water was observed about 15 miles NNE of Punta Gallinas and soundings from 65 to 84 m were obtained.

Principal marks

8.110

1 **Landmark:**

Remarkable hill (12°08′N, 71°20′W) 820 m high, on Serrania de Macuira (Sierra de Chimaré on Chart 1966) about 11 miles inland.

2 **Major lights:**

Punta Gallinas Light (12°28′N, 71°40′W) (8.11).
Chimaré Light (12°24′N, 71°28′W) (8.11).
Cabo Falso Light (12°21′N, 71°19′W) (8.11).

3 Chichibacoa Light (orange tower, 22 m in height) (12°17′N, 71°13′W).

Monjes del Sur Light) (12°21′N, 70°54′W) (8.11).
Punta Espada Light (12°06′N, 71°08′W) (8.25).

Other aid to navigation

8.111

1 **Racon:**

Monjes del Sur Light (12°21′N, 70°54′W).

For further information see *Admiralty List of Radio Signals Volume 2*.

Directions

8.112

1 From a position about 8 miles N of Punta Gallinas (12°28′N, 71°40′W) (8.13) the track leads initially ESE, keeping not less than 5 miles off the coast and passing (with positions relative to Punta Gallinas):

NNE of an isolated patch (9 miles ENE), with a depth of 7·3 m over it; on the shore S of the patch there is a stranded wreck. Thence:

2 NNE of Punta Chimaré (10 miles ESE), which is fringed by drying rocks. Chimaré Light (8.11) is exhibited from a position about 2½ miles SE of the point. Thence:

NNE of Cabo Falso (21¾ miles ESE), from which a light (8.11) is exhibited. The cape is fronted by a radar conspicuous stranded wreck and a Colombian custom house stands on the cape.

3 The track then leads SE, passing (with positions relative to Punta Espada (12°06′N, 71°08′W)):

NE of Cabo Chichibacoa (13 miles NNW), consisting of rocky cliffs 12 m high, from which a light (8.110) is exhibited. A prominent white house stands on the coast at Santa Ana, 2¼ miles NW of Cabo Chichibacoa. Thence:

4 SW of Monjes del Sur (20¾ miles NE), the S–most islets of Archipiélago de Los Monjes (8.15). Monjes del Sur consists of two islets, the higher of which is 70 m high, lying close together. A light (8.11) is exhibited and a racon transmits from Monjes del Sur. A white house, a radio mast and a flagstaff were reported in 1974, to stand near the shore NW of Monjes del Sur Light.

5 The track then leads to a position about 7 miles E of Punta Espada, the E extremity of Península de La Guajira from which a light (8.25) is exhibited.

Caution. In 1997 it was reported that SW of Monjes del Sur there was less water than charted.

(Directions continue for the route to Canal de Maracaibo at 8.119)

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Small craft

Anchorage

8.113

1 A cove close SW of Punta Taroa (12°27′N, 71°34′W) provides good anchorage for small craft; local knowledge is necessary. Anchorage should be avoided S of Cabo Falso (12°21′N, 71°19′W) due to the prevailing NE winds.

WEST SIDE — PUNTA ESPADA TO CANAL DE MARACAIBO

General information

Chart 2194

Route

8.114

1 From a position about 7 miles E of Punta Espada (12°06′N, 71°08′W) the route leads SSW, for 60 miles, along the SE coast of Península de La Guajira and thence across Golfo de Venezuela to a position close N of EM Light-buoy (11°13′·9N, 71°33′·6W), at the beginning of Canal de Maracaibo.

Topography

8.115

1 The W side of Golfo de Venezuela is formed by the E side of Península de La Guajira. Inland, W of Punta Espada, stands the mountain range of Serrania de Macuira (Sierra de Chimaré on Chart 1966), on which there are several high peaks. Pan de Azucar (12°04′N, 71°12′W) 300 m high, rises at the SE end of Serrania de Macuira.

International boundary

8.116

1 The boundary between Venezuela and Colombia reaches the coast close N of Pueblo de Castilletes (11°51′N, 71°19′W), 8 cables N of Punta de Castilletes.

Caution

8.117

1 The coast SW of Punta Espada is rocky for the first 8 miles. Thence to Punta Perret, a farther 15½ miles distant, the coral bottom is irregular and the coast should be approached with caution. Anchorage off this coast should be avoided due to the prevailing trade winds.

Principal marks

8.118

1 **Landmark:**

Remarkable hill (12°08′N, 71°20′W) (8.110).

2 **Major lights:**

Punta Espada Light (12°06′N, 71°08′W) (8.25).

Castilletes Light (11°51′N, 71°20′W) (8.25).

Directions

(continued from 8.112)

8.119

1 From a position about 7 miles E of Punta Espada (12°06′N, 71°08′W) the track leads SSW, passing (with positions relative to Punta Perret (11°48′N, 71°21′W)):

WNW of a dangerous wreck (28 miles NE); a drying rock (8.26), reported in 1933 and the position of which is doubtful, lies 4 miles E of the dangerous wreck. Thence:

ESE of a stranded wreck (21 miles NE), lying 1¾ miles S of Punta Espada, thence:

2 ESE of Punta Médanos (17½ miles NE), thence:

ESE of Bajo Icarus (8¾ miles NE) (not named on chart), with a depth of 0·5 m over it, thence:

ESE of Punta Arenas (7¾ miles NNE); a shoal, with a depth of 4·0 m over it, lies 1½ miles SSW of the point. Thence:

3 ESE of Punta de Castilletes (2¾ miles NNE), which is not named on the chart; a dangerous rock lies 1 mile NE of the point. Close E of Pueblo de Castilletes, which stands 8 cables N of Punta de Castilletes, there are two conspicuous flat-topped cliffs; three similar cliffs lie 1 mile W of the village. Thence:

4 ESE of a patch (2½ miles NE), with a depth of 7·6 m over it, fronting the SE side of Isla Fuerte. This small islet 14 m high, lies in Fondeadero de Castilletes (8.120); a patch, with a depth of 3·0 m over it, lies 6 cables SSE of the islet. Thence:

5 ESE of an isolated shoal (2¾ miles SE), with a depth of 8·5 m over it, fronting the SE side of Punta Perret. A light (white hexagonal sided GRP tower, orange stripes) is exhibited from Punta Perret and a conspicuous white cemetery lies 2 miles W of the point. Thence:

ESE of a dangerous wreck (14¾ miles S), marked on its E side by a light-buoy (non-IALA), thence:

6 WNW of two dangerous wrecks (28½ miles SSE); the charted mast on the S–most wreck was reported not visible in 1997. Thence:

ESE of a dangerous wreck (28¼ miles SSW), the position of which is approximate; a mast is visible on the wreck. Thence:

7 NW of a stranded wreck (31 miles S); the wreck was reported in 1997 not to be visible. Thence:

SE of another dangerous wreck (29½ miles SW), the position of which is approximate.

8 The track then leads to a position close N of EM Light-buoy (safe water) (11°13′·9N, 71°33′·6W).

(Directions continue for Canal de Maracaibo at 8.140)

Anchorages

Fondeadero de Castilletes

8.120

1 Fondeadero de Castilletes is entered between Punta de Castilletes (11°50′N, 71°19′W) and Punta Perret, 2½ miles SSW. The anchorage is encumbered by Isla Fuerte (8.119), shoals and rocks, and has been declared a dangerous area to shipping. The shores of the anchorage are backed by sand dunes.

2 A narrow channel entered W of Punta de Castilletes leads into Laguna de Cocinetas.

Ensenada de Calabozo

8.121

1 **Description.** Ensenada de Calabozo, the SW part of Golfo de Venezuela, is entered between Punta Perret (11°48′N, 71°21′W) and Isla de San Carlos, 50 miles SSW.

The NW shore of the bay is backed by a few sand dunes and several mountain ranges with well defined summits. Cerro La Teta (11°42′N, 72°00′W) (Teta Guajira on Chart 1966), the principal peak, is 411 m high.

2 The W shore of the bay consists of a sandy beach and is very low, but a conspicuous hillock backs the beach 17 miles S of Cerro La Teta. No identifiable peaks can be discerned inland. The surf extends up to 1 mile off this shore and landing is impracticable.

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3 **Directions.** There are no specific directions for entering the bay, but there are several dangerous wrecks lying in the approaches to it; the bay itself is free from known dangers except for an obstruction (11°16′N, 71°42′W) on the S side, reported in 1942.

4 An ODAS light-buoy is moored in the entrance to the bay, 8½ miles N of EM Light-buoy (11°13′·9N, 71°33′·6W); submerged equipment, associated with the buoy, covers an area radius 100 m.

5 **Anchorage.** Good anchorage, sheltered from the prevailing trade winds, can be obtained off the NW shore, where boats can effect good landing taking care to avoid coral heads close inshore.

CANAL DE MARACAIBO

GENERAL INFORMATION

Charts 2194, 1519, 1517

Area covered

8.122

1 This section describes Canal de Maracaibo and the ports within it, between EM Light-buoy (11°13′·9N, 71°33′·6W), at the N end, and B98 Light-buoy (10°22′·8N, 71°32′·0W), 3½ miles WSW of Punta Icotea, at the S end. Canal de Maracaibo is entered 13 miles N of San Carlos pilot station (10°59′·4N, 71°36′·3W) which stands at the E extremity of Isla de San Carlos on the W side of the channel; it leads about 45 miles S into Lago de Maracaibo and forms the approach to Puerto de Maracaibo (10°39′N, 71°36′W). The section is arranged as follows:

Canal de Maracaibo – N part (8.130).
Puerto Miranda and El Tablazo (8.144).
Canal de Maracaibo – middle part (8.168).
Puerto de Maracaibo (8.174).
Canal de Maracaibo – S part (8.201).

Controlling depths

8.123

1 Depths in Canal de Maracaibo are reported to be significantly shoaler than the projected depth of 12·8 m (42 ft). In 2001 it was reported that there was shoaling in the channel between B18 Light-buoy (11°04′·5N, 71°35′·1W) and B27 Light-buoy and in the vicinity of E34 Light-beacon (10°57′·8N, 71°36′·1W). The maximum authorised draughts in June 2001 were reported to be 11·25 m (37 feet 3 inches) at HW and 10·15 m (33 feet 3 inches) at LW. For the latest information on maximum permitted draughts, consult the appropriate authorities.

Notice of ETA required

8.124

1 Vessels should send an ETA at EM Light-buoy (11°13′·9N, 71°33′·6W) 72 and 48 hours in advance and request permission to enter Canal Exterior 24 and 12 hours in advance.

Pilotage

8.125

1 **General information.** Pilotage is compulsory for all vessels in Canal de Maracaibo S of EM Light-buoy (11°13′·9N, 71°33′·6W). The pilot boards off Caleta Guaranao (11°40′N, 70°13′W) within a pilot embarking zone located between the following positions:

2 a). 11°40′·0N, 70°15′·5W.
b). 11°41′·5N, 70°15′·5W.
c). 11°41′·5N, 70°16′·5W.
d). 11°40′·0N, 70°16′·5W.

3 **Reporting system – inward bound:**

1. At a distance of 10 miles from EM Light-buoy, vessels should call San Carlos pilot station requesting permission to enter the outer channel, and also give their ETA at EM Light-buoy and B28 Light-buoy (10°59′·3N, 71°35′·9W).
4 2. A continuous watch should be maintained on VHF Ch 16 during channel transit.
3. Once in the channel, vessels should report to the pilot station at 5 mile intervals, giving reference to starboard hand light-buoys.

5 **Reporting system – outward bound.** The official pilot deals with all outward bound reporting procedures.

For further information see *Admiralty List of Radio Signals Volume 6 (5)*.

Navigation scheme and aids

8.126

1 **General information.** A local navigation scheme is shown on the charts dividing the passage between the sea and Lago de Maracaibo down the middle. Vessels should keep to the starboard side of the channel. In the wider areas a separation zone is shown.

2 **Light-buoys** indicating the main channel of Canal de Maracaibo are in accordance with IALA Maritime Buoyage System (Region B), numbered as follows:

East side; odd numbers.
West side; even numbers.

Light-beacons have similar numbering and lights, and some may have green or red huts as appropriate on the structures.

3 **Caution.** Light-buoys and light-beacons marking the channel maybe unreliable and are frequently reported to be unlit or missing. For the latest information on channel conditions and navigational aids, consult the appropriate authorities.

Signals

8.127

1 **Speed signals.** Vessels navigating within the pilotage zone show special signals as follows:

No	*By whistle or siren*	*Additional day signal*	*Meaning*
2 1	One long and one short blast (N)	Cone displayed point up at the starboard yard-arm	I am proceeding at full speed
3 2	Three short and one long blast (V)	Cone displayed point up midway between the starboard yard-arm and the deck	I am proceeding at half-speed

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	No	*By whistle or siren*	*Additional day signal*	*Meaning*
4	3	Three short, one long, three short and one long blast (VV)	Cone displayed point down at the starboard yard-arm	I am proceeding at quarter speed
5	4	One short, two long, and one short blast (P)	Cylinder displayed at the port yard-arm	I have stopped my engines
6	5	One long and four short blasts	As ordered by *International Regulations for Preventing Collisions at Sea*	I am aground or not under command

7 **Passing signals.** Day and night signals within the pilotage zone are as follows:

Signal	*Meaning*
One long and three short blasts (B)	Allow me to pass
8 One long blast (T)	You may pass me
Two long and two short blasts (Z)	I cannot give way
One short blast repeated at short intervals (E)	I am to starboard of the channel; you may pass with care on my port side
9 Two short blasts repeated at short intervals (I)	I am to port of the channel; you may pass with care on my starboard side
Four long blasts repeated at short intervals (MM)	I am obstructing the channel; do not attempt to pass

8.128

1 **Traffic signals.** Night signals exhibited from the yard-arm of the signal mast at San Carlos Pilot Station (10°59′·4N, 71°36′·3W) are as follows:

Signal	*Meaning*
One red light	Entry prohibited
One green light	Entry permitted
2 Two green lights	A vessel is aground, but there is passage inward
Two red lights	A vessel is aground and entry is prohibited

3 **Dredger signals.** Some dredgers are equipped with an arm 100 m long, which discharges directly over the side, abaft the mast and bridge; they dredge whilst under way at a speed of about 3 kn. These dredgers show the following signals:

By day	*Signal*
4 a)	Two black cylinders, disposed vertically, at the yard-arm on the side on which they should be passed
b)	Two black balls, disposed vertically above the bridge

By night	*Signal*
5 c)	Two green lights, disposed vertically above the bridge on the side on which they should passed
d)	One all-round white light at the masthead, with two all-round red lights, disposed vertically, below it
6 e)	The usual side lights and stern light, prescribed by the *International Regulations for Preventing Collisions at Sea*
f)	All-round red lights, disposed horizontally along the lower side of the discharging arm

7 Other dredgers without a discharging arm operate with two anchors down, one in the channel being marked by an unlit buoy; they show signals as above, excluding e) and f).

Regulations

8.129

1 The following are extracts from regulations issued by the Port Captain at Puerto de Maracaibo (10°39′N, 71°36′W) for the purpose of safe navigation in the channels, which are classed as primary, secondary and tertiary channels:

2 1. Primary channels comprise the main shipping lanes of Canal de Maracaibo from B1 Light-buoy (11°12′·0N, 71°33′·9W) to M1 Light-buoy (10°21′·1N, 71°32′·3W), and of Lago de Maracaibo as far S as M11 Light-float (9°27′·9N, 71°40′·0W).

3 2. Secondary and tertiary channels lead from primary channels and are for access to, or exit from, the various ports and oil terminals.

3. Vessels not in a channel, but about to enter one, give way to vessels in the channel.

4 4. Vessels under way in a minor channel and entering a major channel give way to those already in a major channel.

5. Maximum speed allowed in the dredged channels is 10 kn. Speed should be reduced when passing, or being passed by, another vessel in order to eliminate the effect of suction.

5 6. Distance apart of vessels navigating in the same direction must be 1 mile by day and night.

7. When entering in ballast, a vessel must have no greater difference in draught, forward and aft, than 2·4 m.

8. Ships should avoid passing or meeting between B20 Light-buoy (11°03′·6N, 71°35′·2W) and B32 Light-buoy (10°58′·2N, 71°36′·1W).

6 9. No vessel should start to overtake another vessel before having received clearly the affirmative signal from the latter. Vessels are not permitted to overtake in Canal Interior between B29 Light-buoy (10°58′·7N, 71°35′·8W) and T25 Light-beacon (not shown on chart). Local knowledge regarding the regulations concerning overtaking are considered essential.

7 For the latest information on traffic regulations consult the appropriate authorities.

CANAL DE MARACAIBO — NORTH PART

General information

Charts 1519, 1517

Route

8.130

1 The N end of Canal de Maracaibo is made up of two sections, Canal Exterior and Canal Interior. Canal Exterior

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extends 15 miles S from EM Light-buoy (11°13′·9N, 71°33′·6W), at the seaward end, to B29 and B30 Light-buoys, moored SE of San Carlos pilot station; it is 180 m wide and marked at 1 mile intervals by pairs of light-buoys. Canal Interior extends 9½ miles S from B30 Light-buoy and then a farther 2¼ miles SSE to B57 Light-buoy (10°47′·4N, 71°36′·1W), W of Punta Palmas del Norte; it is 150 m wide and marked at intervals by pairs of light-beacons and light-buoys.

2 From a position close N of EM Light-buoy the route leads S through Canal Exterior, for about 15½ miles to a position close E of B30 Light-buoy (10°58′·8N, 71°36′·0W) and thence continues S through Canal Interior, which leads across the shallow Bahía El Tablazo for 9½ miles, to a position close ENE of B52 Light-buoy (10°49′·4N, 71°37′·4W). The route then leads SSE and SE, for a farther 5 miles, to a position about 1½ cables S of B59A Light-buoy (10°45′·4N, 71°34′·5W), off the entrance to Puerto Miranda and El Tablazo (8.144).

Topography

8.131

1 Little of the coast can be seen from the vicinity of EM Light-buoy (11°13′·9N, 71°33′·6W). The first land sighted will be West Hill (8.139), High Hill (8.139) and Cross Hill (8.139) on Isla de Toas (10°57′·5N, 71°39′·2W). Isla Zapara, on the E side of the channel 3½ miles NE of Isla de Toas, is readily identified from seaward by sand dunes up to 32 m high on its E part. Islas de San Carlos (11°02′N, 71°43′W), with many sand dunes, and Isla Pájaros close S of its E end, are both low and thickly wooded.

Depths

8.132

1 The depths in Canal Exterior and Canal Interior are liable to change and may be less near the sides of the channels. For information on controlling depths see 8.123.

Tidal levels

8.133

1 Tidal levels in the N part of Canal de Maracaibo are as follows:

Isla Zapara – breakwater NW end tide gauge (11°00′·3N, 71°35′·1W). Mean maximum range about 0·5 m; mean minumum range about 0·4 m.

2 Bahía El Tablazo tide gauge (10°53′·2N, 71°36′·7W). Mean maximum range about 0·5 m; mean minimum range about 0·4 m.

West-north-west of Punta Palmas del Norte – Q Light-beacon tide gauge (10°48′·1N, 71°37′·6W). Mean maximum range about 0·6 m; mean minimum range about 0·5 m.

3 For further information see the *Admiralty Tide Tables.*

Navigation scheme and aids

8.134

1 See 8.126.

Submarine pipelines

8.135

1 Submarine pipelines are laid across Canal Interior between Palmarejo de Mara Pier (10°48′N, 71°40′W) and Punta Palmas del Norte, 4½ miles ESE, and between this point and Puerto Caballo (10°45′N, 71°38′W). For further information on submarine pipelines see 1.14.

Vertical clearance

8.136

1 An overhead power cable, with a vertical clearance of 75 m (247 ft), spans Canal Interior between a position about 1 mile S of Palmarejo de Mara Pier and Punta Palmas del Norte.

Caution

8.137

1 In Canal Interior it has been reported (1985) that E34, T35, T40, T41, T45, T47, T48, T49, T54, T55 and T56 Light-beacons have been replaced by light-buoys.

Natural conditions

8.138

1 **Current.** A strong current often sets W across Canal Exterior.

Weather. Near gale E to NE winds can be experienced, particularly in the afternoon, as far S as Puerto Miranda (10°46′N, 71°33′W).

Principal marks

8.139

1 **Landmarks on Isla de Toas** (with positions relative to High Hill (10°57′·4N, 71°39′·4W)):

West Hill (7½ cables W), 104 m (340 ft) high, with three radio towers, which exhibit obstruction lights, on it.

2 High Hill, 88 m (288 ft) high. A building with a white roof stands on the S coast of Isla de Toas, 4 cables WSW of High Hill.

Cross Hill (1½ miles E), 65 m (212 ft) high, surmounted by a cross.

Directions

(continued from 8.26, 8.104 and 8.119)

Canal Exterior

8.140

1 From a position close N of EM Light-buoy (11°13′·9N, 71°33′·6W) the track leads S, passing:

Clear of EM Light-buoy; it should be passed on the port hand when entering or leaving the channel. Thence:

2 Between B1 and B2 Light-buoys (11°11′·0N, 71°33′·9W), into Canal Exterior, thence:

E of a dangerous wreck (11°07′·1N, 71°35′·0W) lying close W of the channel; it is marked on its SE side by BSPM Light-buoy.

3 The track then continues S through the channel, passing (with positions relative to San Carlos pilot station (10°59′·4N, 71°36′·3W)):

W of the head (2½ miles NNE) of the breakwater extending 1½ miles N from the NW extremity of Isla Zapara; a light (white GRP tower, orange bands, 10 m in height) is exhibited from its head. Thence:

4 Close W of a dangerous wreck (1¾ miles NNE), the position of which is approximate, lying partly in the channel between B23 and B25 Light-buoys. The wreck is marked by a black and yellow buoy. Thence:

E of a breakwater (1¼ miles N), extending 3 cables N from the NE extremity of Isla San Bernardo; another breakwater extends SW from the W point of the island to Isla de San Carlos. Thence:

5 E of San Carlos pilot station.

The track then leads to a position between B30 and B29 Light-buoys (7½ cables SE).

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Canal Interior

8.141

1 **Caution.** In 2002 it was reported that the alignments of the leading lines in Canal Interior could not be relied upon.

Track. From the position between B30 and B29 Light-buoys the track continues S, passing (with positions relative to San Carlos pilot station (10°59′·4N, 71°36′·3W)):

2 E of Isla Pájaros (6 cables S), thence:

W of Isla Pescaderos (2½ miles SSE), which is low and wooded.

Thence the alignment (188¾°) of the following marks leads through the channel to a position close ENE of B52 Light-buoy (10°49′·4N, 71°37′·4W):

3 Q Light-beacon (metal framework tower on concrete piles) (10°48′·1N, 71°37′·6W); there is a tide gauge (8.133) at the beacon.

P Light-beacon (similar structure) (9 cables from front light).

4 The track then leads SSE on the alignment (330¾°), astern, of the following marks to a position close ESE of B57 Light-buoy (10°47′·4N, 71°36′·1W), W of Punta Palmas del Norte:

R Light-beacon (metal framework tower on concrete piles) (10°50′·6N, 71°38′·0W).

S Light-beacon (similar structure) (1 mile from front light).

5 Thence the track leads SE, for a short distance through the buoyed channel, to a position about 1½ cables S of B59A Light-buoy (10°45′·4N, 71°34′·5W), off the entrance to Puerto Miranda and El Tablazo (8.144).

6 **Useful mark:**

EP 3 Light-beacon (aluminium and green hut on platform, on pile) (10°46′·5N, 71°37′·6W).

(Directions continue for Canal de Maracaibo at 8.172, and for Puerto Miranda and El Tablazo at 8.161)

Minor terminal

Palmarejo de Mara Pier

8.142

1 **Position and function.** Palmarejo de Mara Pier (10°48′N, 71°40′W) is situated on the SW side of Bahía El Tablazo. The pier is used primarily by local tankers from Lago de Maracaibo, loading crude oil, liquefied gas and gasoline.

Topography. The coast between the pier and Salina Rica, 2 miles SE, consists of cliffs from 9 to 15 m (30 to 50 ft) high. Oil tanks stand near the root of the pier.

2 **Depths.** The approach to the pier from the SE has depths from 5·5 to 7·3 m (18 to 24 ft).

Useful marks:

Santa Cruz de Mara Church (10°48′N, 71°41′W); a radio tower (red obstruction lights) stands close NE.

Light (metal column) exhibited from the head of Palmarejo de Mara Pier

3 Light-buoy marking the 5·5 m (18 ft) depth contour, 5 cables NW of the pierhead.

Berths. The pier has four berths, but the only one in use is on the N side at its outer end; this berth is 129 m long, with a depth of 6·5 m alongside.

Small craft

Carrizal

8.143

1 **Description.** Carrizal (10°57′·8N, 71°40′·5W) is situated on the NW side of Isla de Toas. It is approached through a channel, reported to be dredged to 3·0 m (10 ft) in 1988, which leads from a position close N of B30 Light-buoy (10°58′·8N, 71°36′·0W), in Canal Exterior, between Isla de San Carlos and Isla Pájaros, and thence SSW and W to Isla de Toas.

2 **Berths.** At Carrizal there is a small basin in which there are two jetties. The jetties are used by the National Institute of Channels to service it's vessels.

PUERTO MIRANDA AND EL TABLAZO

General information

Charts 1519, 1517, 1524 plan of Puerto Miranda

Position

8.144

1 Puerto Miranda (10°46′N, 71°33′W), with El Tablazo, 7 cables E, is situated on the mainland coast E of Canal de Maracaibo.

Function

8.145

1 Puerto Miranda is an oil terminal. El Tablazo serves a petrochemical complex 1 mile E of Puerto Miranda and handles both dry bulk and liquid cargoes.

Approach and entry

8.146

1 Puerto Miranda and El Tablazo are both approached through Canal de Maracaibo and entered between B59A Light-buoy (10°45′·4N, 71°34′·5W) and B63 light-buoy, 1½ miles SE.

Traffic

8.147

1 **Puerto Miranda.** In 1997 the port was used by 218 vessels with a total of 15 832 788 dwt.

El Tablazo. In 1997 the port was used by 109 vessels with a total of 1 506 685 dwt.

Port Authorities

8.148

1 **Puerto Miranda.** Maraven SA, Apdo 19, Puerto Miranda, Maracaibo-Edo Zulia, Venezuela.

El Tablazo. Port Authority of El Tablazo, Complejo El Tablazo, Loo Puertos de Altaomacia, Eotado Zulia, Venezuela.

Limiting conditions

Controlling depths

8.149

1 See 8.123.

Deepest and longest berth

8.150

1 The deepest and longest berths are at Puerto Miranda (8.162).

Density of water

8.151

1 The density of the water is between 1·003 and 1·006 g/cm^3.

Maximum size of vessel handled

8.152

1 Vessels up to 115 000 dwt with a LOA of 277 m are handled at Puerto Miranda.

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Arrival information

Port radio
8.153

1 There is a port radio station at Puerto Miranda, which serves both Puerto Miranda and El Tablazo. Vessels should establish VHF contact 3 hours before arrival at the ports. For further information see *Admiralty List of Radio Signals Volume 6 (5).*

Notice of ETA required
8.154

1 See 8.124.

Outer anchorage
8.155

1 Anchorage, with good holding ground, may be obtained S of the channel leading to Puerto Miranda, about 1 mile WSW of the Bulk Pier (10°45′·5N, 71°32′·7W) at El Tablazo.

Pilotage
8.156

1 Vessels are boarded by a Berthing Master on arrival off the piers. For information on pilotage for Canal de Maracaibo see 8.125.

Tugs
8.157

1 Tugs are available and their use is compulsory, assisting all vessels in berthing and unberthing.

Harbour

General layout
8.158

1 Puerto Miranda and El Tablazo lie on the shores of a small bay entered SE of Punta del Vino (10°46′·0N, 71°33′·6W). Puerto Miranda consists of two finger jetties, standing 5 cables SE of Punta del Vino, which project SSW from a causeway. The berths at El Tablazo, E of Puerto Miranda, also consist of two finger piers projecting SSW from the shore, along with two smaller piers E and inshore of the main piers.

Currents
8.159

1 In 2001 it was reported that cross-currents, with a maximum rate of 3·5 kn, had been observed in the vicinity of the piers at El Tablazo.

Principal marks
8.160

1 **Landmarks:**
Radio tower (10°46′·2N, 71°33′·0W).
Tanks and towers behind the berths at El Tablazo.
Flare (10°45′·4N, 71°31′·7W), the position of which is approximate.

Directions for entering harbour
(continued from 8.141)
8.161

1 From a position about 1½ cables S of B59A Light-buoy (10°45′·4N, 71°34′·5W) the track leads E through a channel, marked by light-buoys, for about 8 cables to a dredged basin. The berths at Puerto Miranda are directly accessed from the basin; vessels bound for El Tablazo continue a farther short distance E.

2 Puerto Miranda and El Tablazo may also be entered from the S leaving the primary channel of Canal de Maracaibo close W of B63 Light-buoy (10°44′·3N, 71°33′·5W); there is a least charted depth of 9·1 m (30 ft) along the track leading NNE to Puerto Miranda, and 8.5 m (28 ft) along the track leading NE to El Tablazo. At El Tablazo the 5·5 m (18 ft) depth contour SE of the piers is marked by three light-buoys.

Berths

Puerto Miranda
8.162

1 There are two finger piers with six berths. Pier No 1, the NW pier has four berths; two outer and two inner, numbered 1 to 4; Pier No 2 has two outer berths, numbered 5 and 6. The largest berths are Nos 5 and 6, handling vessels up to 115 000 dwt, with a LOA of 277 m.

El Tablazo
8.163

1 Berths at the piers are as follows:
Bulk Pier (10°45′·5N, 71°32′·7W). This pier has three berths, one on the N side for handling dry bulk cargoes, and two on the S side for handling liquids. The largest berth is on the S side; length 250 m, maximum draught 9·45 m, handling vessels up to 50 000 dwt.

2 Liquids Pier (10°45′·4N, 71°32′·5W). Contains two berths, one each on either side of the outer end. The largest berth is on the N side; length 240 m, maximum draught 9·45 m, handling vessels up to 50 000 dwt.

3 Salt Pier E of the Liquids Pier. Used exclusively for the discharging of salt. Maximum size of vessel handled; length 82·5 m, draught 5·49 m and up to 10 000 dwt.

Port services

Repairs
8.164

1 Only minor repairs and electrical repairs undertaken.

Other facilities
8.165

1 Ballast and oily waste reception facilities at Puerto Miranda; medical facilities available; garbage disposal available at El Tablazo.

Supplies
8.166

1 Fuel oil available at the Puerto Miranda berths, otherwise supplied by barge; fresh water also available.

Communications
8.167

1 The nearest airport is La Chinita International at Maracaibo.

CANAL DE MARACAIBO — MIDDLE PART

General information

Chart 1517

Submarine cable
8.168

1 A submarine cable is laid W across Canal de Maracaibo from Punta de Piedras (10°40′N, 71°32′W). For further information on submarine cables see 1.42.

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Controlling depths
8.169

1 See 8.123.

Navigation scheme and aids
8.170

1 See 8.126.

Principal marks
8.171

1 **Landmarks:**
Tower (10°39′·0N, 71°35′·8W).
Silos (10°38′·7N, 71°36′·1W).

Passage directions
(continued from 8.141)

8.172

1 From a position about 1½ cables S of B59A Light-buoy (10°45′·4N, 71°34′·5W), off the entrance to Puerto Miranda and El Tablazo, the track leads generally S for 9 miles through the dredged channel to the S limit of Puerto de Maracaibo, close W of B77 Light-buoy (10°36′·8N, 71°35′·3W). The channel, marked at varying intervals by numbered light-buoys (lateral), is from 1¼ to 3 cables wide. There are no specific directions the chart being sufficient guide.

2 **Useful marks:**
Masts (red obstruction lights) stand near the W shore of Canal de Maracaibo 7 cables NW, 1¼ miles SW, 2¼ miles SSW and 3 miles SSW of Punta Capitán Chico (10°42′N, 71°35′W).
Light (10 m in height) (10°38′·4N, 71°36′·1W) exhibited from the SE end of Muelle Sur at Puerto de Maracaibo.

(Directions continue S for Canal de Maracaibo at 8.207)

(Directions for Puerto de Maracaibo are given at 8.193)

Minor terminal

La Estacada Terminal
8.173

1 La Estacada Terminal (10°42′·5N, 71°31′·7W), situated on the E side of Canal de Maracaibo 5¾ miles NE of Puerto de Maracaibo, has been closed and the mooring buoys removed.

PUERTO DE MARACAIBO

General information

Chart 1517, with plan of Bahía de Maracaibo and approaches

Position
8.174

1 Puerto de Maracaibo (10°39′N, 71°36′W) is situated in Bahía de Maracaibo on the W side of the primary channel 20 miles S of San Carlos pilot station.

Function
8.175

1 Maracaibo is the second largest city in Venezuela and capital of Estado Zulia; the city has a population of about 1 365 308. Puerto de Maracaibo is one of the largest cargo-handling ports in Venezuela, and is the port of entry for all vessels loading at the oil terminals.

Port limits
8.176

1 The harbour zone is bounded by E/W lines as follows:
North limit. From Punta del Bajío (10°38′·7N, 71°36′·0W), 090° to the 2 m (6 ft) depth contour on the E side of the channel.
South limit. From Punta Santa Lucia (10°36′·9N, 71°36′·3W), 090° to the same depth contour.

Approach and entry
8.177

1 Puerto de Maracaibo is approached through Canal de Maracaibo and entered between B74 Light-buoy (10°38′·5N, 71°35′·4W) and B76 Light-buoy, 7 cables SSW.

Traffic
8.178

1 About 750 vessels visit the port annually, with about 1 321 000 tonnes of cargo being handled.

Port Authority
8.179

1 **Address.** Servico Autonomo Puerto de Maracaibo del Este, Av 2 El Milagro, Modulo de Servico, Puerto de Maracaibo, Maracaibo, Venezuela.
Web site. www.puertodemaracaibo.com.

Limiting conditions

Controlling depths
8.180

1 Charted depths within the harbour limits vary from 7·3 to 12·8 m (24 to 42 ft). For depths in Canal de Maracaibo dredged channel see 8.123.

Deepest and longest berth
8.181

1 The deepest berths are No's 8, 9, 11 and 12 (8.195). The longest berth is No 10 (8.195).

Density of water
8.182

1 The density of the water varies between 1·003 and 1·006 g/cm^3.

Local weather
8.183

1 Squalls, known as *chubascos*, occur most frequently between May and August, usually between 1400 and 1900, and last from ½ to 1 hour; winds in the squalls are generally S to SE and may attain a velocity of nearly 50 kn. Heavy rain follows the squalls.

Arrival information

Port radio
8.184

1 There is a port radio station at Puerto de Maracaibo. For further information see *Admiralty List of Radio Signals Volume 6 (5).*

Notice of ETA required
8.185

1 ETA should be sent 72 hours prior to arrival.

Pilotage
8.186

1 For information on pilotage for Canal de Maracaibo see 8.125.

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Tugs
8.187

1 Tugs are available and their use is compulsory. For vessels exceeding 145 m in length two tugs are required.

Regulations concerning entry
8.188

1 No vessel with explosives aboard is allowed in the dock area. Explosives are loaded and discharged at the explosives anchorage (8.194).

Harbour

General layout
8.189

1 The main berthing area is situated on the N side of Bahía de Maracaibo and consists of Muelle Este and Muelle Sur. There are various other smaller piers and landing places along the SW and S shore of the bay.

Piracy
8.190

1 Masters of vessels should be extremely vigilant when at anchor as there have been reported attacks by armed pirates. For further advice see *Admiralty List of Radio Signals Volume 1* and *The Mariner's Handbook*.

Climatic table
8.191

1 For Maracaibo see 1.167 and 1.175.

Principal marks
8.192

1 **Landmarks:**
Tower (10°39′·0N, 71°35′·8W).
Silos (10°38′·7N, 71°36′·1W).

Directions for entering harbour
8.193

1 There are no specific directions for berthing at Puerto de Maracaibo, the chart being sufficient guide. If proceeding to an anchorage berth on arrival, the pilot will indicate the berth, but Masters of vessels should be prepared to anchor their vessels themselves as the pilot will normally have disembarked about 5 cables N of the harbour zone.

2 **Useful mark:**
Light (10 m in height) (10°38′·4N, 71°36′·1W) exhibited from the SE end of Muelle Sur at Puerto de Maracaibo.

Berths

Anchorages
8.194

1 Anchorage may be obtained in designated areas, shown on the chart, on the E side of the primary channel and in the SW part of the harbour zone W of the channel. An explosives anchorage is centred 1½ miles E of Punta Santa Lucia (10°36′·9N, 71°36′·3W). Small vessels may also obtain anchorage at the head of Bahía de Maracaibo.

Alongside berths
8.195

1 There are 12 numbered berths at the following quays and piers (positioned relative to the light (10°38′·4N, 71°36′·1W) exhibited from the SW corner of Muelle Este):
Muelle de Cabotaje (5 cables WNW), extending WNW from the two projecting piers of Muelle Naval. Contains Berth No 1 and is used by coasters and small craft.

2 Muelle Naval (3½ cables WNW). Contains Berth No 2.
Muelle Sur (close WNW) extending WNW for about 500 m, with Berth No's 3, 4 and 5.

3 Muelle Este (close N), extending N for about 550 m. Berth No 10, the longest berth with a length of 240 m, is situated at its S end and there is a ferry berth near the N end. The deepest berths, No's 8 and 9, have a depth of 10·0 m alongside.

4 North Pier (4 cables NNE), with Berths No's 11 and 12 on either side of it, with depths of 10·0 m alongside.

Port services

Repairs
8.196

1 Small machinery, electrical, radio and radar repairs carried out; patent slips for vessels up to 155 tonnes; two small dry docks available.

Other facilities
8.197

1 Hospital; Deratting and Deratting Exemption Certificates issued; ballast and slop reception available; 400 tonne floating crane.

Supplies
8.198

1 Fuel oil supplied by barge to vessels at berths alongside or at anchor; fresh water and provisions are obtainable.

Communications
8.199

1 Scheduled flights operated from La Chinita International Airport, 20 km distant.

Harbour regulation
8.200

1 All vessels must be prepared to get under way at any time as requested by the port authority unless permission for engine repairs has been previously obtained.

CANAL DE MARACAIBO — SOUTH PART

General information

Chart 1517

Route
8.201

1 From a position close W of B77 Light-buoy (10°36′·8N, 71°35′·3W), at the S limit of Puerto de Maracaibo, the route leads S through the dredged channel, for about 8½ miles to B90 Light-buoy (10°28′·3N, 71°35′·5W). The route then leads SSE, for a farther 6¾ miles, to a position 1½ cables SE of B98 Light-buoy (10°22′·8N, 71°32′·0W), moored 3½ miles WSW of Punta Icotea off the entrance to Lago de Maracaibo. The width of the channel varies from 1¼ to 4 cables.

Controlling depths
8.202

1 See 8.123.

Navigation scheme and aids
8.203

1 See 8.126.

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General Rafael Urdaneta Bridge

8.204

1 **Description.** This bridge carries a road and railway across Canal de Maracaibo E from Punta Piedras (10°34′·6N, 71°36′·5W) (Punta Piedra on Chart 1517). The bridge has five main spans, each with a navigable passage 200 m in width between the supporting piers and a vertical clearance of 45 m (148 ft); the spans are marked by lights, as shown on the chart. Passage under the main spans is for the exclusive use of vessels more than 200 grt and is controlled by the port authority at Puerto de Maracaibo (8.174).

2 **Speed.** Vessels are limited to a speed of 5 kn when approaching the bridge and whilst passing between the piers.

Passages. Between the five main spans, which are numbered from W, traffic is controlled as follows:

No 1 span, between pillars No's 20 and 21, is for use by any S–bound vessel.

No 2 span, between pillars No's 21 and 22, crosses over the S–bound traffic lane; its use is restricted to S–bound deep-draught vessels.

3 No 3 span, between pillars No's 22 and 23, lies in the separation zone between the S and N–bound traffic lanes. It may be used in an emergency by both S and N–bound vessels.

No 4 span, between pillars No's 23 and 24, crosses over the N–bound traffic lane; its use is restricted to N–bound deep-draught vessels.

No 5 span, between pillars No's 24 and 25, is for use by any N–bound vessel.

Submarine pipelines and cables

8.205

1 **Submarine pipelines.** Several submarine pipelines are laid ENE across the dredged channel from the shore 1 mile S of Maraven Bajo Grande (10°30′·8N, 71°37′·8W). The N–most pipeline, having crossed the channel then turns N following the E shore to El Tablazo (8.144).

2 Another submarine pipeline is laid SW from the shore at El Mene (10°28′·0N, 71°27′·1W), across the channel, 5 cables N of B98 Light-buoy (10°22′·8N, 71°32′·0W), and into Lago de Maracaibo. For further information on submarine pipelines see 1.14.

3 **Submarine cables.** Numerous submarine cables are laid across Canal de Maracaibo between B87 Light-buoy (10°30′·3N, 71°35′·7W) and B95 Light-buoy, 6¾ miles SSE. For further information on submarine cables see 1.42.

Principal mark

8.206

1 **Landmark:**

Chimneys (10°36′·1N, 71°36′·8W).

Directions

(continued from 8.172)

8.207

1 From a position close W of B77 Light-buoy (10°36′·8N, 71°35′·3W) the track leads initially S, passing (with positions relative to Punta Camacho (10°33′N, 71°32′W)):

E of the shore lying between Punta Santa Lucia (5½ miles NW) and Punta Piedras (Punta Piedra on Chart 1517), 2 miles S; there are many piers along this shoreline. A light is exhibited from near the head of La Arriaga Pier, 8 cables S of Punta Santa Lucia. Thence:

2 E of a platform (4 miles NW) forming part of Punta Piedras Terminal (8.222), thence:

Under General Rafael Urdaneta Bridge (3 miles NW) (8.204), thence:

W of Punta Camacho where there is a small terminal (8.223), thence:

E of Puerto San Francisco (4¾ miles WSW) (8.224), thence:

3 E of Terminal Bajo Grande (4½ miles SW) (8.208), thence:

E of the head of Muelle GLP (5 miles SW), the S part of Terminal Bajo Grande.

Thence, when a position is reached close E of B90 Light-buoy (5¾ miles SSW), the track leads SSE, passing (with positions relative to Punta Icotea (10°24′N, 71°29′W)):

4 ENE of Punta de Palmas del Sur (9½ miles WNW), which can be identified by a radio mast (red obstruction lights, 91 m high) standing 4 cables N of the point. The oil tanks of Punta de Palmas Terminal stand 5 cables NW of the radio mast. Thence:

ENE of T3 La Ensenada Platform (5½ miles WNW), from which a light (platform on piles) is exhibited, thence:

5 ENE of Punta de Palmas Terminal (4¾ miles ENE) (8.215).

The track then leads to a position 1½ cables SE of B98 Light-buoy (3½ miles WSW).

Useful marks:

T1 Platform (platform on piles) (10°29′·8N, 71°31′·5W), from which a light is exhibited.

6 T2 Platform (platform on piles) (10°26′·6N, 71°30′·9W), from which a light is exhibited.

(Directions continue, for La Salina Terminal at 8.238, and for the channel S into Lago de Maracaibo at 8.233)

Terminal Bajo Grande

General information

8.208

1 **Position.** Terminal Bajo Grande (10°31′N, 71°36′W) is situated on the W side of Canal de Maracaibo, near its S end.

Function. The terminal handles crude oil, refined petroleum products and liquefied natural gasses.

2 **Traffic.** In 1997 the terminal was used by 99 vessels with a total of 7 451 852 dwt.

Port Authority. Instituto Nacional de Puertos, Maracaibo, Venezuela.

Limiting conditions

8.209

1 **Controlling depths.** See 8.123.

Deepest and longest berths. The deepest and longest berths are No's 1 and 3 at the oil terminal (8.213).

Density of water varies between 1·003 and 1·006 g/cm^3.

Maximum size of vessel handled. Vessels up to 85 000 dwt are handled at the oil terminal.

Arrival information

8.210

1 **Port radio.** There is a port radio station at Terminal Bajo Grande. For further details see *Admiralty List of Radio Signals Volume 6 (5)*.

Notice of ETA required. An ETA should be sent 72, 48 and 24 hours in advance, and if a difference in ETA of

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6 hours or more occurs after the last ETA message. For further details see *Admiralty List of Radio Signals Volume 6 (5)*.

2 **Pilotage** is compulsory; for pilotage in Canal de Maracaibo see 8.125. The berthing pilot boards at the terminal entrance light-buoys. For further information see *Admiralty List of Radio Signals Volume 6 (5)*.

Tugs are available and their use is compulsory for berthing and unberthing.

Harbour

8.211

1 **General layout.** Terminal Bajo Grande consists of an oil terminal and a separate natural gas liquids terminal, standing 1 mile S of the oil terminal. The oil terminal is made up of several platforms connected together to form an elongated concrete island with three berths.

2 The natural gas liquids terminal consists of a platform and four mooring dolphins; the platform is connected to the shore by Muelle GLP, which is a trestle supporting pipelines.

Directions for entering harbour

8.212

1 The oil terminal of Terminal Bajo Grande is approached through the dredged channel in Canal de Maracaibo and entered close N of B86 Light-buoy (10°31′·0N, 71°35′·9W); the use of anchors when berthing is prohibited at Berth No 2 as submarine pipelines are laid in its vicinity to the shore and to a pier 1½ cables W.

2 The natural gas liquids terminal is entered from the dredged channel S of B87 and B88 Light-buoys (10°30′·2N, 71°35′·8W); attention is drawn to the submarine pipelines (8.205) which lie on the N side of the approach to this terminal, restricting the use of anchors. Vessels berth port side to.

3 **Useful marks:**

Lights exhibited from the N and S ends of the oil terminal.

Lights exhibited from the natural gas liquids terminal platform and its trestle.

Berths

8.213

1 **Oil terminal.** Contains three berths, numbered 1 to 3 from S to N. The deepest and longest berth is No 3 at the N end; length 273 m, with a depth of 12·1 m alongside, handling vessels up to 85 000 dwt.

2 **Natural gas liquids terminal.** Consists of one berth which can handle vessels up to 213 m in length, with a draught of 11·0 m and 50 000 tonnes displacement.

Port services

8.214

1 **Repairs.** Minor repairs carried out.

Other facilities: the nearest hospital is in the city of Maracaibo; Deratting and Deratting Exemption Certificates issued; ballast and slop reception facilities.

2 **Supplies:** fuel supplied at the oil terminal, and by barge; fresh water available from barges.

Communications. Scheduled flights operated from La Chinita International Airport, outside the city of Maracaibo.

Punta de Palmas Terminal

General information

8.215

1 **Position.** Punta de Palmas Terminal (10°24′N, 71°34′W) is situated at the S end of Canal de Maracaibo in the entrance to Lago de Maracaibo.

Function. Punta de Palmas Terminal is used for the export of oil.

2 **Traffic.** Approximately 50 vessels or more visit the terminal annually.

Port Authority. Port Authority of Punta de Palmas, Capetania de Puerto, Ed Advana, Avda 1B, Maracaibo, Venezuela.

Limiting conditions

8.216

1 **Controlling depths.** See 8.123.

Maximum size of vessel handled. Vessels up to 254·5 m in length and 80 000 dwt can be accommodated.

Arrival information

8.217

1 **Port radio.** There is a port radio station at Puerto de Maracaibo (8.174). For further details see *Admiralty List of Radio Signals Volume 6 (5)*.

Notice of ETA required. An ETA should be sent 72, 48 and 24 hours in advance, and if a difference in ETA of 6 hours or more occurs after the last ETA message. For further details see *Admiralty List of Radio Signals Volume 6 (5)*.

2 **Pilotage** is compulsory; for pilotage in Canal de Maracaibo see 8.125. The berthing pilot boards before the approach to the terminal is made.

Tugs are available and their use is compulsory. Two tugs are provided for berthing and unberthing, and a third tug may be necessary for vessels exceeding 228 m in length. A vessel more than 254 m in length, bound for Berth No 3, requires at least one additional tug.

Harbour

8.218

1 **General layout.** Punta de Palmas Terminal consists of three offshore berths each situated at the end of an oil pipeline connected with the point through a platform (10°24′·4N, 71°34′·3W).

Development. It was reported in 1998 that the terminal was to close.

Directions for entering harbour

8.219

1 The terminal is approached through the dredged channel in Canal de Maracaibo and entered N of B96 Light-buoy (10°24′·3N, 71°32′·8W); there are no specific directions for berthing, the chart being sufficient guide.

Berths

8.220

1 Berths, with the maximum size of vessels allowed, are as follows (positioned from the platform (10°24′·4N, 71°34′·3W)):

Berth No 1 (3 cables S), with two pairs of mooring buoys; length 254 m, draught 11·6 m and 80 000 dwt.

2 Berth No 2 (4 cables ENE), with two pairs of mooring buoys; length 254 m, draught 11·4 m and 80 000 dwt.

Berth No 3 (9 cables E), with four mooring buoys each exhibiting a light; length 271 m, draught 12·8 m (reported 12·0 m in 1987) and 100 000 dwt.

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Port services

8.221

1 **Repairs.** None available.

Other facilities: medical facilities, but emergency cases transferred to Maracaibo; ballast reception.

2 **Supplies:** fuel supplied; fresh water available from barges; fresh and dry provisions delivered at the terminal from Maracaibo.

Communications. Scheduled flights operated from La Chinita International Airport, outside the city of Maracaibo.

Minor terminals

Punta Piedras Terminal

8.222

1 **Position.** Punta Piedras Terminal (10°35′N, 71°36′W) is situated on the W side of Canal de Maracaibo, close N of General Rafael Urdaneta Bridge.

Function. The terminal is used for the importing of white petroleum products such as gasoline and kerosene.

Port Authority. Port Authority of Punta Piedras, c/o Maraven SA, Maracaibo, Venezuela.

2 **Port operations.** Vessels are berthed during daylight hours only; unberthing carried out day or night.

Maximum size of vessel handled. Vessels up to 35 000 dwt, 175 m in length and 9·1 m draught can use the terminal.

Port radio. There is a port radio station at Puerto de Maracaibo (8.174). For further details see *Admiralty List of Radio Signals Volume 6 (5)*.

3 **Anchorage.** Vessels awaiting a berth at the terminal may anchor in the Puerto de Maracaibo anchorages (8.194).

Pilotage is compulsory; for pilotage in Canal de Maracaibo see 8.125. The berthing pilot boards between B79 and B80 Light-buoys (10°36′·2N, 71°35′·6W).

Tugs are available and are normally required for berthing and un-berthing.

4 **Berth.** The berth consists of a platform, with five mooring buoys around it. The platform is connected by a submarine pipeline with the head of a pier extending 3 cables ENE from the shore near some oil tanks close N of General Rafael Urdaneta Bridge.

Supplies. Bunkers only supplied by barge in the Puerto de Maracaibo anchorages.

5 **Communications.** Scheduled flights operated from La Chinita International Airport, outside the city of Maracaibo.

Punta Camacho

8.223

1 **Position.** The harbour of Punta Camacho (10°33′N, 71°32′W) is situated on the E side of Canal de Maracaibo, 1½ miles S of General Rafael Urdaneta Bridge.

Function. Barytes is exported and LPG cargoes are also handled.

Traffic. In 1997 Punta Camacho was used by four vessels with a total of 59 516 dwt.

2 **Port Authority.** Autoridad Portuaria Regional Puerto de Maracaibo, Av El Milagro, Centro de Maracaibo, Modulos de Servico, Maracaibo, Estado Zulia, Venezuela.

Notice of ETA required. An ETA should be sent 72, 48 and 24 hours in advance, and if a difference in ETA of 6 hours or more occurs after the last ETA message.

3 **Pilotage** is compulsory; for pilotage in Canal de Maracaibo see 8.125.

Berths. The harbour contains two piers extending up to 3 cables SSW from the shore, with depths of about 7 m off their heads.

Facility. Deratting and Deratting Exemption Certificates issued.

Puerto San Francisco

8.224

1 **Position.** Puerto San Francisco (10°32′N, 71°37′W) is situated on the W side of Canal de Maracaibo, 2¼ miles S of General Rafael Urdaneta Bridge.

Function. The port is used for loading cement.

Berth. The berth consists of a T–shaped jetty with a depth of about 4·8 m off its head; the outer part of the jetty is about 80 m long.

LAGO DE MARACAIBO

General information

Chart 1525

Description

8.225

1 This section describes Lago de Maracaibo and the ports within it, S of B98 Light-buoy (10°22′·8N, 71°32′·0W), 3½ miles WSW of Punta Icotea. Lago de Maracaibo is entered between Punta de Palmas del Sur (10°27′N, 71°38′W) and Punta Icotea, 9½ miles SE; it is about 80 miles long N to S and about 60 miles wide. The lake has depths up to 33 m (18 fm). No known dangers exist more than 1 mile off the E and S shores, and 2½ miles off the W shore, of the lake. Nearly all the oil terminals are located on the E shore.

Pilotage

8.226

1 **Pilotage** is compulsory; for pilotage in Canal de Maracaibo see 8.125. Pilots for the lake ports are embarked at Puerto de Maracaibo (8.174), where vessels normally anchor for clearance; an exception to this is La Salina Terminal (8.234).

Anchorage

8.227

1 No vessel may anchor without permission for more than one day in Lago de Maracaibo or its entrance. Great care is necessary to avoid submarine pipelines and cables. The bottom is sand with good holding ground.

2 Agents have to request permission for vessels to anchor in the approaches to a terminal; a maximum of 24 hours has been established, but this period may in practice be extended.

Submarine pipelines

8.228

1 Submarine pipelines, the charted positions of which are approximate, extend into the middle of Lago de Maracaibo from the larger terminals. For further information on submarine pipelines see 1.14.

Regulations

8.229

1 Strict regulations are in force for vessels using the terminals within Lago de Maracaibo; copies should be obtained from local authorities.

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Caution

8.230

1 Oil drilling platforms and associated structures, many of which exhibit lights, are shown on the chart only where they stand near the marked channels and may be a danger to navigation.

Aids to navigation

8.231

1 Light-buoys and light-floats, indicating the navigation channels in Lago de Maracaibo, are in accordance with IALA Maritime Buoyage System (Region B), with reference to an inward-bound vessel, as follows:

Port side; odd numbers.

Starboard side; even numbers.

2 The exception to this is M16 and M16A Light-floats (9°27′·2N, 71°17′·5W), moored on the S side of the channel and opposite the turn-offs to Bachaquero and San Lorenzo, respectively, which are painted white and exhibit white lights.

Tidal streams

8.232

1 Off the entrance to Lago de Maracaibo, tidal streams occur but their rate is small.

Directions

(continued from 8.207)

8.233

1 For vessels bound for terminals in Lago de Maracaibo, other than for La Salina, the track initially leads SSW, from a position 1½ cables SE of B98 Light-buoy (starboard hand) (10°22′·8N, 71°32′·0W), for 22 miles, to M8 Light-float (starboard hand), thence S, for a farther 35 miles, to a position close WSW of M11 Light-float (port hand) (9°27′·9N, 71°40′·0W). The track then leads E for 20 miles to a position close N of M16 Light-float (starboard hand) (9°27′·2N, 71°20′·8W) at the turn-offs for Bachaquero and San Lorenzo.

2 The track for Bachaquero leads initially N from M16 Light-float, for 23½ miles, and thence NE, for a farther 8½ miles, to a position close N of AB8 Light-float (starboard hand) (9°55′·9N, 71°13′·7W).

The track for San Lorenzo leads initially E from M16 Light-float, for 3 miles, and thence NE and N, for a farther 24½ miles, to a position close SE of AL5 Light-buoy (port hand) (9°46′·7W, 71°05′·1W).

(Directions continue, for Bachaquero at 8.245, and for San Lorenzo at 8.252)

La Salina Terminal

Charts 1517, 1524 plan of Cabimas and La Salina

General information

8.234

1 **Position.** La Salina Terminal (10°22′N, 71°28′W), also known as Lacustre Terminal, is located on the NE shore of Lago de Maracaibo, close inside its E entrance point.

Function. La Salina Terminal exports crude oil and natural gas; refined products such as gasoline and fuel for vessels is imported.

2 **Traffic.** In 1997 the port was used by 85 vessels with a total of 7 115 330 dwt.

Port Authority. Lagoven SA, Maracaibo, Venezuela.

Limiting conditions

8.235

1 **Controlling depths.** See 8.123.

Deepest and longest berth. The deepest and longest berths are at Piers No's 6 and 7 (8.239).

Density of water. It is about 1·002 g/cm^3 but varies depending on the amount of rainfall.

2 **Maximum size of vessel handled.** Vessels up to 112 000 dwt are handled.

Arrival information

8.236

1 **Port radio.** There is a port radio station at La Salina Terminal. For further details see *Admiralty List of Radio Signals Volume 6 (5).*

Outer anchorages. Anchorage while awaiting a berth can be obtained within an area, shown on the charts, NE of B97, AS1 and AS3 Light-buoys, and S of L175 Platform (10°23′·0N, 71°30′·8W); the bottom is soft mud, with fair to poor holding ground.

2 It was reported in 1992 that an anchorage, for deep draught vessels awaiting the right tidal conditions for transiting Canal de Maracaibo after leaving the port, had been established about 3 miles WSW of the terminal, S of the channel between AS2 Light-buoy (10°21′·7N, 71°31′·4W) and AS6 Light-buoy, 1½ miles E.

3 Local knowledge of the positions of submarine cables is required before anchoring.

Submarine cables and pipelines cross the approach channels leading to the berths at La Salina Terminal. For further information on submarine pipelines see 1.14; for submarine cables see 1.42.

4 **Pilotage** is compulsory; for pilotage in Canal de Maracaibo see 8.125. It is the general practice for the pilot to conduct a vessel direct from Golfo de Venezuela to La Salina Terminal without relief at Puerto de Maracaibo.

The Docking Master embarks by tug or launch at the waiting anchorage or in the outer part of the approach channel to the piers.

5 **Tugs** are available and their use is compulsory for berthing and unberthing.

Regulation concerning entry. Ballast should be sufficient to permit the safe handling of a vessel.

Harbour

8.237

1 **General layout.** The oil loading terminal at La Salina consists of a rectangular island, from which piers extend SSW. The N end of the island is joined to the mainland by a narrow causeway. There is also an offshore loading pier 5 cables W of the island; submarine pipelines are laid from this pier to the island and the mainland.

2 **Current.** A current off the piers is generally NW–going with a rate of 2 kn.

Directions for entering harbour

(continued from 8.207)

8.238

1 From a position 1½ cables SE of B98 Light-buoy (10°22′·8N, 71°32′·0W), moored 3½ miles WSW of Punta Icotea, the track leads SSE for 1 mile, to a position close S of AS3 Light-buoy (10°22′·1N, 71°31′·3W), thence ESE, for a farther 1½ miles, to a position close S of AS7 Light-buoy (10°21′·5N, 71°30′·0W). The track then leads E and NE, for another 2 miles through a buoyed (lateral) channel, to a turning area off Piers No's 6 and 7.

2 An alternative channel leads from a position close E of AS7 Light-buoy, NE for 1½ miles to the S end of Pier No 3. However, it was reported in 1992 that this particular channel was no longer used.

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Berths

8.239

1 There are three cargo handling piers as follows:

Pier No 3, situated 5 cables W of the main terminal. It consists of a platform 183 m in length, with two mooring dolphins off each end. It contains two berths; the largest on the W side handles vessels up to 36 000 dwt, with a length of 210 m and a draught of 7·9 m.

2 Piers No's 6 and 7, projecting SSW from the SW side of the rectangular island. There are a total of four berths all of which can handle vessels up to 112 000 dwt, with a length of 274 m and a draught of 12·0 m. There is a depth of 10·3 m (33 ft) on the S side of Pier No 7, approximately 70 m from its root.

Port services

8.240

1 **Repairs:** limited emergency repairs are undertaken; minor repairs to radio and radar can be arranged with adequate prior notice.

Other facilities: ballast and slop reception; medical facilities.

2 **Supplies:** limited supply of fresh water; bunkers obtainable; fresh and dry provisions available at La Salina.

Communications. The nearest airport is La Chinita International Airport, outside the city of Maracaibo.

Bachaquero

Charts 1525, 1524 plan of Bachaquero

General information

8.241

1 **Position.** The small port of Bachaquero (9°57′N, 71°09′W) is situated on the E shore of Lago de Maracaibo, 32 miles SE of La Salina Terminal.

Function. The port is used for loading crude oil, discharging asphalt, and for general cargo.

Port Authority. Port Authority of Bachaquero, Apdo 19, Maraven SA, Maracaibo, Venezuela.

Limiting conditions

8.242

1 **Controlling depths.** See 8.123.

Deepest and longest berth. The deepest and longest berth is North Outer (8.246).

2 **Maximum size of vessel handled.** Vessels up to 20 000 dwt, with a length of 181 m and a draught of 10·4 m are handled.

Arrival information

8.243

1 **Outer anchorage.** Anchorage may be obtained on the S side of the navigation channel within an area extending 2¾ cables S and 5 cables W from a position 3½ cables SW of the pierhead at Bachaquero, as shown on Chart 1524. There is a mooring buoy in the NE corner of the anchorage. See also 8.227.

Pilotage is compulsory; see 8.125 and 8.226.

Tugs are available and are used for berthing.

Harbour

8.244

1 **General layout.** The port of Bachaquero contains a pier which extends 5½ cables SW from the shore; there are berths on each side of the pier. Two drilling platforms stand about 2¼ cables NNE and NE of the pierhead.

Development. It was reported in 1992 that the port was not in service and all its navigational aids had been removed.

Directions for entering harbour

(continued from 8.233)

8.245

1 From a position close N of AB8 Light-float (starboard hand) (9°55′·9N, 71°13′·7W) the alignment (082¾°) of the following leading lights leads ENE through the middle of the navigation channel to a turning area close SW of the pierhead:

2 Front light (four lights in the form of a diamond) (9°56′·6N, 71°09′·0W).

Rear light (similar structure) (6 cables from front light).

3 The inner part of the navigation channel and the edge of the turning area is marked by light-beacons.

Berths

8.246

1 There are four berths at the pier, two inner and two outer. The North Outer berth is the largest, being able to accommodate vessels up to 20 000 dwt, with a length of 181 m and a draught of 10·4 m.

Port services

8.247

1 **Repairs.** None available.

Other facilities: ballast reception; floating cranes with lifting capacities of 50, 60 and 400 tonnes; lighters up to 280 tonnes capacity; medical clinic at Bachaquero.

2 **Supplies:** bunkers not available; fresh water and provisions obtainable.

Communications: The nearest airport is La Chinita International Airport, outside the city of Maracaibo.

San Lorenzo

Charts 1525, 1524 plan of San Lorenzo

General information

8.248

1 **Position.** San Lorenzo (9°47′N, 71°04′W) is situated on the E shore of Lago de Maracaibo, 43 miles SE of La Salina Terminal.

Function. The terminal at San Lorenzo handles crude oil, refined products and general cargo.

2 **Traffic.** Six to seven tankers call at the terminal each month.

Port Authority. Maraven SA, San Lorenzo, Venezuela.

Limiting conditions

8.249

1 **Controlling depths.** See 8.123.

Arrival information

8.250

1 **Port radio.** There is a port radio station at San Lorenzo. For details see *Admiralty List of Radio Signals Volume 6 (5).*

Outer anchorage. Anchorage may be obtained, over a bottom of clay, abreast AL6 Light-float (9°43′·1N, 71°04′·7W). See also 8.227.

2 **Submarine cables and pipelines.** Two submarine cables and a submarine pipeline are laid across the navigation channel between a ½ cable and 4 cables SW from the head of the pier. Another submarine cable is laid 1½ cables SW from the shore close N of the main pier. For further information on submarine pipelines see 1.14; for submarine cables see 1.42.

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3 **Pilotage** is compulsory; see 8.125 and 8.226. The pilot from Puerto de Maracaibo hands over to the Berthing Master off the pier.

Tugs are available and their use is compulsory. The use of two tugs is necessary for vessels of more than 25 000 dwt.

Harbour

8.251

1 **General layout.** The port has a main pier, with dolphins, extending 4½ cables SW from the shore, off the head of which there is buoyed berth (8.253). A submerged jetty lies close NW of the middle of the main pier; a boat jetty stands close NW of the root of the main pier.

2 **Development.** It was reported in 1992 that the San Lorenzo Terminal was no longer in service and that all its navigational aids had been removed.

Directions for entering harbour

(continued from 8.233)

8.252

1 From a position close SE of AL5 Light-buoy (port hand) (9°46′·7W, 71°05′·1W) the alignment (050½°) of a pair of leading lights (9°47′·1N, 71°04′·1W), standing on the shore at San Lorenzo, leads NE through the middle of the navigation channel to a turning area off the head of the main pier.

2 The inner part of the navigation channel, including the turning area is marked by light-beacons.

Berth

8.253

1 Vessels berth at a conventional buoy mooring, which consists of four buoys moored off the head of the main pier; vessels berth heading S. Vessels with a maximum draught of 11·3 m (37 ft) (but see 8.123) and a maximum length of 213 m can be accommodated.

Port services

8.254

1 **Repairs.** Minor repairs can be effected.

Other facility. Ballast and slop reception available

Supplies: bunkers not available; fresh water obtainable.

2 **Communications:** The nearest airport is La Chinita International Airport, outside the city of Maracaibo.

Minor harbours

Chart 1525

Las Morochas

8.255

1 **Position.** Las Morochas (10°12′N, 71°20′W) is situated on the NE shore of Lago de Maracaibo.

Function. The port can handle vessels up to 22·86 m in length with draughts of 3·3 m.

2 **Moorings.** Six buoys are moored off the port in depths of more than 6·0 m (20 ft). They are used by barges and tugs.

La Ceiba

8.256

1 **Position.** La Ceiba (9°28′N, 71°04′W) is a small port situated on the SE side of Lago de Maracaibo.

Function. La Ceiba handles bulk cargoes such as coal, silica sand, salt, gypsum, chalk and fertilizers along with general cargo and containers; coffee and plantains are exported.

2 **Port Authority.** Caetania de Puerto de La Ceiba, Delegacion Maritima La Ceiba, La Ceiba, Estado Trujillo, Venezuela.

Maximum size of vessel handled. Vessels up to 180 m in length are berthed at the port.

Pilotage is compulsory; see 8.125 and 8.226.

Tugs. Available from Puerto de Maracaibo (8.174).

3 **Directions.** Vessels approach from the W leaving the marked navigation channel, as shown on the chart, close N of M16A Light-float (9°27′·2N, 71°17′·5W) and enter the port through a buoyed channel, dredged to a depth of about 9·0 m (30 ft). The alignment (100°) of leading lights (9°28′N, 71°04′W), standing on the shore at La Ceiba, lead through the buoyed channel.

4 **Berth.** The port has one pier, 195 m long, with a depth of 10.6 m.

Charts 1525, 1524 plan of Coloncha

Coloncha

8.257

1 **Position.** Coloncha (9°12′N, 71°45′W), an oil terminal, is situated on the SW side of Lago de Maracaibo. Two submarine pipelines extend 1¼ miles E and 4 miles ENE from the terminal to platforms.

Function. Petroleum is loaded at the terminal. It was reported in 1988 that the terminal was closed.

2 **Anchorage.** Vessels may anchor off Coloncha; for restrictions see 8.227.

Directions. Vessels approach the loading berth from the N, leaving the marked navigation channel, as shown on the chart, SSE of M9 Light-float (9°29′·5N, 71°41′·3W). The track leading to the terminal is marked by AO1 Light-float, moored 11 miles N of the E platform (9°13′·2N, 71°41′·4W), and by AO2 Light-float 2½ miles E of this platform.

3 **Useful marks:**

Lights exhibited from the two platforms at the terminal.

Berth. The terminal has an offshore loading berth, situated close E of the E platform, consisting of four mooring buoys; there are depths of 10·7 m (35 ft) at the berth. Tankers are berthed heading N.

Small craft

Chart 1525

Tía Juana

8.258

1 **Description.** The harbour of Tía Juana (10°15′N, 71°22′W) is situated on the NE side of Lago de Maracaibo. It is used mainly by boats, tugs and barges and for the movement of personnel.

Berths. The harbour contains a dock 500 m long, with a pier extending 70 m into Tía Juana Bay. There are depths of 4·5 m (15 ft) in the vicinity of the berths.

2 **Repairs.** Tía Juana has a repair shop for boats along with water pumps and fire fighting equipment.

Supplies. Fuel and fresh water available.

Lagunillas

8.259

1 **Description.** Lagunillas (10°07′, 71°16′W) is situated on the E side of Lago de Maracaibo. The harbour is used for the movement of personnel and the handling of boats and tugs.

Berths. There is a quay, 433 m long, at Lagunillas; a pier extends 94 m from it into the lake.

2 **Repairs.** The harbour has a repair shop.

Supplies. Fuel and fresh water available.

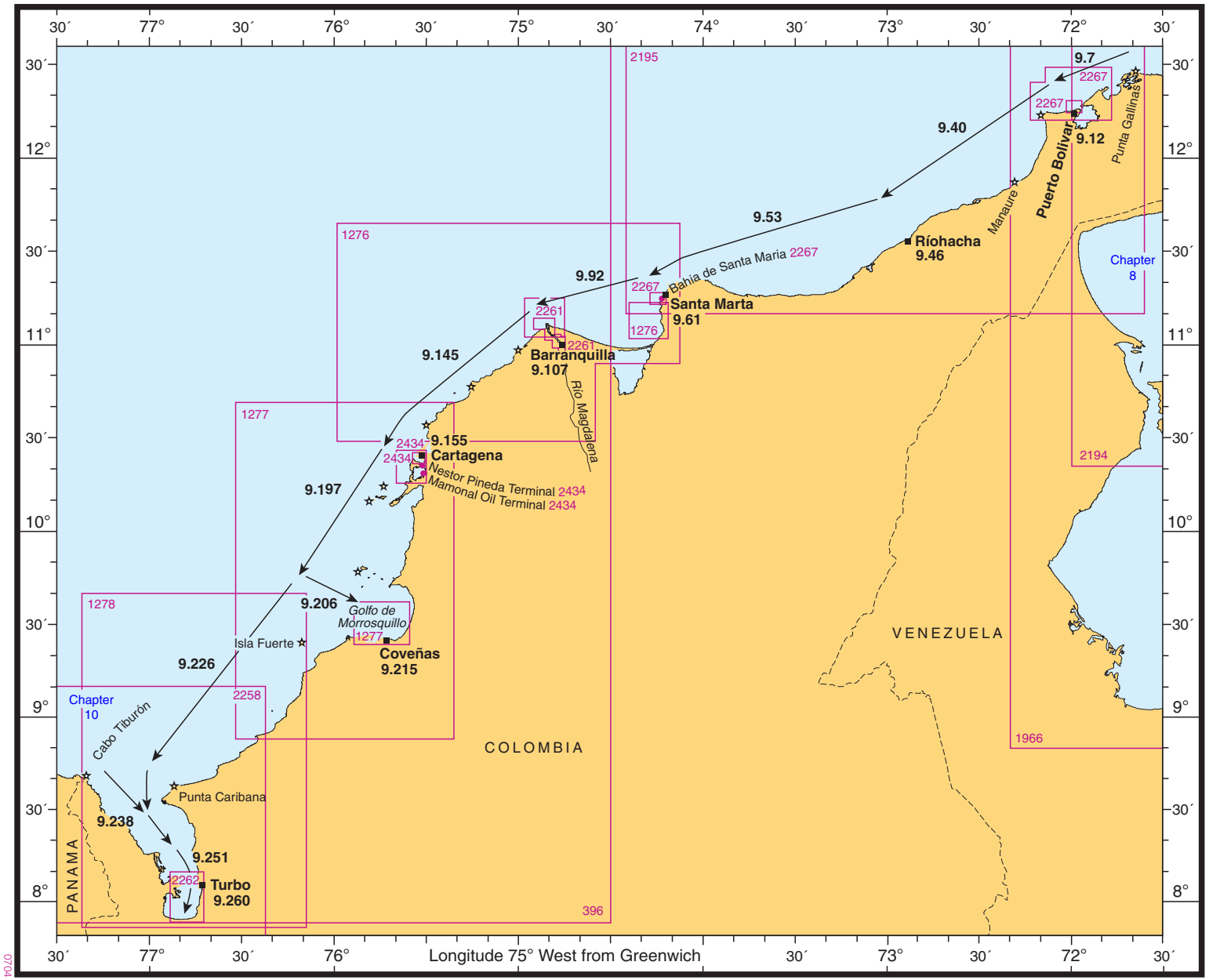
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Chapter 9 - Colombia - Punta Gallinas to Cabo Tiburón



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CHAPTER 9

COLOMBIA — PUNTA GALLINAS TO CABO TIBURÓN

GENERAL INFORMATION

Charts 2195, 1276, 396

Scope of chapter

9.1

1 This chapter describes the Caribbean coastal waters of Colombia from Punta Gallinas (12°28′N, 71°40′W) to Cabo Tiburón (8°41′N, 77°21′W), 406 miles SW. The chapter is arranged as follows:

Punta Gallinas to Río Magdalena (9.5).
Río Magdalena to Golfo de Urabá (9.143).
Golfo de Urabá (9.234).

Topography

9.2

1 The coast of Colombia W of Península de La Guajira (8.115) is generally low and sandy except in the vicinity of Cabo de San Juan de Guía (11°21′N, 74°00′W) and Cabo Tiburón; few natural features are readily identifiable. The only really prominent landmark is Sierra Nevada de Santa Marta (9.55), a range of mountains 25 miles S of Cabo San Agustin (11°16′N, 73°36′W).

Pilotage

9.3

1 Pilotage for Colombian ports is compulsory for vessels more than 250 nrt. The pilot must be requested at least 48 hours in advance.

All Colombian ports are open 24 hours a day.

Rescue

9.4

1 For information on search and rescue services for Colombian Caribbean coastal waters see 1.65.

PUNTA GALLINAS TO RÍO MAGDALENA

GENERAL INFORMATION

Charts 2195, 1276

Area covered

9.5

1 This section covers the coastal waters of Colombia from Punta Gallinas (12°28′N, 71°40′W) to Río Magdalena, 204 miles SW. The section is arranged as follows:

Punta Gallinas to Puerto Bolivar (9.7).
Puerto Bolivar (9.12).
Puerto Bolivar to Ríohacha (9.40).
2 Ríohacha to Bahía de Santa Marta (9.53).
Santa Marta (9.61).
Bahía de Santa Marta to Río Magdalena (9.92).
Puerto Barranquilla and Río Magdalena (9.107).

Current

9.6

1 The current off the N coast of Colombia sets generally ENE and NE, being a continuation of the E–going Caribbean Counter-current, and has rates from ½ to 1½ kn. Between the mouth of Río Magdalena (11°07′N, 74°51′W) and Cabo de La Vela, 172 miles NE, the current turns N, then W, as it joins the main W–going Equatorial Current. See also 1.142.

PUNTA GALLINAS TO PUERTO BOLIVAR

General information

Charts 2195, 2267

Route

9.7

1 From a position about 8 miles N of Punta Gallinas (12°28′N, 71°40′W) the route leads SW, for about 26 miles, to a position about 8 miles NW of Punta Coco (12°16′N, 71°57′W) in the outer approaches to Puerto Bolivar (9.12).

Topography

9.8

1 Between Punta Gallinas and Punta Aguja, 5 miles SW the coast is low; thence it is rocky, with cliffs up to 14 m high, to the entrance point of Bahía Hondita. Between Punta Aguja and Punta Cañon the coast is irregular in shape being indented by Bahía Hondita and Bahía Honda; Bahía Hondita is a shallow bay of no navigational importance. Between Punta Cañon and Punta Coco, 10 miles SW, the coast is low and sandy.

Principal marks

9.9

1 **Major lights:**

Punta Gallinas Light (12°28′N, 71°40′W) (8.11).
Punta Media Luna Light (12°15′N, 71°58′W), exhibited from the N side of Puerto Bolivar (9.12).
Cabo de La Vela Light (post on concrete base) (12°13′N, 72°10′W).

Directions

(continued from 8.13 and 8.14)

9.10

1 **Caution.** Small vessels should keep not less than 2 miles offshore, especially in the vicinity of Bahía Honda, where shoals, with depths of 5·5 m over them lie up to 1 mile off the NW side of Punta Cañon.

Track. From a position about 8 miles N of Punta Gallinas (12°28′N, 71°40′W) the track leads SW, passing (with positions relative to Punta Gallinas):

2 NW of the coast (9.8) lying between Punta Gallinas and Punta Aguja, 5 miles SW, thence:
NW of Punta Cañon (10 miles SW) (9.11), the W entrance point of Bahía Honda; numerous rocky shoals fringe the seaward side of this point. Thence:
3 NW of an unnamed point (13 miles SW). Between this point and Punta Coco, 7¾ miles SW, mariners are advised not to navigate within the 30 m depth contour due to incomplete surveys.

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4 The track then leads to a position about 8 miles NW of Punta Coco (20¼ miles SW), the NE entrance point of Bahía de Portete; the point is backed by a prominent rocky hill 18 m high.

(Directions continue, for Puerto Bolivar at 9.33, and for the coastal route SW at 9.45)

Minor bay

Bahía Honda

9.11

1 **Description.** Bahía Honda (12°21′N, 71°47′W) is entered between Punta Soldado and Punta Cañon, 2¾ miles WSW. Punta Soldado is rocky and 24 m high, with hills 1 mile E of it rising to 28 m. Punta Cañon is bordered by very steep cliffs and rises to prominent hillocks up to 37 m high which are easily identified from seaward.

2 The E shore of Bahía Honda is low and sandy; it is constantly changing, and rapid shoaling is caused in the E part of the bay due to strong winds and shifting sand.

Directions. There are no specific directions for entering or navigating within Bahía Honda, but attention is drawn to Banco Boca lying close W of the entrance fairway. Banco Boca is a rocky patch on which there are two heads, with depths of 2 m or less over them; it can be seen even in a smooth sea.

3 **Useful mark:**

White custom house standing near the edge of the cliff at Punta Soldado.

Anchorages. Vessels can anchor as convenient in the E part of Bahía Honda; the SW part is open to the swell and not safe. Anchorage may also be obtained off the entrance to the bay about 1 mile NW of Punta Soldado, in depths from 12 to 13 m, over a bottom of sand and gravel; this berth is better sheltered from the strong E winds which constantly sweep the bay.

PUERTO BOLIVAR

General information

Chart 2267, plans of Approaches to Puerto Bolivar and Puerto Bolivar

Position

9.12

1 Puerto Bolivar (12°15′N, 71°58′W) is situated on the NE coast of Colombia, in the entrance to Bahía de Portete; the bay is almost landlocked.

Function

9.13

1 The port is used as the main outlet for Colombian coal, with 18 million tonnes being exported annually; this is expected to rise to about 41 million tonnes in 2003.

Approach and entry

9.14

1 Puerto Bolivar is approached from the NW and entered through a 2 mile long buoyed channel, 225 m wide, along an entrance leading line. The channel enters Bahía de Portete between Punta Coco (12°16′N, 71°57′W) and Punta Media Luna, a cliffy point 1 mile SSW, and leads to a turning basin E of Punta Media Luna.

Traffic

9.15

1 In 1997 the port was used by 402 vessels with a total of 14 727 043 dwt.

Port Authority

9.16

1 Port Authority of Puerto Bolivar, Apdo 29740, Carbones de Colombia SA, Carrera 7, 31–10 piso 5, Bogatá, Colombia.

Limiting conditions

Controlling depths

9.17

1 There is a least charted depth of 16·7 m in the entrance channel and a least charted depth of 9·2 m in the turning basin.

Deepest and longest berth

9.18

1 Coal pier (9.34).

Density of water

9.19

1 The density of the water is 1·025 g/cm^3.

Maximum size of vessel handled

9.20

1 Vessels up to 190 000 dwt, with a length of 300 m and a beam of 45 m are handled. The maximum permitted arrival draught for the entrance channel and turning basin is 9·0 m; the maximum permitted departure draught is 17·0 m.

Arrival information

Port operations

9.21

1 Vessels over 100 000 dwt are not allowed to berth at night, but may unberth at any time.



Puerto Bolivar – Coal Pier from E (9.12)

(Original dated 1998)

(Photograph – Crown Copyright)

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Port radio
9.22

1 There is a port radio station at Puerto Bolivar. For details see *Admiralty List of Radio Signals Volume 6 (5).*

Notice of ETA required
9.23

1 Vessels should send an ETA 72, 48 and 24 hours prior to arrival. For further details see *Admiralty List of Radio Signals Volume 6 (5).*

Outer anchorages
9.24

1 Anchorage areas are as follows (with positions relative to Punta Media Luna (12°15′·4N, 71°57′·7W)):

Waiting anchorage (2½ miles WNW). There are depths from 5 to 36 m in the anchorage.

2 Quarantine anchorage (5½ miles W). The anchorage has depths from 20 to 50 m in it.

Pilotage
9.25

1 Pilotage is compulsory. The pilot normally boards from a tug 2½ miles NW of No 1 Light-buoy (12°17′·3N, 71°58′·6W). For further details see *Admiralty List of Radio Signals Volume 6 (5).*

Tugs
9.26

1 Tugs are available and their use is compulsory. They are used to assist large vessels in ballast to transit the entrance channel, and for turning them off the berths.

Regulations concerning entry
9.27

1 Entry to the port area of Puerto Bolivar is restricted. Permission should be obtained from the port authority before proceeding to the anchorages and the cargo berths.

2 Fishing is prohibited in the entrance channel leading to Puerto Bolivar.

Harbour

General layout
9.28

1 The port consists of a coal pier, situated on the E side of Punta Media Luna (12°15′·4N, 71°57′·7W), and a commodities pier, extending N from the S entrance of the cove S of Punta Media Luna. A turning area, the limits of which are marked by light-buoys, lies E of the berths.

Development
9.29

1 It was reported in 2000 that a second coaling pier was to be built and be operational by 2003; similar size and construction to the present coal pier.

Natural conditions
9.30

1 **Current.** A SW–going current has been reported in the entrance channel for Puerto Bolivar.

Local weather. The prevailing wind is from NE or ENE. The wind is light in the morning, but may increase to force 6 by the evening.

Principal marks
9.31

1 **Major lights:**

Punta Media Luna Light (12°15′N, 71°58′W).

Cabo de La Vela Light (12°13′N, 72°10′W) (9.9).

Other aid to navigation
9.32

1 **Racon:**

No 1 Light-buoy (12°17′·3N, 71°58′·6W).

For further details see *Admiralty List of Radio Signals Volume 2.*

Directions for entering harbour
(continued from 9.10)

9.33

1 From a position about 8 miles NW of Punta Coco (12°16′N, 71°57′W) the track leads SE, passing clear of Puerto Bolivar Light-buoy (safe water) (12°18′·3N, 71°59′·2W), to the beginning of the following entrance leading line, 2½ miles NW of Punta Coco:

Front light (white tower) (12°15′·2N, 71°57′·3W).

Rear light (similar structure) (615 m from front light).

2 The alignment (147°) of these lights leads through the entrance channel, marked by pairs of numbered light-buoys (lateral), to the turning basin off Punta Media Luna, from where the berths are directly accessible.

3 **Useful marks:**

Punta Lálata Light (tower) (12°15′·4N, 71°58′·2W)

Light (tower) (12°15′·5N, 71°57′·7W) exhibited from the N end of the coal pier at Punta Media Luna.

Berths
9.34

1 Puerto Bolivar contains the following berths:

Coal Pier situated at Punta Media Luna (12°15′·4N, 71°57′·7W); the pier is T–shaped with an outer berthing face 340 m long. Vessels berth port side too.

2 Commodities Pier, 3½ cables SSE of the coal pier. The pier is 286 m long with a width of 30 m; vessels with draughts up to 9·0 m can berth alongside. At the root of the pier on the W side there is a Ro-Ro berth; maximum draught alongside 5·0 m.

Port services

Repairs
9.35

1 There are no facilities for repairs.

Other facilities
9.36

1 Limited medical facilities; garbage reception facilities available.

Supplies
9.37

1 None available.

Communications
9.38

1 There is a local airport 3 km SSW of Puerto Bolivar. The nearest international airport is at Barranquilla, 326 km distant.

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Puerto Bolivar – Commodities Pier from NNW (9.34)

(Original dated 1998)

(Photograph – Crown Copyright)

Harbour regulations

9.39

1 Shore leave is not permitted, a vessel's engines must be in state of readiness to enable a vessel to leave within 1 hour; fishing is prohibited from the side of the ship or from the wharf.

PUERTO BOLIVAR TO RÍOHACHA

General information

Charts 2195, 2267

Route

9.40

1 From a position about 8 miles NW of Punta Coco (12°16′N, 71°57′W), in the outer approaches to Puerto Bolivar (9.12), the coastal route continues SW, for 68 miles to a position about 15 miles NNW of Ríohacha Light (11°33′N, 72°56′W).

Topography

9.41

1 From Puerto Bolivar (12°15′N, 71°58′W) the coast trends about 10½ miles WSW to Cerro Pilón de Azúcar, a very sharp, well defined, rocky hill, rising close to the coast to a height of 81 m. Thence the coast trends about 3 miles SW to the W extremity of Cabo de La Vela (12°13′N, 72°10′W); this part of the coast is rocky and is bordered by a bank.

2 The coast from Cabo de La Vela to Ríohacha, 60 miles SW, is very low and almost devoid of distinguishing features; Punta Castilletes, lying 24 miles SSW of the cape, can only be identified by a large clump of mangroves on it.

Cerritos del Carrizal (11°55′N, 72°05′W), with three peaks, and Cerrito de Los Remedios, standing 4½ miles SW of them, are the only hills backing the coast between Cabo de La Vela and Ríohacha.

Marine exploitation

9.42

1 Chuchupa Gasfield (11°48′N, 72°48′W) containing two production platforms, is situated 15 miles NNE of Ríohacha, within a restricted area, the limits of which are shown on the chart. Lights are exhibited from the platforms and four buoys, marking a safety area, are moored around each one. A gas pipeline is laid from the SE–most platform, Chuchupa A, to the shore.

2 For further information on oil and gasfields see 1.13; for submarine pipelines see 1.14.

Current

9.43

1 Off Cabo de La Vela (12°13′N, 72°10′W), the current is reported to be N–going due to the re-curvature of water of the E–going Caribbean Counter-current into the W–going Equatorial Current.

Principal marks

9.44

1 **Major lights:**

Cabo de La Vela Light (12°13′N, 72°10′W) (9.9).

Manaure Light (red tower, white bands, 21 m in height) (11°47′N, 72°26′W).

2 Ríohacha Light (white and red tower, 30 m in height) (11°33′N, 72°56′W).

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Directions

(continued from 9.10)

9.45

1 From a position about 8 miles NW of Punta Coco (12°16′N, 71°57′W) the track leads SW, passing (with positions relative to Cabo de La Vela (12°13′N, 72°10′W)):

Clear of a patch (9 miles NNW) reported in 1968 to have a depth of 5·9 m over it; its position is approximate. Thence:

2 NW of Cabo de La Vela, from which a light (9.9) is exhibited. Cabo de La Vela is faced on its N side by very steep cliffs; some prominent hills up to 79 m high stand on it. From a distance of 7 to 8 miles, the cape appears as a number of small islands. Cabo de La Vela is reported to be a good radar target at distances up to 21 miles. And:

3 NW of Cayo El Morro (3 cables W), a round islet lying off the W side of Cabo de La Vela; the islet is steep-to on its W side. The S side of Cabo de La Vela is low and sandy. The land immediately within the cape is very low and barren, but rises 6 miles SE of it to Serrania de Carpintero, 204 m high. An isolated patch, with a depth of 9·1 m over it, lies 5 cables NW of Cayo El Morro. Thence:

4 SE of a patch (16¼ miles WNW) reported in 1960 to have a depth of 14·5 m over it; its position is approximate. Thence:

NW of Chuchupa B Platform (45 miles SW) standing in a restricted area (9.42); a light is exhibited from the platform.

5 The track then leads to a position about 15 miles NNW of Ríohacha Light (11°33′N, 72°56′W) (9.44).

Useful mark:

Statue (white, 6 m in height) standing on Cerro Pilón de Azúcar (12°14′N, 72°08′W) (9.41).

(Directions continue for the coastal route at 9.57)

Ríohacha

General information

9.46

1 **Position.** The port of Ríohacha (11°33′N, 72°55′W) is situated near the mouth of Río Rancheria, 60 miles SW of Cabo de La Vela.

Function. The port is mainly used by tugs and small craft servicing the Chuchupa gas extraction platforms (9.42). The city of Ríohacha, the capital of the Department of Guajira, had a population of about 115 000 in 1999.

Limiting conditions

9.47

1 **Depths** of 5·0 m are found about 1½ miles off Ríohacha and of 18·0 m about 9 miles offshore.

2 **Tidal levels.** Mean maximum range about 0·3 m; mean minimum range about 0·1 m. For further information see the *Admiralty Tide Tables.*

Arrival information

9.48

1 **Submarine cables.** Two submarine cables, the positions of which are shown on the chart, land at Ríohacha. Mariners should not anchor or trawl in the vicinity of these cables. For further information on submarine cables see 1.42.

Directions for entering harbour

9.49

1 There are no specific directions for approaching Ríohacha. However, the town can be identified when nearly abreast of it by a water tower and church, and by some dark wooded land, higher than the adjacent ground, on the opposite bank of the river to the town.

2 **Useful mark:**

Light (metal framework tower, 2 m in height) exhibited from the head of the wharf at Ríohacha.

Berths

9.50

1 **Anchorages.** A designated general anchorage and a quarantine anchorage, shown on the chart, are established about 4½ miles N and 5 miles NW, respectively, of Ríohacha. Vessels using the anchorages between December and May will be subjected to a heavy swell which sets in during this period. Cargo is handled by lighters at the general anchorage.

Alongside berth. There is a wooden wharf, 290 m long, at Ríohacha. The wharf is not suitable for the handling of cargo but may be used for mooring vessels alongside with draughts of less than 3·4 m.

Anchorages and minor harbour

Cabo de La Vela

9.51

1 Anchorage, sheltered to some extent from NE winds, may be obtained in depths of 13 m, over a bottom of sand, S of Cabo de La Vela, with Cayo El Morro (12°12′·4N, 72°11′·2W) bearing 002°, distant about 2 miles.

Another anchorage, which is well sheltered, is situated about 5 cables S of the islet in depths from 12 to 16 m, over a bottom of sand and shell; at this anchorage care needs to be taken to avoid a dangerous wreck, the position of which is approximate, lying 1 mile S of Cayo El Morro.

Manaure

9.52

1 **Description.** The harbour of Manaure (11°47′N, 72°26′W) is situated 30 miles SSW of Cabo de La Vela. Manaure produces salt from evaporation ponds situated W of the harbour. The harbour should be approached carefully from the NW as there are depths of less than 5·0 m, 5 miles from the coast, and the area is incompletely surveyed.

2 **Major light:**

Manaure Light (9.44).

Berth. There is a wharf at Manaure, 35 m long and 2 m wide; vessels with draughts up to 4·3 m can berth alongside and load directly. For larger ships a conveyor belt on the wharf is used to load salt into lighters which in turn are towed to the anchorage approximately 3 miles offshore.

3 **Supplies.** Provisions, fresh water and fuel are unobtainable.

RÍOHACHA TO BAHÍA DE SANTA MARTA

General information

Charts 2195, 2267

Route

9.53

1 From a position about 15 miles NNW of Ríohacha Light (11°33′N, 72°56′W) the coastal route leads initially WSW, across open water for 75 miles, to a position NNW of Isla

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de la Aguja (11°19′N, 74°12′W). The route then leads SW, for a farther 8 miles, to a position in the approaches to Bahía de Santa Marta, about 8 miles NW of Punta Gaira (11°13′N, 74°15′W) (Punta de Gaira on Chart 2267).

Topography

9.54

1 From the mouth (11°33′N, 72°55′W) of Ríohacha the coast trends about 28 miles SW to Dibulla. Punta Maria Angola and Punta de Ocho Palmas are situated about 4 and 7 miles WSW of Ríohacha. Punta Caricare, about 16 miles SW of Ríohacha and fronted by Bajo Navío Quebrado, separates the entrances of Laguna de Navío Quebrado and Laguna Grande. Río Camarones discharges into Laguna de Navío Quebrado, and the village of Camarones lies on its E bank about 2 miles from the mouth.

2 From Dibulla (11°17′N, 73°19′W) the coast trends about 39 miles W to Cabo San Juan de Guía. Cabo San Agustin is situated about 15½ miles W of Dibulla and about 25 miles S of it rises Sierra Nevada de Santa Marta (9.55). La Mesa is a very prominent flat-topped hill, standing about 2 miles inland and about 3½ miles SW of Cabo San Agustin.

3 From Cabo San Juan de Guía (11°20′N, 74°00′W) to Cabo de la Aguja the coast is irregular being indented by several coves, known collectively as Los Ancones (9.59). They are separated by headlands, which rise to high bold rugged hills.

Principal marks

9.55

1 **Landmark:**

Sierra Nevada de Santa Marta (not charted), a range of snow-topped mountains 25 miles S of Cabo San Agustin (11°16′N, 73°36′W); it has two sugar-loaf shaped peaks, the loftier of which is Pico Bolívar, 5684 m (18 648 ft) high, and is nearly always visible above the clouds.

2 **Major lights:**

Ríohacha Light (11°33′N, 72°56′W) (9.44).

Isla El Morro Light (white and grey tower) (11°15′N, 74°14′W) exhibited from the summit of the islet.

Other aid to navigation

9.56

1 **Racon:**

Isla El Morro Light (11°15′N, 74°14′W).

For further details see *Admiralty List of Radio Signals Volume 2*.

Directions

(continued from 9.45)

9.57

1 From a position about 15 miles NNW of Ríohacha Light (11°33′N, 72°56′W) the track leads initially WSW, passing (with positions relative to Cabo San Juan de Guía (11°20′N, 74°00′W)):

NNW of an isolated patch (50 miles ENE), with a depth of 9·8 m over it. Between this patch and the coast lies Five Fathom Elbow (not named on chart), with depths of less than 10·0 m over it; the bank, which extends 8½ miles NW from Punta de Ocho Palmas (not named on chart), should be avoided as it has been insufficiently surveyed and less depths than charted may exist. Thence:

2 NNW of a dangerous wreck (18 miles ESE), which shows two masts above-water; it lies 2½ miles N of Punta de Don Diego. A patch, the existence of which is doubtful, with a depth of 15·0 m over it, lies 1¼ miles W of the dangerous wreck. Thence:

NNW of Cabo San Juan de Guía, reported to be a good radar target at distances up to 27 miles, thence:

3 NNW of Punta de Nenguange (6¼ miles W), one of a succession of headlands lying between Cabo San Juan de Guía and Cabo de la Aguja, 12 miles WSW. The headlands, when first sighted from W, appear as several islands. Thence:

NNW of Isla de la Aguja (12½ miles W), an islet which lies close N of Cabo de la Aguja; the passage between them is fouled by rocks, two of which are above-water. Two above-water rocks lie close together NNW of Isla de la Aguja and another rock, the highest, lies close off the W side of the islet.

4 The track then leads SW to a position about 8 miles NW of Punta Gaira (16 miles SW), a bluff point.

Useful mark:

Monument (11°15′·3N, 74°13′·0W) at Santa Marta

(Directions continue, for Santa Marta at 9.83, and for the coastal route WSW at 9.97)

Anchorages and coves

Dibulla

9.58

1 Anchorage can be obtained off the small town of Dibulla (11°17′N, 73°19′W), 28 miles SW of Ríohacha. Vessels ride more easily here than off Ríohacha, and landing is easier.

Los Ancones

9.59

1 Los Ancones, the coves between Cabo San Juan de Guía (11°20′N, 74°00′W) and Cabo de la Aguja, are clear of dangers and afford good shelter.

Local knowledge is required.

Puerto de Taganga

9.60

1 Puerto de Taganga (11°16′N, 74°12′W), a cove close N of Bahía de Santa Marta, is flanked by high and cliffy land. Depths of more than 18 m extend to within 3½ cables of the head of the cove, where stands the village of Taganga.

SANTA MARTA

General information

Charts 1276, 2267 plan of Approaches to Bahía de Santa Marta and plan of Bahía de Santa Marta

Position

9.61

1 The port of Santa Marta (11°15′N, 74°13′W) is situated in a cove, forming an inner harbour, on the NE side of Bahía de Santa Marta.

Function

9.62

1 Santa Marta is a small commercial port importing grain and general cargoes; bananas and bagged coffee are exported. The city of Santa Marta, with a population of about 343 000 in 1991, is the capital of the Department of Magdalena. Simon Bolivar, the liberator, died here in 1830.

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Santa Marta – approach from NW (9.61)

(Original dated 2003)

(Photograph – Crown Copyright)

Topography
9.63

1 The town of Santa Marta stands on a plain backing the shore of Bahía de Santa Marta, with hills rising steeply to the N and S.

Approach and entry
9.64

1 Bahía de Santa Marta is approached from the W and entered between Isla El Morro (11°15′N, 74°14′W) and Punta Gaira (Punta de Gaira on Chart 2267), 1¾ miles SSW.

Traffic
9.65

1 In 1997 the port was used by 1002 vessels with a total of 20 479 430 dwt.

Port Authority
9.66

1 **Address.** Sociedad Portuaria Regional de Buenaventura SA, Av Portuaria, Edif Administracion, piso 3, Buenaventura, AA 478–10785, Colombia.

Website: www.puertodesantamarta.com.

Limiting conditions

Deepest and longest berth
9.67

1 The deepest berth is No 6 (9.87); the longest berth is No 4 (9.87).

Tidal levels
9.68

1 Mean maximum range about 0·3 m; mean minimum range about 0·1 m. For further information see the *Admiralty Tide Tables.*

Density of water
9.69

1 The density of the water is 1·025 g/cm^3.

Maximum size of vessel handled
9.70

1 Vessels up to 222 m in length and with a draught of 12·2 m are handled.

Arrival information

Port radio
9.71

1 There is a port radio station at Santa Marta. For further details see *Admiralty List of Radio Signals Volume 6 (5).*

Notice of ETA required
9.72

1 ETA should be sent 72 and 24 hours prior to arrival. For further details see *Admiralty List of Radio Signals Volume 6 (5).*

Outer anchorage
9.73

1 Good anchorage may be obtained in Bahía de Santa Marta, within the marked area shown on the chart, in depths from 38 to 51 m. Although the bay affords some shelter from the strong North-east Trade Winds, vessels should still veer a good scope of cable due to the winds, depth and shelving bottom. Care should be taken to ensure that vessels will swing clear of Banco Pobea (9.83) if the wind shifts.

Submarine cable
9.74

1 A submarine cable is laid from a position on the shore 3 cables NE of Punta San Fernando (11°13′·9N, 74°13′·5W) in a SW direction passing 4 cables WNW of Punta Gaira. For further information on submarine cables see 1.42.

Pilotage
9.75

1 Pilotage is compulsory and available 24 hours. The pilot boards 4 cables SSW of Isla El Morro (11°15′N, 74°14′W) or within the anchorage area. For further details see *Admiralty List of Radio Signals Volume 6 (5).*

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Santa Marta – Isla El Morro Light from WNW (9.81)
(Original dated 2003)

(Photograph – Crown Copyright)

Tugs
9.76

1 Tugs are available.

Regulations concerning entry
9.77

1 **Speed.** Vessels are limited to a speed of 6 kn in Bahía de Santa Marta and a speed of 2 kn off the quays.

Fishing is prohibited in the navigational channels leading to the port of Santa Marta.

Harbour

General layout
9.78

1 The berthing areas for the port of Santa Marta are situated around the shores of the cove on the NE side of Bahía de Santa Marta.

Development
9.79

1 In 1997 work was being carried out to develop the area between No's 5 and 6 berths on the NW side of the port of Santa Marta.

Local weather
9.80

1 The prevailing North-east Trade Winds are gusty over the bay after passing over the hills. Between March and December, a local wind blows from SW between the hours of 1000 and 1300, and extends from 2 to 3 miles offshore.

Principal marks
9.81

1 **Landmarks for identifying Bahía de Santa Marta:**

White cliffs, which are prominent and visible at a distance of 10 or 12 miles, near Taganga (11°16′N, 74°11′W); no other similar cliffs exist on this part of the coast.

Hill 195 m high, standing 5 cables E of Punta Gaira (11°13′N, 74°15′W), and the W of several peaks rising to 275 m.

2 Cerro San Quemado or Pico de Santa Marta (11°07′N, 74°02′W) (not charted), the highest peak at the S end of the range backing the port; it is useful when cloud obscures the higher summits SE of it.

Sierra Nevada de Santa Marta (9.55) (not charted), about 40 miles SE of the port.

3 **Landmarks for closer approach:**

Isla El Morro (11°15′N, 74°14′W) (9.83).

Monument (11°15′·3N, 74°13′·0W) standing close N of No 5 Berth at Santa Marta.

Silo (11°15′·1N, 74°12′·8W).

Crane (11°14′·9N, 74°12′·9W) at No 1 Berth at Santa Marta.

Major light:

Isla El Morro Light (11°15′N, 74°14′W) (9.55).

Other aid to navigation
9.82

1 **Racon:**

Isla El Morro Light (11°15′N, 74°14′W).

For further details see *Admiralty List of Radio Signals Volume 2*.

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Santa Marta – monument on N side of harbour (9.81)

(Original dated 2003)

(Photograph – Crown Copyright)

Directions for entering harbour

(continued from 9.57)

Main approach and entry

9.83

1 From a position about 8 miles NW of Punta Gaira (11°13′N, 74°15′W) the track leads 7 miles SE to a position about 4 cables SW of Isla El Morro (11°15′N, 74°14′W), which is a precipitous islet and from which a light (9.55) is exhibited. Rocky ledges extend up to ½ cable from the W and SE sides of the islet; above-water rocks stand on the W ledge. The only landing place is S of the light.

2 The track then leads E for a short distance and thence NE into the harbour, passing NW of Banco Pobea, with depths of less than 5·0 m over it, extending 3 cables from the E shore of Bahía de Santa Marta. The edge of the bank is marked by two light-buoys.

3 **Useful marks:**

Monument (11°14′·5N, 74°12′·1W).
Water tower (11°14′·0W, 74°12′·5W).
Water tower (11°14′·0N, 74°13′·1W).

Side channel

9.84

1 Bahía de Santa Marta may also be approached from the N and entered through the channel between Morro Chico, a conical rocky islet 1½ cables NW of Punta Betín (11°15′·0N, 74°13′·2W), and Isla El Morro, 3½ cables W.

Small craft channel

9.85

1 A channel, only suitable for small craft, lies between Morro Chico and the mainland; it has a least charted depth of 5·0 m where it is narrowed by a spit, with depths of 3·7 m over it, extending ½ cable SE from the islet.

Berths

Carboandes Anchorage Coal Terminal

9.86

1 This consists of an anchorage berth, in the outer anchorage (9.73), where vessels are loaded with coal, using a floating crane, from barges. Vessels up to 300 m in length, with a beam of 40 m are handled. The maximum arrival draught is 20 m, with a maximum height from waterline to hatch coaming of 14 m; no draught restriction for departure.

Alongside berths

9.87

1 The harbour contains seven numbered berths, the details of which are shown on the chart. The deepest and longest berths are as follows:

Deepest berth. No 6, situated on the NW side of the harbour; depth 18·3 m.

Longest berth. No 4, situated at the head of the harbour; length 240 m.

Port services

Repairs

9.88

1 Only minor repairs carried out.

Other facilities

9.89

1 Hospital; Deratting and Deratting Exemption Certificates issued; no oily waste reception facilities; no garbage disposal facilities.

Supplies

9.90

1 Fuel oil supplied by road tanker; fresh water and provisions available.

Communications

9.91

1 There is an airport, 22 km S of Santa Marta; it provides scheduled services to Barranquilla and Bogatá, where there are international airports.

BAHÍA DE SANTA MARTA TO RÍO MAGDALENA

General information

Chart 1276

Topography

9.92

1 The unnamed bay between Bahía de Santa Marta and the entrance to Río Magdalena recedes about 14 miles to Ciénaga Grande de Santa Marta. The shore of the bay is hilly for 13 miles S of Punta Gaira (11°13′N, 74°15′W) to the town of Ciénaga; the town of Gaira stands 2 miles SSE of Punta Gaira and 5 cables inland. From Ciénaga to Río Magdalena the S shore is low, with no identifiable features.

Depths

9.93

1 The coastline between Boca de la Ciénaga (11°00′N, 74°17′W) and the entrance to Río Magdalena, 34 miles WNW, is under constant change. Mariners are advised to use caution when navigating near the coast as the charted depths may be inaccurate.

Submarine cable

9.94

1 A submarine cable is laid from the E shore of Bahía de Santa Marta to a position in the vicinity of 11°01′N,

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74°37′W, on the SW side of the large unnamed bay. It passes 4 cables WNW of Punta Gaira and thence through the approaches to Puerto Zúñiga. For further information on submarine cables see 1.42.

Principal marks

9.95

1 **Landmark:**
Sierra Nevada de Santa Marta (9.55), about 40 miles SE of Santa Marta.
Major light:
Isla El Morro Light (11°15′N, 74°14′W) (9.55).

Other aid to navigation

9.96

1 **Racon:**
Head (11°06′·4N, 74°51′·3W) of West Breakwater at the entrance to Río Magdalena.
For further details see *Admiralty List of Radio Signals Volume 2*.

Passage directions

(continued from 9.57)

9.97

1 From a position in the approaches to Bahía de Santa Marta, about 8 miles NW of Punta Gaira (11°13′N, 74°15′W), the coastal track leads WSW for 35 miles, across the entrance to an unnamed bay, to a position about 7 miles NW of Punta Faro (11°06′N, 74°51′W), the E entrance point of Río Magdalena.

2 No known dangers exist off the bay; the chart is sufficient guide.

(Directions continue, for Puerto Barranquilla at 9.132, and for the coastal route SW at 9.152)

Puerto Zúñiga

Chart 1276, plan of Puerto Zúñiga

General information

9.98

1 **Position.** Puerto Zúñiga consists of the coastal area between Punta Gaira (11°13′N, 74°15′W) and Ciénaga, 12 miles S. Within this area lie Pozos Colorados Terminal (11°09′N, 74°15′W), also known as Colorados Wells Terminal, Puerto Prodeco (11°07′N, 74°14′W), also known as Puerto Cabonero, and Puerto Drummond (11°04′N, 74°13′W), also known as Puerto Cabonero de la Loma.

2 **Function.** Pozos Colorados Terminal is used for the discharge of petroleum products into shore storage tanks, from where it is pumped to a refinery. Puerto Prodeco and Puerto Cabonero are used for exporting coal.

3 **Traffic:**
Pozos Colorados Terminal was visited in 1997 by 23 vessels with a total of 816 269 dwt.
Puerto Prodeco and Puerto Drummond were visited in 1997 by four vessels with a total of 467 779 dwt.

4 **Port Authority.** Sociedad Portuaria Regional de Buenaventura SA, Av Portuaria, Edif Administracion, piso 3, Buenaventura, AA 478–10785, Colombia.

Limiting conditions

9.99

1 **Density of water** is 1·025 g/cm^3.
Maximum size of vessel handled:
Pozos Colorados. Draught 13·7 m, tonnage 69 000 dwt.

2 Puerto Prodeco. Length 310 m, beam 43 m, draught 18 m, with a maximum height from waterline to hatch coaming of 16 m.
Puerto Drummond. Length 310 m, beam 45 m, draught 18 m, with a maximum height from waterline to hatch coaming of 15 m.

Arrival information

9.100

1 **Port operations.** At Pozos Colorados Terminal the mooring master, accompanied by the port authorities, meets tankers about 1 mile seaward of the terminal and 3 miles offshore; he remains on board throughout the tanker's stay. Berthing is only carried out by day.

2 **Port radio.** There is a port radio station at Pozos Colorados Terminal. For Puerto Prodeco and Puerto Drummond use the port radio station at Santa Marta (9.61). For further details see *Admiralty List of Radio Signals Volume 6 (5)*.

3 **Notice of ETA required.** For Pozos Colorados terminal an ETA should be sent at least 24 hours in advance. For Puerto Prodeco and Puerto Drummond the ETA should be sent 7 days, 5 days, 72, 48 and 24 hours prior to arrival. For further details see *Admiralty List of Radio Signals Volume 6 (5)*.

4 **Outer anchorage.** Vessels arriving at night, bound for Pozos Colorados Terminal, are required to anchor 1 mile seaward of the terminal.

Pilotage is compulsory and available 24 hours. For Pozos Colorados Terminal the pilot boards 1 mile seaward of the terminal. For Puerto Prodeco and Puerto Drummond the pilot boards either at the pilot station (9.75) for Santa Marta or 1 mile W of Punta Gaira (11°13′N, 74°15′W). For details see *Admiralty List of Radio Signals Volume 6 (5)*.

5 **Tugs** are available.

Harbour

9.101

1 **General layout.** Pozos Colorados Terminal is an offshore berth, situated 3¾ miles S of Punta Gaira (11°13′N, 74°15′W). Puerto Prodeco and Puerto Drummond, to the S of Pozos Colorados Terminal, are both anchorage berths.

2 **Landmark:**
Water tank (11°11′·4N, 74°13′·2W).

Directions for entering harbour

9.102

1 Puerto Zúñiga is approached from the NW. There are no specific directions for the ports within Puerto Zúñiga, the chart being sufficient guide.

Useful marks:

2 Oil tanks (11°10′·0N, 74°13′·6W) standing at Pozos Colorados Terminal.
Light exhibited from the SBM (11°09′·3N, 74°15′·1W) at Pozos Colorados Terminal.

3 White house of a salt works, 5 cables S of the oil tanks.
Simon Bolivar Aero Light (control tower) (11°07′·1N, 74°14′·0W) standing near the coast at Santa Marta Airport.

Berths

9.103

1 Berths are as follows:
Pozos Colorados Terminal (11°09′N, 74°15′W) consisting of one berth at an SBM moored, in a charted depth of 23 m, at the seaward end of a submarine pipeline.

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2 Puerto Prodeco. Vessels berth in an area, the limits of which are shown on the chart, about 1¼ miles W of Punta Brava (11°07′N, 74°14′W); there are a number of mooring buoys in the loading area. Vessels secure using a Mediterranean/Baltimore mooring. Coal is loaded by floating cranes from barges.

3 Puerto Drummond. The loading berth is situated on the SW side of the limits of the loading area for Puerto Prodeco, 4½ miles NW of Puerto Drummond. Vessels secure using a Mediterranean/Baltimore mooring. Coal is loaded by floating cranes from barges.

Port services

9.104

1 **Repairs.** None available.

Other facilities: hospital at Santa Marta; at Pozos Colorados Terminal de-ballasting of either dirty or clean ballast is compulsory over the line provided, but ample warning should be given; no oily waste reception facilities; no garbage facilities.

Supplies. Fresh water may be obtained.

Communications. Santa Marta Airport is situated close to Puerto Zúñiga; it provides scheduled services to Barranquilla and Bogatá, where there are international airports.

Small craft

Chart 1276

Ciénaga

9.105

1 **Description.** Anchorage may be obtained off the town of Ciénaga (11°01′N, 74°15′W), 12 miles S of Punta Gaira. The best anchorage is in a depth of 7·0 m with the church spire in the town bearing 160°, distant 2½ miles.

Useful marks:

2 Church spire at Ciénaga, which is prominent and visible at a distance of 10 miles in clear weather.

Church spire near the shore 2½ miles WSW of Ciénaga.

Boca de la Ciénaga

9.106

1 Boca de la Ciénaga (10°59′N, 74°17′W), about 1 mile SW of Ciénaga, is the entrance to Ciénaga Grande de Santa Marta, the largest of many shallow lagoons backing the low coast as far as the mouth of Río Magdalena. The marshy land around the lagoons is intersected by natural canals which connect with Río Magdalena.

PUERTO BARRANQUILLA AND RÍO MAGDALENA

General information

Charts 1276, 2261 (see 1.16)

Position

9.107

1 Puerto Barranquilla (10°59′N, 74°46′W) is situated on the W bank of Río Magdalena, 10 miles above Bocas de Ceniza (11°06′N, 74°51′W) where the river is entered between two breakwaters.

Function

9.108

1 Puerto Barranquilla, the principal port of Colombia, handles containers, general cargo, liquid and dry bulk cargoes. Steel products, grain, chemicals, project cargoes, and food products are imported; sugar, textiles, wood, tuna and synthetic fibres are exported.

2 The city of Barranquilla, and capital of the Department of Atlantíco, had an estimated population in 1999 of 1 226 000.

Topography

9.109

1 Río Magdalena is about 1000 miles long and is navigable for about 800 miles; it is divided into Lower and Upper Magdalena by rapids at Honda, about 600 miles upstream. The river has many tributaries and forms the main artery of the commercial traffic of Colombia.

2 The entrance to Río Magdalena, Bocas de Ceniza, is formed on its E side by Punta Faro (11°06′N, 74°51′W), the extremity of a narrow spit extending NW from Isla de Los Gómez which is liable to inundation; flat sand dunes form the coast E of the point.

3 The coast W of Bocas de Ceniza consists of flat partly wooded islets.

Port limits

9.110

1 Puerto Barranquilla comprises the outer part of Río Magdalena from its mouth to Terminal Maritimo at the city 10 miles upstream.

Traffic

9.111

1 In 1997 the port was used by 1201 vessels with a total of 10 244 003 dwt.

Port Authority

9.112

1 Sociedad Portuaria Regional de Barranquilla SA–SPRB, Terminal Maritimo y Fluvial, Carrera 38, Calle Orilla del Río 1a, Barranquilla, Colombia.

Limiting conditions

Controlling depths

9.113

1 In the entrance to Río Magdalena, depths are subject to change due to silting, scouring, height of the river, the effect of the El Nino, and state of the bar which may disappear entirely or redevelop as a new bar.

2 The channel leading from the entrance to Barranquilla has a charted maintained depth of 9·4 m, but it was reported in 2001 that the channel depth was only 8·5 m. Entry to the river should not be attempted without obtaining the most recent information concerning depths and other conditions from the local authorities.

Vertical clearance

9.114

1 Pumarejo Bridge, a road bridge (10°57′·0N, 74°45′·4W) which spans the river 1 mile above Terminal Maritimo, has a centre span 140 m wide with a vertical clearance of 16 m.

Deepest and longest berth

9.115

1 The deepest and longest berths are at Terminal Maritimo (10°58′·0N, 74°45′·6W) (9.136).

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Tidal levels

9.116

1 The range of tide is about 0·6 m and very irregular.

Density of water

9.117

1 The density of the water is 1·000 g/cm^3.

Maximum size of vessel handled

9.118

1 To allow for turning on departure the maximum allowable length of vessel is 182 m. The maximum allowable draught is 9·14 m in fresh water; vessels over 9·0 m in draught should contact the local authorities before entering the river.

Arrival information

Port radio

9.119

1 There is a port radio station at Puerto Barranquilla. For details see *Admiralty List of Radio Signals Volume 6 (5)*.

Notice of ETA required

9.120

1 ETA should be sent 72, 48 and 24 hours prior to arrival, to the agent, giving the vessel's estimated draught in fresh water on arrival. See also *Admiralty List of Radio Signals Volume 6 (5)*.

Outer anchorage

9.121

1 Vessels awaiting a pilot may anchor in depths from 11 to 40 m from about 1 mile W of the head (11°06′·5N, 74°51′·3W) of West Breakwater. However, the holding ground is not good, and there is a patch, reported in 1969 to have a depth of 10 m over it, lying on the E edge of the anchorage; the existence of this patch is doubtful.

Submarine cables

9.122

1 Submarine cables land on the NE side of Punta Faro (11°06′N, 74°51′W) and on the W side of West Breakwater, 6½ cables from its head. For further information on submarine cables see 1.42.

Pilotage

9.123

1 Pilotage is compulsory and available 24 hours a day. The pilot boards about 1 mile NW of the head of West Breakwater; if strong winds are blowing at night, usually from November to April, the pilot will only board by day and it is then preferable to stand off rather than anchoring until daylight. Berthing, otherwise, can take place any time.

2 See also *Admiralty List of Radio Signals Volume 6 (5)*.

Tugs

9.124

1 Tugs are available for berthing and unberthing at Puerto Barranquilla, but are generally not required for entering the river.

Regulations concerning entry

9.125

1 **Officials.** Vessels proceeding to Puerto de Barranquilla are required to slow down, but not stop, off Las Flores (11°02′·3N, 74°49′·5W) about 4½ miles within the river, to embark the health and customs officials. If the officials do not board here, vessels continue direct to Barranquilla and either berth alongside or anchor as ordered by the authorities.

2 **Fishing** is prohibited in the navigational channels of Río Magdalena, and its last 27 miles.

Speed. The maximum allowed speed in the river channel is 12 kn, reducing to 6 kn when passing berths and other vessels.

Harbour

General layout

9.126

1 **Entrance and channel leading to Puerto Barranquilla.** The entrance to Bocas de Ceniza is 500 m wide between the heads of the breakwaters. West Breakwater extends 2½ miles S and then curves SE as a training wall as far as Las Flores (11°02′·3N, 74°49′·5W). East Breakwater, which is submerged for 2½ cables from its head, extends 3 cables SSE to the W side of Punta Faro.

2 The navigable channel normally lies along West Breakwater and follows the W side of the river as far as San Salvador, about 1 mile above Las Flores. The E side of the river from the S end of East Breakwater to abreast San Salvador is mostly shoal. Thence the channel draws over to the E side and follows it to Barranquilla, where the water is relatively deep from bank to bank.

3 **Berthing areas.** Berths are arranged alongside the W bank of the river from Caribbean Cement 2, at Las Flores, to Terminal Maritimo (10°58′·0N, 74°45′·6W) on the E side of the city of Barranquilla. The turning area off Terminal Maritimo, and for about 3 cables above it, is about 388 m wide with depths of 9·1 m or more.

Piracy

9.127

1 In 2002 three cases of armed robbery were reported at Puerto Barranquilla. For further information, and advice, see *Admiralty List of Radio Signals Volume 1* and *The Mariner's Handbook*.

Natural conditions

9.128

1 **Flow.** When Río Magdalena is low, generally from February to April and from August to October, the out-going flow in the river does not exceed a rate of 2 kn; when the river is high, generally in July and November, it attains rates up to 6 kn and floating debris and logs are carried down. The discoloured water from the river may be seen up to 40 miles seaward of the entrance.

2 **Current.** The current outside the entrance is influenced by the direction of the wind and is normally E–going, but during the period of North-east Trade Winds it becomes W–going; its direction is indicated by the flow of discoloured water from the river.

Tidal streams are weak and have very little effect on the river current, which is always out-going.

Channel marks

9.129

1 The channel of Río Magdalena to Puerto Barranquilla is marked by a series of leading lights, which may be moved to meet changes in the fairway. Light-buoys and buoys, the positions of which are altered to conform with the fairway, are in accordance with IALA Maritime Buoyage System Region B; light-beacons, which mark the banks of the river in places, also follow the same system.

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Principal marks

9.130

1 **Landmarks:**

Tank (11°02′·0N, 74°53′·4W), standing 2 miles ESE of Punta Sabanilla.

Water tank (11°01′·5N, 74°53′·6W).

Building (11°01′·8N, 74°55′·1W).

Other aid to navigation

9.131

1 **Racon:**

Head (11°06′·4N, 74°51′·3W) of West Breakwater.

For further details see *Admiralty List of Radio Signals Volume 2*.

Directions for entering harbour

(continued from 9.97)

General remarks

9.132

1 When approaching from E, vessels should keep more than 2 miles offshore until abreast of Bocas de Ceniza, the entrance to Río Magdalena. At the entrance, when the river current meets the sea, there is a slight increase and a noticeable steepening and shortening of the waves; this is most marked at high river and with a rising tide during the North-east Trade Winds. At such times, a vessel entering should proceed at a good speed.

2 Entry is often impossible during a strong trade wind and high sea. Vessels may pitch up to 2·4 m in a heavy swell on the bar and they also yaw heavily when crossing it. In all conditions, special care is necessary. As wind and sea generally moderate at night, early morning is the best time to enter.

From seaward to Puerto Mocho

9.133

1 From a position about 7 miles NW of Punta Faro (11°06′N, 74°51′W), the E entrance point of Río Magdalena, the track leads SE for 3½ miles to the beginning of the following approach leading line:

E1 Light (rectangular daymark on white and red framework tower) (11°06′·2N, 74°50′·9W).

E3 Light (white framework tower, red bands) (310 m from front light).

2 The alignment (136½°) of these lights then continues to lead SE, for a farther 2 miles, passing:

NE of an isolated patch, with a depth of 9 m over it, lying 2¼ miles NW of the head (11°06′·4N, 74°51′·3W) of West Breakwater, thence:

SW of a bank, with a depth of less than 10 m over it, extending 1¼ miles N of Punta Faro.

3 The track then leads to a position about 1½ cables NNE of the head of West Breakwater. Thence the river is entered on the following leading line, which marks that part of the channel maintained to a depth of 9·4 m:

Front light (white and red rectangle on white framework tower) (11°03′·9N, 74°50′·7W), exhibited from the small breakwater at Puerto Mocho; the light is moved to meet changes in the channel.

Rear light (rectangle on red and white framework tower) (4 cables from front light).

4 The alignment (168°) of these lights leads SSE for 2½ miles, passing (with positions relative to head (11°06′·4N, 74°51′·3W) of West Breakwater):

Close ENE of the head of West Breakwater; a dangerous wreck lies close off the head of this breakwater. F–2 Light is exhibited from a position ¾ cable S of the head; a racon (9.131) transmits from the light. Thence:

5 WSW of the head (3 cables ESE) of East Breakwater.

The track then continues SSE along the E side of West Breakwater, which is marked in places by light-beacons, to a position 1¾ cables NNW of E6 Light (2¾ miles SSE). The E side of the channel, N of No 1 Light-buoy (starboard hand) (1½ miles SSE), is marked by the following lights in line bearing 168°:

6 Front light-beacon (white rectangle on white framework tower, 18 m in height) (11°03′·6N, 74°50′·5W).

Rear light-beacon (rectangle on red and white framework tower) (2¼ cables from front light).

Puerto Mocho to Terminal Maritimo

9.134

1 From the position 1¾ cables NNW of the front light (11°03′·9N, 74°50′·7W) the track leads SW, for 1¼ miles, on the lines of bearing, 322½° astern, of E4 Directional Light (white tower) (11°04′·2N, 74°50′·8W), and 142½° ahead, of E18 Directional Light (metal tower) (11°02′·6N, 74°49′·5W), to a position about 1 cable E of X16 Light-beacon (red and white framework tower) (11°03′·0N, 74°50′·0W).

2 Thence the channel is marked by the following leading line:

E16 Light (rectangle on white and red framework tower) (11°03′·2N, 704°50′·2W).

E12 Light (similar structure) (2¾ cables from E16 Light).

The alignment (302°), astern, of these lights leads SE for 3¾ miles, passing S of Isla 1972, to a position about 3¾ cables NW of E5 Light (rectangle on white and red framework tower) (11°07′·8N, 74°46′·3W). The track then leads SSE and SE, for a farther 3 miles, through a channel, marked by light-buoys (lateral), to Terminal Maritimo on the W bank of the river.

Berths

Inner anchorages

9.135

1 Four anchorages, numbered as follows, are available in the river:

No's 1, 2 and 3, situated opposite Las Flores (11°02′·3N, 74°49′·5W), along the E bank and off Isla 1972.

2 No 4, situated between the S end of Terminal Maritimo (10°58′·0N, 74°45′·6W) and Pumarejo Bridge (9.114).

The limits of the anchorages are shown on the chart.

Alongside berths

9.136

1 **Private berths.** From Las Flores (11°02′·3N, 74°49′·5W) to Terminal Maritimo, 6¼ miles upstream, along the W bank there are several industrial complexes; 12 of these have private wharves, totalling approximately 1365 m in length. Cargoes such as cement, fertilizers, coal, petroleum products and steel are handled at these wharves.

Consult the local authorities for details of wharf lengths and depths alongside.

2 **Main terminal.** The main berthing area for Puerto Barranquilla is at Terminal Maritimo (10°58′·0N,

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74°45′·6W) on the W bank. It consists of a wharf 1085 m long, divided into six berths, which can handle six or seven ships simultaneously; for the maximum draught allowed alongside see 9.118. Vessels berth starboard side to. Inside the wharf there is an enclosed basin for the use of lighters, tugs and boats.

Port services

Repairs
9.137

1 There are good facilities for mechanical, electrical and radio repairs; patent slips available for vessels up to 600 tons.

Other facilities
9.138

1 Hospital; Deratting and Deratting Exemption Certificates issued; floating crane with a lifting capacity of 60 tonnes; fumigation carried out.

Supplies
9.139

1 Fuel oil, fresh water, and provisions are available.

Communications
9.140

1 Barges connect Puerto Barranquilla with small ports farther up Río Magdalena and with Cartagena through canals. Scheduled airline services operate from Ernesto Cortizzos International Airport, 8 km distant.

Río Magdalena above Puerto Barranquilla

General information
9.141

1 **Navigation.** The river above Puerto Barranquilla is wide and navigation is difficult, with many eddies over submerged rocks. Vessels with draughts up to 5·8 m can reach Calamar (10°15′N, 74°57′W) and vessels with draughts of 1·5 m at normal river, and 0·9 m at low river, can reach Caracoli. There are no British Admiralty charts available for Río Magdalena and its tributaries S of latitude 10°57′N.

2 **Description.** Calamar is connected with Bahía de Cartagena by El Dique, a partly dredged canal, and by railway. The river divides near Pinto about 57 miles above Calamar. The E arm, silted and difficult, leads SE to Mompós; the W and more navigable arm continues S for 12 miles to Magangué, the port for the Savannahs of the Department of Bolívar, exporting fruit, coffee and dairy products.

3 Retiro, a few miles up river from Magangué, stands at the junction of Río San Jorge with Río Magdalena; this tributary is 230 miles long and navigable for 150 miles. Río Cauca, which enters Río Magdalena about 20 miles above Retiro, is 634 miles long.

4 The E and W arms of Río Magdalena re-unite at El Blanco, an old town where Río Cesar leads N to Ciénaga Zapatoza, a large swampy lake. Gamarra, about 45 miles above El Blanco, is the limit at which the river can be navigated all the year round. Navigation is less certain above this town.

5 La Dorado can be reached by small craft. As there are rapids at Honda, about 8 miles farther up river, cargo is unloaded and taken by rail above the rapids where it is again transported by river. The Upper Magdalena, above Honda, is navigable as far as Girardot.

List of ports
9.142

	Port	*Approximate distance from Puerto Barranquilla (sea miles)*
1	Calamar (10°15′N, 74°57′W)	52
	Pinto (9°26′N, 74°45′W)	109
	Mompós (9°14′N, 74°29′W)	–
	Magangué (9°14′N, 74°47′W	121
	Retiro (9°10′N, 74°46′W)	–
2	El Blanco (8°58′N, 73°59′W)	–
	Gamarra (8°19′N, 73°45′W)	–
	Caracoli	502
	La Dorada	582
	Honda	590
	Girardot	790

RÍO MAGDALENA TO GOLFO DE URABÁ

GENERAL INFORMATION

Chart 396

Area covered
9.143

1 This section covers the coastal waters of Colombia from the mouth of Río Magdalena to Golfo de Urabá, about 192 miles SW. The section is arranged as follows:

Río Magdalena to Bahía de Cartagena (9.145).
Bahía de Cartagena and approaches (9.155).
Bahía de Cartagena to Golfo de Morrosquillo (9.197).

2 Golfo de Morrosquillo (9.206).

Golfo de Morrosquillo to Golfo de Urabá (9.226).

Currents
9.144

1 The coastal current from Isla Grande (9°38′N, 79°34′W), off Panama, to Islas San Bernardo is the E–going Caribbean Counter-current; it is affected by Golfo de Urabá and to a slight degree by Golfo de Morrosquillo. The current sets E off Isla Grande, thence along the coast as far as Puerto Carreto (8°47′N, 77°35′W). Here it turns E and NE, being affected by the outflow from Río Atrato through Golfo de Urabá; it is NE–going as far as Isla Fuerte (9°23′N, 76°11′W) where it turns ENE, but again becomes NE–going as it approaches Islas San Bernardo.

2 The current attains rates from ½ to 1½ kn and it is slightly influenced by the winds; on one occasion, it was observed to have reversed its direction while a hurricane occurred off the Yucatan Channel (21°30′N, 85°30′W).

3 Close to Islas San Bernardo, the current has frequently been found to be E–going and NE–going, and occasionally SE–going. Between Golfo de Urabá and the mouth of Río Magdalena, an average rate from 1 to 2 kn has been observed. In confined places, such as among Islas del Rosario and Islas San Bernardo, rates from 2½ to 3 kn

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have been observed. The currents are not to be depended upon, though the preceding description gives the most usual circulation.

RÍO MAGDALENA TO BAHÍA DE CARTAGENA

General information

Charts 1276, 1277

Route

9.145

1 From a position about 7 miles NW of Punta Faro (11°06′N, 74°51′W), the E entrance point of Río Magdalena, the coastal route leads generally SW, for 76 miles, to a position about 10 miles W of Bancos de Salmedina Light (10°23′N, 75°39′W).

Topography

9.146

1 Between the mouth of Río Magdalena and Punta Sabanilla, 5½ miles SW, the coast is low and sandy with wooded islands interspersed by lagoons; it is backed by hills SW of the point. Between Punta Sabanilla and Punta Morro Hermoso (10°57′N, 75°02′W), 9¼ miles SW, the coast is slightly indented by Bahía de Sabanilla, which is also backed by lagoons.

2 The coast S of Punta Morro Hermoso for about 3 miles to Ensenada Playa de Las Damas is sandy and broken by occasional cliffs; hills up to 79 m high rise close inland. From Ensenada Playa de Las Damas to Punta de la Garita (10°48′N, 75°16′W), 14 miles SW, the coast continues sandy with a few groups of hills rising close behind it.

3 The coast from Punta de la Garita for 16 miles SW to Punta de Piedra is low and sandy; hills up to 91 m high stand about midway along this coast. Bahía Gato, with a sandy beach, is entered between Punta de Piedra and Punta Canoas (10°34′N, 75°31′W), 4 miles SW.

4 From Punta Canoas to a point at the W end of the walled city of Cartagena, 10 miles SSW, the coast is low except at Morro Grande and Cerros Morritos, about 3 miles S of Punta Canoas. Morro Grande is a prominent cliff of grey-white clay about 45 m high and triangular in shape; Cerros Morritos, a bluff 5 cables S of Morro Grande, is of similar height and colour, and is shaped like a loaf of bread. The low sandy beach S of Cerros Morritos is backed by Ciénaga de la Tesca, a large lagoon.

Depths

9.147

1 The coastline between the entrance (11°06′N, 74°51′W) to Río Magdalena and Morro Grande (10°31′N, 75°30′W), 48 miles SW, is under constant change. Mariners are advised to use caution when navigating near the coast as the charted depths may be inaccurate.

Submarine exercise areas

9.148

1 Submarines exercise both on the surface and dived, in two areas, as shown on the chart, 8 miles WNW and 17 miles WSW of Bancos de Salmedina Light (10°23′N, 75°39′W). A good lookout should be kept for them when passing through these waters. See also 1.11.

Principal marks

9.149

1 **Landmarks:**

Tank (11°02′·0N, 74°53′·4W), standing 2 miles ESE of Punta Sabanilla.

Water tank (11°01′·5N, 74°53′·6W).

Building (11°01′·8N, 74°55′·1W).

Building, standing on Punta San Antonio (11°01′·0N, 74°56′·5W).

2 Cerro Pital (10°55′N, 74°59′W), 307 m high, with another peak 347 m high 2 miles S of it.

Cordillera del Piojon (10°44′N, 75°06′W), having two peaks up to 522 m high and prominent; their sides slope evenly, but they fall irregularly to the S.

Two pairs of twin peaks standing 2¼ and 6 miles N of Cordillera del Piojon, and 282 and 232 m high, respectively.

3 Cerros del Bujio del Gato (10°37′N, 75°26′W), up to 176 m high and the most prominent hills in the N approach to Cartagena; their N side slopes irregularly and their S side falls evenly.

Cerro la Popa (10°25′N, 75°32′W) (9.180).

9.150

1 **Major lights:**

Punta Morro Hermoso Light (red and white tower) (10°58′N, 75°01′W).

Punta de la Garita Light (red and white tower) (10°48′N, 75°16′W).

2 Punta Canoas Light (red and white tower) (10°35′N, 75°30′W), standing 1 mile NE of Punta Canoas.

Cartagena/Crespo Aero Light (10°27′N, 75°31′W).

Banco Salmedina Light (red and white tower) (10°23′N, 75°39′W).

Isla Tierra Bomba Light (10°20′·4N, 75°34′·8W) (9.180).

Other aid to navigation

9.151

1 **Racon:**

Head (11°06′·4N, 74°51′·3W) of West Breakwater at the entrance to Río Magdalena.

For further details see *Admiralty List of Radio Signals Volume 2*.

Directions

(continued from 9.97)

9.152

1 From a position about 7 miles NW of Punta Faro (11°06′N, 74°51′W) the track leads SW, passing (with positions relative to Punta de la Garita (10°48′N, 75°16′W)):

NW of a bank (24¾ miles NE), with depths of less than 20 m over it, extending 3½ miles NW from Punta Sabanilla; a stranded wreck, the position of which is approximate, lies on the bank 2 miles NNE of Punta Sabanilla. Thence:

2 NW of an isolated patch (21¼ miles NE), with a depth of 9·4 m over it; a stranded wreck, the position of which is approximate, lies close NE of this patch. Thence:

NW of Banco Culebra (20 miles NE), which lies in the approaches to Bahía de Sabanilla (9.153), thence:

3 NW of Punta Morro Hermoso (16 miles NE); Morro Hermoso stands 1¾ miles ENE of the point. Punta Morro Hermoso Light (9.150) is exhibited from a position, 1½ miles NE of the point, on reddish-yellow cliffs which are prominent. Thence:

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NW of Banco Palmarito (4½ miles NE), thence:
NW of Punta de la Garita from which a light (9.150) is exhibited; the point is low and sandy and is backed by Cerros del Bujio del Gato (9.149).

4 Thence the track continues SW, passing (with positions relative to Punta Canoas (10°34′N, 75°31′W)):
NW of Bajos Zamba (14 miles NNE). During poor visibility at night, no attempt should be made to sight Punta de la Garita Light as the W end of Bajos Zamba has been reported to be beyond the luminous range of the light. In these conditions, a vessel should keep in depths of more than 46 m to clear the danger. Thence:

5 NW of Punta Canoas, a low and rocky point closely backed by hills, thence:
NW of Bajo Negrillo (1¼ miles SW), an isolated shoal, thence:
NW of Banco Playa Grande (4 miles SSW), which extends up to 5 miles offshore from the land on which the city of Cartagena stands, thence:

6 Clear of Banco Nokomis (10½ miles WSW), thence:
NW of Bancos de Salmedina (13½ miles SW) which consists of two shoals of sand and coral about 1 mile apart. A light (9.150) is exhibited from the E shoal and a dangerous wreck lies close E of the light; it has been reported that the sea breaks over this shoal. The W shoal has a least charted depth of 6·9 m over it.

7 The track then leads to a position about 10 miles W of Bancos de Salmedina Light (10°23′N, 75°39′W).

(Directions continue, for Bahía de Cartagena at 9.182, and for the coastal route SW at 9.203)

Minor bay and anchorage

Bahía de Sabanilla
9.153

1 **Description.** Bahía de Sabanilla (11°00′N, 74°58′W), at the head of which lies Puerto Colombia, is situated 9 miles SW of the entrance to Río Magdalena. It has been reported that no shelter from the prevailing winds is provided within Bahía de Sabanilla in sufficient depths for a vessel to anchor in safety.

2 **Submarine cables**, the positions of which are shown on the chart, land on the shores of Bahía Sabanilla. Mariners should not anchor or trawl in the vicinity of these cables. For further information on submarine cables see 1.42.

3 **Local weather.** Off Puerto Colombia, strong winds blow from between NNE and ENE; those from W are usually light, but may occasionally be moderate or strong.

Light and variable winds occur generally from 0400 to 1000. At about noon, the sea breeze sets in and blows strongly up to 2000 or later, but by midnight its force has much diminished.

4 **Landmark:**
Building, standing on Punta San Antonio (11°01′·0N, 74°56′·5W).
Major light:
Punta Morro Hermoso Light (10°58′N, 75°01′W) (9.150).

5 **Directions.** The bay is approached from the NW, passing over Banco Culebra. There are no specific directions for entering the bay, but attention is drawn to the stranded wreck lying 2¾ miles NW of Punta San Antonio. Vessels, other than small craft, are advised not to approach within 1 mile of the pierhead at Puerto Colombia as shoaling has been reported.

6 **Useful mark:**
Morro Nisperal, a hill, standing 7½ cables S of Punta San Antonio.

Berth. A pier extends 7 cables WNW from the shore at Puerto Colombia.

Ensenada Amansaguapos
9.154

1 **Description.** Ensenada Amansaguapos is entered between Punta de la Garita (10°48′N, 75°16′W) and Isla Arena, 6½ miles SW. A stranded wreck lies off the E side of Isla Arena, which is joined to the coast S by foul ground. The bay provides anchorage for small vessels which should avoid a rocky patch, with a depth of 4·1 m over it, lying 7½ cables NNE of the island. A current has been reported to set strongly into Ensenada Amansaguapos.

2 **Major light:**
Punta de la Garita (10°48′N, 75°16′W) (9.150).

Local knowledge is required.

BAHÍA DE CARTAGENA AND APPROACHES

General information

Charts 1277, 2434

Position
9.155

1 Bahía de Cartagena (10°20′N, 75°32′W) is the largest and most secure harbour on the N coast of Colombia, being sheltered from all directions; the bay is 9 miles long and up to 4 miles wide SE of Isla Tierra Bomba. The city of Cartagena is situated on the N side of the bay.

Function
9.156

1 Cartagena (10°25′N, 75°31′W) is the centre of a large trade drawn from the hinterland, especially platinum from the head-waters of Río Atrato and Río San Juan, coffee from the Sierras, and oil products from the refineries at Barrancabermaja on Río Magdalena about 470 miles above its mouth. Other exports are cars, fruit and vegetables, nickel, resins and textiles; imports include chemicals, food products, machinery, paper and other raw materials.

2 The city of Cartagena had an estimated population of 877 000 in 1999.

Topography
9.157

1 Bahía de Cartagena is an irregular landlocked harbour, sheltered on the W by Isla Tierra Bomba (10°21′N, 75°35′W), 84 m high near its centre, and on the S by Isla Barú, rising to 64 m at its N end.

2 The bay has a narrow entrance through Bocachica off the S end of Isla Tierra Bomba on which stands Fuerte San Fernando. Bocachica may be identified by Fuerte San José, standing on the S side of the channel and on a low spit which extends N from Isla Barú. For a description of Isla Barú see 9.198.

3 Boca Grande, between the N end of Isla Tierra Bomba and a peninsula extending SW from the city of Cartagena, is a former entrance to Bahía de Cartagena; the passage, apart for a entrance for small craft, has been closed by an artificial barrier of large rocks and is dangerous.

History
9.158

1 Cartagena, the capital of the department of Bolívar, is old, steeped in history, and one of the most interesting

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cities in South America; it was founded by Pedro de Heredia in 1533. Boca Grande, off the SW end of the city, was blocked by boulders after the attack by Admiral Vernon in 1741.

Approach and entry
9.159

1 Bahía de Cartagena is approached from the W, passing S of Bancos de Salmedina (10°23′N, 75°40′W), and entered through Bocachica, a dredged channel close S of Isla Tierra Bomba, along the alignment of leading lights. Deep draught vessels initially enter through Bocachica and then use Canal Colonial, a channel which curves around the N side of Bocachica.

Traffic
9.160

1 In 1997 the port was used by 1432 vessels with a total of 15 841 079 dwt. Approximately 10 572 000 tonnes of cargo, including 348 000 teu containers, are handled each year.

Port Authority
9.161

1 **Address:** Sociedad Portuaria Regional Cartagena (SPRC), Apdo 7954, Manga Terminal Maritimo, Cartagena, Colombia.

Website: www.puertocartagena.com.

Limiting conditions

Controlling depths
9.162

1 **Bocachica.** There is a controlling depth of 12·5 m in Canal Colonial, the deep water channel through Bocachica.

Channel west of Banco Santa Cruz. Depths less than charted (1997) have been reported in this channel.

Entrance channel to inner harbour. There is a least charted depth of 12·3 m on the E side of the entrance to the inner harbour.

Deepest and longest berth
9.163

1 Inner harbour (10°24′N, 75°32′W), Berth's No 7 and 8 (9.191).

Tidal levels
9.164

1 Mean maximum range about 0·4 m; mean minimum range about 0·2 m. For further information see the *Admiralty Tide Tables.*

Density of water
9.165

1 The density of the water is 1·025 g/cm^3.

Maximum size of vessel handled
9.166

1 Vessels up to 270 m in length with a maximum draught of 12·5 m are handled.

Arrival information

Port radio
9.167

1 Port radio stations are operated by Cartagena and Mamonal. For details see *Admiralty List of Radio Signals Volume 6 (5).*

Notice of ETA required
9.168

1 ETA should be sent 48 and 24 hours prior to arrival; any delays to the ETA should be notified at least 6 hours in advance. See also *Admiralty List of Radio Signals Volume 6 (5).*

Outer anchorage
9.169

1 Vessels awaiting a pilot may anchor NW or SW of the entrance to Bocachica.

Submarine cables
9.170

1 A submarine cable is laid from Corelca (10°21′·4N, 75°30′·6W), on the NE side of Bahía de Cartagena, in a general NW direction to Bajo Manzanillo, and thence across the fairway to Punta Castillogrande (10°23′·5N, 75°32′·7W), the W entrance point of the inner harbour of Cartagena.

2 Anchoring and all types of underwater activity are prohibited within an area, the limits of which are shown on the chart, in the entrance to the inner harbour between Punta Castillogrande and Punta Manzanillo, 5 cables ENE, due to the existence of submarine cables

3 For further information on submarine cables see 1.42.

Pilotage
9.171

1 Pilotage is compulsory for all vessels over 250 nrt and available 24 hours a day; an ETA should be sent to the pilot station for Bocachica, located at Fuerte San Fernando (10°19′·2N, 75°34′·9W), 24 hours in advance. The pilot boards 280 m W of Outer Fairway Light-buoy (10°19′·0N, 75°35′·9W) and will conduct a vessel direct to an anchorage in Bahía de Cartagena or to a berth alongside in the inner harbour; for the private terminals on the E and SE sides of Bahía de Cartagena a mooring master, from the respective company, will board the vessel on approach.

2 For further information see *Admiralty List of Radio Signals Volume 6 (5).*

Tugs
9.172

1 Tugs are available and are compulsory for berthing vessels of more than 2000 grt in the inner harbour at Cartagena and at Mamonal Oil Terminal.

Traffic regulations
9.173

1 **Traffic.** Vessels should not pass one another in Bocachica. Vessels entering the harbour should give way to vessels leaving. There is a traffic signal station on Isla Draga (10°18′·8N, 75°34′·7W).

2 **Restricted area.** An area, the limits of which are shown on the chart, off the naval base N of Punta Castillogrande (10°23′·5N, 75°32′·7W) is reserved for vessels of the Colombian Navy. Permission to anchor must be obtained from the Senior Naval Officer present.

Regulations concerning entry
9.174

1 **Speed.** In the channel leading through Bocachica the speed of a vessel should not exceed the minimum at which it can be manoeuvred safely. The maximum speed allowed in Bahía de Cartagena is 14 kn.

2 **Fishing.** In the navigational channels within Bahía de Cartagena fishing is prohibited.

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Cartagena – inner harbour with statue in entrance (9.155)
(Original dated 2003)

(Photograph – Crown Copyright)

Harbour

General layout
9.175

1 In Bahía de Cartagena the main berthing areas are situated on the E and SE sides of the bay, and within the inner harbour of Cartagena at the N end. On the E and SE sides of the bay, between the entrance to Canal del Dique (10°17′·6N, 75°31′·5W) and Nestor Pineda Terminal, 2¾ miles NNE, the berths are privately owned and lie within an industrial zone.

2 The inner harbour of the city of Cartagena lies N of Punta Manzanillo (10°23′·7N, 75°32′·2W) and Castillogrande, a low spit covered with buildings; it consists of a commercial port on the NE and E sides along with a naval base to the W.

Development
9.176

1 **Inner harbour.** In 2002 it was reported that construction work was being carried out at the Maritime Terminal (9.191). Also to the E of the Maritime Terminal and S of Isla Chivos a berth was under construction in approximate position 10°24′·1N, 75°31′·4W. A portainer crane had been erected and vessels with a draught of up to 8·0 m were reported to be using the berth; dredging work is being carried out in the area.

2 **Bahía de Cartagena.** In 2004 works were in progress to develop the area N of Contecar Container Terminal (10°22′·7N, 75°30′·7W) (9.190).

Submarine exercise areas
9.177

1 Submarines exercise both on the surface and dived, in an area on the S side of the approach to Bahía de Cartagena, as shown on the chart, between Isla del Tesoro (10°14′N, 75°44′W) and Punta Gigantes, 7 miles NE. A good lookout should be kept for them when passing through these waters. See also 1.11.

Measured distance
9.178

1 On the W side of Isla Tierra Bomba (10°21′N, 75°35′W) there is a measured distance.

North limit. Two beacons in line bearing 090°.
South limit. Two beacons, standing W of Isla Tierra Bomba Light, in line bearing 090°.
Distance 2076 m (6811 ft).
Running track. The course is 000°/180°.

Natural conditions
9.179

1 **Tidal streams for Bocachica:**

Stream	*Direction*	*Rate*
In-going	116°	Just over ½ kn
Out-going	260°	About ½ kn

The streams have considerable diurnal inequality, most marked when the moon has a high declination N or S.

2 **Tidal streams off the entrance to the inner harbour:**

Stream	*Direction*	*Rate*
In-going	ESE	About ½ kn
Out-going	W	About ½ kn

3 **Climate.** From May to November, at about 0300 to 0400, the land is often covered with vapour; this is shortly followed by the land breeze which is generally preceded by a squall of wind and rain. The squall sometimes blows with fury, but is of short duration; afterwards the weather becomes fine. A haze hangs over the land at this season.

4 The season from December to April is dry and very healthy; from May to November, it is calm, hot and unhealthy, when fevers prevail.

Climatic table. See 1.167 and 1.176.

Principal marks
9.180

1 **Landmark:**

Cerro la Popa (10°25′N, 75°32′W), the highest hill in the vicinity of Cartagena. It is wedge-shaped, sloping gradually to the N and falling steeply to the S. On its summit stand the white walls of a ruined convent, 12 m in height, and an illuminated cross. A radio tower (height 50 m, red obstruction lights) stands on the NW side of the hill. Many spires and high-rise buildings stand in the city of Cartagena at the foot of Cerro la Popa.

2 **Major lights:**

Punta Castillogrande Light (10°23′·5N, 75°32′·7W) (beige concrete tower, 22 m in height).
Banco Salmedina Light (10°23′N, 75°39′W) (9.150).
Isla Tierra Bomba Light (10°20′·4N, 75°34′·8W) (white tower, red bands).
Isla del Tesoro Light (white tower, red bands) (10°14′N, 75°44′W).

Other aid to navigation
9.181

1 **Racon:**

Bocachica Light-buoy (10°19′N, 75°36′W).

For further details see *Admiralty List of Radio Signals Volume 2*.

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Cartagena – inner harbour entrance – Punta Castillogrande Light (9.180)

(Original dated 2003)

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Directions for entering harbour

(continued from 9.152)

Approach

9.182

1 From a position about 10 miles W of Bancos de Salmedina Light (10°23′N, 75°39′W) the track leads ESE, passing (with positions relative to Isla Tierra Bomba Light (10°20′·4N, 75°34′·8W)):

SSW of the outermost bank (6¼ miles WNW) of Bancos de Salmedina (9.152), with a depth of 6·9 m over it, thence:

2 SSW of the main part of Bancos de Salmedina (4½ miles WNW), from which Bancos de Salmedina Light (9.150) is exhibited. Thence:

NNE of a shoal (5 miles SW), with a depth of 7·4 m over it; this is the outermost of a number of shoals extending 2 miles NW from Punta Gigantes. Thence:

3 Through the pilot boarding position (2 miles SW), thence:

Close SSW of Outer Fairway Light-buoy (safe water) (1¾ miles SW), from which a racon (9.181) is transmitted.

Thence the track leads to a position about 1 mile WSW of Fuerte San Fernando (5½ miles SE), standing on the S extremity of Isla Tierra Bomba.

Bocachica

9.183

1 **Caution.** Care should be taken not to mistake El Varadero (10°18′·3N, 75°34′·8W), a shallow opening 2½ cables wide between the N end of Isla de Barú and Isla Abanico, a mangrove-covered islet, for Bocachica the main entrance to Bahía de Cartagena.

Main channel. Bocachica, entered along the following leading line, presents no difficulties if the light-buoys are in position:

2 No 1 Light-beacon (red and white framework tower) (10°19′·1N, 75°32′·5W), standing on an isolated shoal in the middle of Bahía de Cartagena.

No 2 Light-beacon (similar structure) (2 miles from front light), standing on the shore at Mamonal.

3 From a position about 1 mile WSW of Fuerte San Fernando (10°19′·2N, 75°34′·9W) the alignment (086°) of these marks leads through a channel, marked by light-buoys



Fuerte San Fernando from SW (9.183)

(Original dated 2003)

(Photograph – HMS Endurance)

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Fuerte San José from N (9.183)

(Original dated 2003)

(Photograph – HMS Endurance)

(lateral), into Bahía de Cartagena, passing (with positions relative to Fuerte San Fernando):

S of the bank fronting the S point of Isla Tierra Bomba, thence:

4 N of the N point of Isla Draga (5 cables SSE), upon which Fuerte San José stands, thence:

S of a bank (4½ cables ESE), with a least depth of 1·7 m over it, thence:

S of Bajo Carreya (1 mile E), not named on chart, with a depth of 5·0 m over it; it is marked by No 11 Light-buoy (port hand). Thence:

5 N of an isolated shoal (1¼ miles ESE), with a depth of 10·8 m over it; the shoal is marked by No 10 Light-buoy.

The track then leads to a position about 1 mile W of No 1 Light-beacon (10°19′·1N, 75°32′·5W), where the channel divides.

6 **Deep draught channel.** For deep draught vessels, the track follows the alignment (086°) of the entrance leading line until a position is reached close N of No 6 Light-buoy (10°18′·9N, 75°34′·9W). The track then leads NNE, E and thence SE through Canal Colonial, marked by light-buoys (lateral), passing N of the bank with a depth of 1·7 m over it, to rejoin the entrance leading line about 2 cables WSW of No 11 Light-buoy (10°19′·1N, 75°33′·9W).

7 The entrance leading line is then followed to a position about 1 mile W of No 1 Light-beacon.

Bocachica to Punta Icacos passing west of Banco Santa Cruz

9.184

1 From a position about 1 mile W of No 1 Light-beacon (10°19′·1N, 75°32′·5W) the recommended track leads NE for 2¼ miles, passing along the SE side of Isla Tierra Bomba; the NW edge of the channel is marked by light-buoys (port hand). The track then leads NNE, passing (with positions relative to Punta Icacos (10°21′·4N), 75°32′·3W)):

2 Between the W–most shoal (1 mile SSE) of Banco Santa Cruz, marked by No 20 Light-buoy (starboard hand), and a shoal (9 cables S), with a depth of 9·8 m over it, marked by No 23 Light-buoy (port hand), thence:

ESE of the bank fronting Ensenada Salada (close S); the edge of this bank is marked by No's 25 and 27 Light-buoys (port hand).

3 The track then leads to a position 6 cables E of Punta Icacos where it joins the channel leading E of Banco Santa Cruz.

Clearing line. The alignment (000°) of ENAP Leading Lights (red and white towers) (10°23′·3N, 75°31′·8W), standing on Isla de Manzanillo, clears E of the bank fronting Ensenada Salada.

(Directions continue for the inner harbour at 9.186)

Bocachica to Punta Icacos passing east of Banco Santa Cruz

9.185

1 From a position about 1 mile W of No 1 Light-beacon (10°19′·1N, 75°32′·5W) the recommended track leads ENE for 3 miles, passing (with positions relative to Punta Icacos (10°21′·4N, 75°32′·3W)):

NNW of No 1 Light-beacon (2¼ miles S) (9.183) standing on a shoal; No 12 Light-buoy (starboard hand) is moored close NE of the light-beacon. Thence:

2 SSE of the S–most shoal (1½ miles SSE) of Banco Santa Cruz, marked by No 16 Light-buoy (S cardinal).

The track then leads NNE for 4 cables, passing:

WNW of the bank surrounding Isla Brujas (2 miles SE); the edge of the bank is marked by No's 14 and 18 Light-buoys (starboard hand). And:

3 ESE of the E–most shoal (1¼ miles SSE) of Banco Santa Cruz, marked by No 21 Light-buoy (port hand).

The track then leads NNW for 1 mile, passing:

WSW of the head of Ecopetrol Nestor Pineda Terminal (1½ miles SE) (9.190), thence:

4 ENE of the N–most shoal (1 mile SSE) of Banco Santa Cruz, marked at its N end by No 22 Light-buoy (N cardinal), thence:

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WSW of the shoal water fronting Isla Cocosolo (1¼ miles ESE); No 24 light-buoy marks the SW edge of this shoal water.

5 The track then leads to a position 6 cables E of Punta Icacos where it joins the channel leading W of Banco Santa Cruz.

(Directions continue for the inner harbour at 9.186)

Punta Icacos to the inner harbour

(continued from 9.184 and 9.185)

9.186

1 From the position 6 cables E of Punta Icacos (10°21′·4N, 75°32′·3W) the track leads NNW for 2¼ miles to the entrance of the inner harbour, passing (with positions relative to Punta Icacos):

Between the E side of Isla Tierra Bomba and Bajo Bocande (1 mile NE), marked by No 28 Light-buoy (starboard hand). The edge of the shoal water fringing the E and NE sides of Isla Tierra Bomba is marked by No's 29 and 31 Light-buoys (port hand). Thence:

2 WSW of Bajo Manzanillo (1½ miles N); No 30 Light-buoy (starboard hand) marks the S side of this bank.

The inner harbour is then entered close ENE of Punta Castillogrande (2 miles NNW), from which a light (9.180) is exhibited. Within the entrance lies a shoal, with a depth of 7·3 m over it, marked by No 36 Light-buoy (S cardinal). Close N of the shoal is a large bank, with a least depth of 0·6 m over it. A large beacon, with a statue of Madonna and child on it, stands on the N side of this bank; a smaller beacon stands close NE of the statue.

3 Channels, marked by light-buoys (lateral) and beacons, lead either side of the shoal and bank into the middle of the inner harbour from where the berths are directly accessible.

Caution. Vessels approaching the finger pier berths at the Maritime Terminal (9.191) should keep well clear of the dangerous wreck lying about 1½ cables S of the E–most pier.

Bocachica to berths between Canal de Dique and Isla Brujas

9.187

1 The directions given at 9.185 should be followed until N of No 1 Light-beacon (10°19′·1N, 75°32′·5W) (9.183). Thence, for Mamonal Oil Terminal (9.190), the track leads ESE directly to the berths; care should be taken to avoid Bajo Brujas, a coral bank marked by beacons, NNE of the terminal.

2 For vessels bound for berths S and SW of Mamonal Oil Terminal, care should be taken to avoid shoal water, marked by beacons, fronting Isla Ahorcazorra (10°18′·1N, 75°30′·9W), and Bajo Pasacaballo, extending N from the entrance to Canal del Dique; two isolated rocks, which dry, lie off the E side of Bajo Pasacaballo directly in the approach to the berth at Pasacaballos (10°17′·7N, 75°31′·1W).

Small craft channel

9.188

1 At Boca Grande (10°23′·5N, 75°34′·2W) (9.157) there is a narrow entrance, which leads through the artificial barrier of rocks into the N part of Bahía de Cartagena. The entrance, which is only suitable for small craft, is marked by two light-buoys (lateral).

2 There are no specific directions for using the entrance the chart being sufficient guide.

Basins and berths

Inner anchorages

9.189

1 The following designated anchorages, in which the bottom is mainly soft mud, lie within Bahía de Cartagena:

Tanker anchorage. Tankers anchor in an area centred on 10°18′·5N, 75°33′·1W, about 1½ miles ESE of Fuerte San José; there are depths from 10·7 to 27·5 m in the anchorage. Vessels anchoring near the S end of the anchorage should take care to avoid Banco Palito and Bajos de Ciénaga Honda, lying just outside the S limits, which have coral heads with depths of 2 m or less over them.

2 Anchorage A. Vessels waiting to berth at Mamonal Oil Terminal (10°19′·0N, 75°30′·7W) and at other berths in the vicinity may anchor in an area centred 6 cables WSW of the pierhead at the terminal. There are charted depths from 19·3 to 22·4 m in this anchorage.

3 Anchorage D. Good anchorage for vessels awaiting a berth in the inner harbour is available in an area centred 9 cables SW of Punta Castillogrande (10°23′·5N, 75°32′·7W). There are charted depths of 24·3 to 26·7 m in this anchorage.

Main berths outside the inner harbour

9.190

1 The main berths outside the inner harbour are, from S to N, as follows (with positions relative to Isla Brujas (10°20′·′0N, 75°30′·8W)):

Unnamed berth (2¼ miles SSW) at Pasacaballos, consisting of a jetty and dolphin; there are charted depths of 10·3 to 11·2 m in the vicinity.

2 Dow Chemical (2 miles S). A wooden jetty with a platform and dolphins at its head; depth alongside 8.53 m. Vessels up to 152 m LOA handled during daylight hours only.

Colterminales (2 miles SSE). A chemical terminal which handles vessels up to 180 m in length with a maximum draught of 8·5 m.

3 Abocol (2 miles SSE). A concrete wharf used for discharging fertilizer products. Vessels up to 120 m LOA with a draught of 6·0 m are handled.

Dexton (1½ miles SSE). Consists of a jetty extending 2½ cables from the shore with two dolphins. Vessels up to 150 m LOA with a draught of 8·3 m are handled.

4 Mamonal Oil Terminal (Ecopetrol Refinery Terminal) (9 cables S). Consists of a T–shaped jetty with mooring dolphins at its head. Vessels up to 260 m in length with a draught of 10·97 m and 85 000 dwt handled.

5 Petroquimica Berth (2½ cables SE). The jetty is 70 m long with a depth of 7·62 m alongside.

Colclinker Terminal (2 cables NNE). An L–shaped wharf with a berthing face of 230 m. Maximum allowable draught alongside 11·43 m. The terminal is used for loading cement clinker and coal.

6 Ecopetrol Nestor Pineda Terminal (5 cables N). Consists of an offshore platform, with mooring dolphins, connected to the shore by submarine pipelines. Vessels up to 260 m in length with a draught of 10·97 m and 85 000 dwt handled.

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7 Contecar Container Terminal (2½ miles N). Vessels berth alongside a floating jetty 100 m long; a concrete jetty 180 m in length is under construction. Depths of 12·5 m are reported alongside.

Inner harbour

9.191

1 The following berthing areas lie within the inner harbour (with positions relative to Punta Castillogrande Light 10°23′·5N, 75°32′·7W):

Muelle Turistico (1 mile N). Consists of a T–shaped pier with a berthing face 95 m long; there is a depth of 10·5 m alongside.

2 Maritime Terminal (1 mile NNE). Consists of a quay about 4 cables long from which two finger piers project SSW. It contains eight numbered berths; Berth's No 7 & 8 at the W end serve as a container terminal. The deepest and longest berth is Berth No 8; length 258 m with a maximum draught of 12·2 m allowed alongside.

3 Algranel (1¼ miles NE). At Algranel a pier, with mooring dolphins at its head, extends S from the shore; further details not known.

Muelles el Bosque Terminal (1 mile NE). This is a container terminal situated on the NW side of Isla Diablo. The maximum allowable draught alongside is reported (1996) to be 10·0 m.

4 For further developments see 9.176.

Port services

Repairs

9.192

1 Repairs of all kinds carried out and the following shipyards are available:

Conastil (10°19′·6N, 75°30′·6W) situated in the zone of Mamonal. It has a syncro-lift with a capacity of 3500 tonnes and can handle all types of repairs.

2 Astilleros Cartagena (10°21′·8N, 75°30′·6W) situated in the zone of Albornoz. Contains two lifting hoists with capacities of 700 and 500 tonnes each. The shipyard can build and repair ships up to 500 tonnes.

3 Astilleros Bazurto (Bazurto Shipyard) (10°24′·3N, 75°31′·4W), situated on the E side of the inner harbour. Repair facilities for vessels up to 500 tonnes.

4 Naval dockyard (10°24′·6N, 75°32′·8W) situated on the NW side of the inner harbour. The dockyard handles most repairs but warships have priority; floating dry dock for vessels up to 3000 dwt, 121 m length, 16 m beam, 5·8 m draught; syncro-lift 117 m long, 22 m wide, for vessels up to 3500 dwt; slipways for vessels up to 1300 dwt, 2·7 m draught.

Other facilities

9.193

1 One floating crane with a lifting capacity of 40 tonnes; medical and dental facilities; dirty ballast can be discharged at the oil terminals; garbage disposal facilities available, but not at all berths; Deratting and Deratting Exemption Certificates issued.

Supplies

9.194

1 Fuel oil, fresh water, and provisions are available, although not at all berths; consult the ship's agent for further information.

Communications

9.195

1 Considerable barge traffic to Barranquilla by river and Canal del Dique, entered at the S end of Bahía de Cartagena E of Punta Pasacaballo; international air services from Crespo Airport, 4 km NE of Cartagena.

Small craft

9.196

1 There are several marinas situated in the N part of Bahía de Cartagena providing facilities for recreational craft. Marinas, shown on the chart, are as follows (with positions relative to Punta Castillogrande Light 10°23′·5N, 75°32′·7W):

Todomar (2½ miles SE) at Albornoz.

2 Marina Santa Cruz (1 mile E).

Marina Manzanillo (1 mile E).

Marina Eduardoño (1¼ miles ENE), situated on the NE side of Isla de Manzanillo.

Marina Santacruz (1 mile NE).

3 Club Nautico Cartagena (1¼ miles N), the main marina for visitors to Cartagena; maximum allowable draught is 2·3 m.

Club de Pesca (1½ miles N), a private club which reserves a few places for visitors.

4 Marina Todomar (1¾ miles NNW), situated in Bahía de las Animas.

BAHÍA DE CARTAGENA TO GOLFO DE MORROSQUILLO

General information

Chart 1277

Route

9.197

1 From a position about 10 miles W of Bancos de Salmedina Light (10°23′N, 75°39′W) the coastal route leads SW, for about 43 miles, to a position in the outer approaches to Golfo de Morrosquillo 20 miles W of Isla Múcura (9°47′N, 75°52′W), one of the islands of Islas San Bernardo.

Topography

9.198

1 Between the N extremity of Isla Barú (10°18′N, 75°35′W) and Punta Barú, the SW point of the island 12 miles SW, the coast is generally low and backed by two groups of hills. The N group, rising to 64 m, stands 2½ miles NE of Punta Gigantes (10°15′N, 75°37′W); the S group rises to 75 m about 2 miles NE of Punta Barú, which is low and covered with palm trees.

2 From Punta Barbacoas (10°08′N, 75°35′W), the E entrance point of Bahía Barbacoas, to Punta Comisario, a low and rocky point 11½ miles S, the coast consists of a sandy beach broken by several openings leading into shallow lagoons. Thence sandy beaches, rocky in places continue to Punta San Bernardo, the N entrance point of Golfo de Morrosquillo 16 miles SSW.

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Depths

9.199

1 Depths in the vicinity of Islas del Rosario (10°11′N, 75°47′W) and Bajo Tortuguilla (10°04′N, 75°53′W) may be less than charted.

Submarine exercise areas

9.200

1 For information on submarine exercise areas see 9.148.

National marine park

9.201

1 Corales del Rosario, a national marine park, encompasses the waters surrounding Islas Del Rosario (10°11′N, 75°47′W), Bajo Tortuguilla (10°04′N, 75°53′W), Islas San Bernardo (9°46′N, 75°53′W) and the waters in between; the limits are shown on the chart.

2 To protect the marine environment within the park, ships, fuel barges, fishing vessels and major coastal craft are forbidden to sail through the channels located between Isla Grande (10°11′N, 75°45′W), Isla Arena (10°09′N, 75°44′W) and Punta Barú. This restriction is strictly enforced by the Colombian authorities.

Principal marks

9.202

1 **Landmark:**

Loma de Tigua (9°53′N, 75°36′W) about 1 mile inland, with an elevation of 220 m, is easily identifiable; a range of hills backs the coast for 5 miles S from it.

2 **Major lights:**

Isla del Tesoro Light (10°14′N, 75°44′W) (9.180).

Isla El Rosario Light (white tower, red bands) (10°10′N, 75°48′W); the base of a previous light, consisting of four piles awash, is situated 5 cables NNE of the light.

3 Isla Múcura Light (red and white tower) (9°47′N, 75°52′W), exhibited from the W island of Islas San Bernardo.

Directions

(continued from 9.152)

9.203

1 From a position about 10 miles W of Bancos de Salmedina Light (10°23′N, 75°39′W) the track leads SW, passing (with positions relative to Isla El Rosario Light (10°10′N, 75°48′W)):

NW of Bancos del Tesoro (7½ miles N), lying 5 miles NW of Isla del Tesoro from which a light (9.180) is exhibited; the island is sandy. Thence:

2 NW of Banco Rosario (2¾ miles W) fronting the W side of Islas del Rosario; a wide berth should be given to Islas del Rosario to avoid the outer shoals. Islas del Rosario lie among numerous reefs and shoals situated from 6 miles N to 10 miles WSW of Punta Barú. Isla Grande, the largest island, is low and covered with palm trees. Isla del Rosario, the SW island, is also covered with palm trees; a light (9.202) is exhibited from a position 1 mile W of this island. Thence:

3 NW of an obstruction (7½ miles W), consisting of a pipe standing upright, thence:

NW of Bajo Tortuguilla (6 miles SW), thence:

4 NW of the shoal water fronting the W side of Islas San Bernardo (21 miles S) (9.213). When passing NW of Islas San Bernardo and the shoals in the vicinity, great care is necessary. Islas San Bernardo have been mistaken for Islas del Rosario, although 20 miles apart; the latter consist of only four principal cays, but the former with eight principal cays scattered over a much larger area, when seen at a distance of 10 to 12 miles, appear in several parts like small rocks lying between the larger cays.

5 The track then leads to a position in the outer approaches to Golfo de Morrosquillo 20 miles W of Isla Múcura (9°47′N, 75°52′W)

(Directions continue, for the coastal route SW at 9.229, and for Golfo de Morrosquillo at 9.213)

Anchorages

Islas del Rosario

9.204

1 **Description.** Good anchorage, sheltered from the North-east Trade Winds, can be obtained with local knowledge S of Islas del Rosario (10°11′N, 75°47′W). However this anchorage lies within a national maritime park and restrictions apply; see 9.201.

2 **Useful mark:**

Isla Arena Light (orange tower) (10°09′N, 7°44′W).

Bahía de Barbacoas

9.205

1 **Description.** Bahía de Barbacoas, on the SE side of Isla de Barú, is entered between the SE end of Punta Barú (10°08′N, 75°42′W) (9.198) and Punta Barbacoas, 7½ miles E. At the head of Bahía de Barbacoas there is an entrance to a narrow channel which connects the bay with Canal del Dique (9.195). Bahía de Barbacoas is of no commercial importance to shipping.

2 **Caution.** The coastline on the E side of the approaches to Bahía de Barbacoas, between Punta Barbacoas and Punta de Tigua 15 miles S, is subject to frequent change; depths may be less than charted.

Directions. Bahía de Barbacoas is approached from the SW through a national maritime park, which has restrictions applying to it; see 9.201.

3 **Anchorage.** The inner part of Bahía de Barbacoas affords good anchorage in depths from 7 to 9 m, over a bottom of mud, sheltered from all winds, but local knowledge is required to avoid a number of reefs and shoals in the bay.

GOLFO DE MORROSQUILLO

General information

Chart 1277, with plan of Puerto Coveñas

Route

9.206

1 From a position 20 miles W of Isla Múcura (9°47′N, 75°52′W), one of the islands of Islas San Bernardo, the route leads SE, for 24 miles into Golfo de Morrosquillo, to a position about 7 miles E of Roca Morrosquillo (9°36′N, 76°00′W).

Topography

9.207

1 Golfo de Morrosquillo lies between Punta San Bernardo (9°42′N, 75°42′W), which is low and sandy, and the mouths of Caño Tinajones, 20 miles SW; its low shores are fringed by mangroves and wooded swamps. The town of Tolú (9.224) stands near the shore at the head of the gulf, 12½ miles SE of Punta San Bernardo.

2 The head of the gulf is backed by a plain skirted by extensive savannahs, bounded by a mountain range. The

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highest peaks, standing 12 miles E of Tolú, are Tetas de Tolú (not named on chart), which form two remarkable hummocks more than 305 m high; they are easily identified.

Submarine cables

9.208

1 Two submarine cables, the positions of which are shown on the chart, are laid in Golfo de Morrosquillo and land at Tolú (9°31′N, 75°35′W). Mariners should not anchor or trawl in the vicinity of these cables. For further information on submarine cables see 1.42.

Fishing

9.209

1 Fishing is prohibited in the navigation channels leading to Golfo de Morrosquillo.

Flow

9.210

1 In the entrance to Golfo de Morrosquillo, the flow is affected by the coastal counter-current which is ENE–going and attains a rate of nearly ¾ kn. Within the gulf, it is affected by the tidal streams which are sometimes strong enough to cause a resultant WSW–going flow, but this reverse flow seldom exceeds a rate of ¼ kn.

2 See also 9.144.

Principal marks

9.211

1 **Landmarks:**

Water tower at Tolú (9°31′N, 75°35′W).

Cerros de San Antero (not named on chart), a ridge of hills 236 m high standing 6 miles SE of Punta Mestizos (9°26′N, 75°48′W).

2 **Major lights:**

Isla Múcura Light (9°47′N, 75°52′W) (9.202).

Isla Ceycen (red and white tower) (9°42′N, 75°51′W), exhibited from the SW end of the island.

Roca Morrosquillo Light (white tower, red bands) (9°36′N, 76°00′W).

3 Puerto Coveñas Light (white tower), exhibited from Punta de Piedra (9°25′N, 75°39′W).

Other aid to navigation

9.212

1 **Racon:**

Roca Morrosquillo Light (9°36′N, 76°00′W).

For further details see *Admiralty List of Radio Signals Volume 2*.

Directions

(continued from 9.203)

9.213

1 From a position 20 miles W of Isla Múcura (9°47′N, 75°52′W) the track leads SE, passing (with positions relative to Roca Morrosquillo (9°36′N, 76°00′W)):

SW of the shoals and shallow banks fringing the W and SW sides of Islas San Bernardo (5¾ miles NE), which lie between 15 miles NW and 13 miles W of Punta San Bernardo. Isla Tintipán is the N and largest of this group of low rocks and wooded cays. Isla Múcura, from which a light (9.202) is exhibited, lies 7½ cables WSW of Isla Tintipán; between them is Islote, on which stands a village. And:

2 NE of Roca Morrosquillo, a coral shoal from which a light (9.211) is exhibited and a racon (9.212) transmitted, thence:

SW of Bajo de Sotavento (8½ miles NE), a small isolated bank lying 2 miles S of Isla Ceycen, the S–most island, from which a light (9.211) is exhibited, of Islas San Bernardo.

3 The track then leads to a position about 7 miles E of Roca Morrosquillo (9°36′N, 76°00′W), from where the anchorages and berths for Puerto Coveñas can be directly accessed. For vessels bound for Tolú (9.224) and Tolcementos Pier (9.223) the track leads ESE for a farther 14 miles, passing NNE of the offshore berths of Puerto Coveñas.

Side channels

9.214

1 Golfo de Morrosquillo may also be entered, by small vessels, from the NNE, by passing through the channels E of Islas San Bernardo. Of these channels Canal Salamanquilla is the E–most and lies between the reefs extending 1 mile E from Isla Palma (9°44′N, 75°45′W) and the coastal bank; the channel is about 2 cables wide with a least depth of 13 m.

2 A wider and deeper channel lies between the banks extending NW from Isla Palma and those extending SE from Isla Mangles (9°46′N, 75°47′W).

Puerto Coveñas

General information

9.215

1 **Position.** Puerto Coveñas is situated on the S side of Golfo de Morrosquillo adjacent to the town of Coveñas (9°25′N, 75°42′W).

Function. The port is a tanker terminal used for exporting crude oil and is operated by Ecopetrol.

2 **Traffic.** In 1997 the terminal was used by 206 vessels with a total dwt of 17 432 669.

Port Authority. Port Authority of Coveñas, Capitania de Puerto, Coveñas, Sucre, Colombia.

Limiting conditions

9.216

1 **Maximum size of vessel handled.** Vessels 300 m long with a draught of 17·07 m and up to 150 000 dwt can use the terminal.

Tidal levels. Mean maximum range about 0·3 m; mean minimum range about 0·1 m. For further information see the *Admiralty Tide Tables.*

2 **Density of water.** The density varies between 1·015 and 1·025 g/cm^3, depending on the time of year and the volume of fresh water flowing into the gulf from Río Sinú (9.225).

Arrival information

9.217

1 **Port operations.** The following personnel usually stay onboard during cargo operations:

Cargo loading Master
Mooring Master
Three surveyors
Agent and Pollution Inspector.

2 **Port radio.** There is a port radio station at Coveñas. For further details see *Admiralty List of Radio Signals Volume 6 (5)*.

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Outer anchorages the limits of which are shown on the chart are as follows:

Anchorage "A", the quarantine anchorage, centred 7¾ miles WNW of TLU 3 SPM (9°31′·7N, 75°47′·2W).

Anchorage "B", for tankers awaiting a berth, centred 2½ miles WNW of TLU 3 SPM.

3 **Pilotage** is compulsory except for anchoring. The pilot boards 3 miles WNW of TLU 3 SPM. For further details see *Admiralty List of Radio Signals Volume 6 (5)*.

Tugs are available.

4 **Restricted area.** Mariners are warned that they risk prosecution if they anchor, trawl or carry out other activities affecting the sea bed in a restricted area, protecting the pipelines, whose limits can be seen on the chart.

Harbour

9.218

1 **General layout.** Puerto Coveñas is an open roadstead with an offshore oil terminal, consisting of three SPM's, and a pier. Oil pipelines are laid from Coveñas directly to the SPM's.

Directions for entering harbour

9.219

1 There are no specific directions for picking up the pilot or for berthing at Puerto Coveñas, the chart being sufficient guide

Berths

9.220

1 **Offshore berths** (with positions relative to Puerto Coveñas Light (9°25′N, 75°39W)):

TLU1 (6¾ miles NW). A SPM moored in a depth of 25 m.

TLU2 (8½ miles NW). A SPM moored in a depth of 28 m.

2 TLU3 (10½ miles NW). A SPM moored in a depth of about 35 m.

Alongside berth. A pier extends NNE for about 2 cables from the shore at Coveñas, its root is situated near the E end of tank farm, as shown on the chart. The pier is used by vessels servicing the tankers at the tanker loading units.

Port services

9.221

1 **Repairs.** Minor repairs can be undertaken.

Other facilities: emergency medical facilities only; no dirty ballast, slop or garbage facilities.

Supplies. Fuel can be obtained by lighter from Cartagena at 7 days notice; fresh water and provisions are not available

2 **Communications.** Crew repatriation can be arranged, but is not encouraged. Nearest airport is at Monteria, approximately 1½ hours drive from the port.

Harbour regulation. Shore leave is not permitted.

Anchorages and minor harbour

Anchorages

9.222

1 Good anchorage can be obtained almost anywhere in Golfo de Morrosquillo during the season of light winds; the bottom is soft green mud. During the trade winds, shelter for small vessels is afforded under the N shore of the gulf within Banco El Pajarito (9°40′N, 75°42′W); this spit extends 2 miles S, thence 2 miles ESE, from Punta San Bernardo.

2 For information on specific anchorages for Puerto Coveñas see 9.217, for Tolcementos see 9.223, and for Tolú see 9.224.

Tolcementos Pier

9.223

1 **Description.** Tolcementos Pier (9°29′·4N, 75°36′·1W) extends WNW from a position onshore about 7 miles NE of Coveñas. The channel leading to the pier is marked by buoys, but local knowledge is considered essential before an approach is made. Vessels up to 5000 tonnes can be handled at the pier.

2 **Anchorage.** A designated anchorage "D", is situated 1½ miles NW of the pier, for vessels awaiting a berth.

Berth. The pier was reported (1996) to be about 150 m long, orientated 115°/295° and with a depth of about 10·3 m alongside its S side where coal, clinker and cement is loaded; the N side of the pier is used by service craft.

Tolú

9.224

1 Anchorage may be obtained off Tolú (9°31′N, 75°35′W), at the head of Golfo de Morrosquillo, in designated anchorage "E", the limits of which are shown on the chart. When approaching this anchorage care must be taken to avoid an obstruction which lies close W of the anchor berth. There are also some small piers at Tolú.

Small craft

Bahía de Cispata

9.225

1 **Description.** Bahía de Cispata is entered between Punta Mestizos (9°26′N, 75°48′W) and Punta Bello, 3 miles ESE. The land on the N side of Bahía de Cispata is low, swampy, and covered with mangroves. The head of the bay is shallow and marshy, with rice fields in its NW part and mangroves in the SE part.

2 **River.** Río Sinú, with several mouths at the head of the bay, is navigable with the aid of a pilot for a considerable distance by small craft. A current, caused by the water discharged from Río Sinú, flows continuously with a rate of 1 kn out of Bahía de Cispata.

GOLFO DE MORROSQUILLO TO GOLFO DE URABÁ

General information

Charts 1277, 1278

Route

9.226

1 From a position in the outer approaches to Golfo de Morrosquillo, 20 miles W of Isla Múcura (9°47′N, 75°52′W), the coastal route leads SW, for about 78 miles, to a position about 10 miles NW of Punta Caribana (8°37′N, 76°53′W), the E entrance point of Golfo de Urabá.

Topography

9.227

1 From the SW entrance point of Golfo de Morrosquillo to Punta Manzanillo, 11 miles SW, the coast is very low and covered with mangroves. Punta Manzanillo is the extremity of a bold scarped headland which is moderately high,

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terminating 3 miles SW at La Rada; the point is bordered by rocks, some above-water. The shores of Ensenada de La Rada, entered S of La Rada, are low and heavy wooded.

2 Between Punta La Cruz (9°11′N, 76°11′W) and Punta Yuca (not named on chart), near the town of Cristo Rey, formerly known as Yuca, there are several coves but they are foul and afford no shelter.

In the vicinity of Punta Brava (8°57′N, 76°19′W), 5 miles SW of Puerto Escondido (9.232), the coast is low and heavily wooded; it becomes sandy 3 miles SW of the point until Punta Arboletes is reached. Cliffs up to 12 m high, backed by hills, stand 4½ miles SW of Punta Arboletes

3 Hills rise to 207 m at the tree-tops about 1 mile SE of Punta San Juan (8°48′N, 76°31′W). The coast WSW of the mouth of Río San Juan (8°47′N, 76°31′W), for 7½ miles to Punta Sabanilla, is sandy with some trees and three villages on it. Between Punta Sabanilla and Punta Caribana, 16½ miles WSW, the coast is low and sandy; most of it is heavily wooded.

Principal marks

9.228

1 **Landmarks:**

Cerros de la Rada (9°10′N, 76°07′W), a range of hills with three peaks. The SW and steepest peak is 269 m high, with a tree on the summit.

Cerro Tortugón (Colina Tortugon on Chart 1278) (9°02′N, 76°15′W), a conical hill near the coast.

2 Cerro Maconda (8°53′N, 76°21′W), 164 m high.

Cerros de Sabanilla (8°42′N, 76°36′W), a group of hills up to 247 m high.

Cerro Aguila (8°36′N, 76°53′W), which rises from low ground close within Punta Caribana. The E of two peaks, standing 1½ miles SSE of this hill, is 148 m high at the tree-tops.

3 **Major lights:**

Isla Fuerte Light (red and white tower) (9°24′N, 76°11′W), standing 5 cables N of Puerto Limon.

Isla Tortuguilla Light (red and white tower) (9°02′N, 76°21′W), exhibited from the N extremity of the island.

Punta Caribana Light (white tower) (8°37′N, 76°53′W), standing on the E entrance point of Golfo de Urabá.

Directions

(continued from 9.203)

Remarks

9.229

1 In the coastal passage from Golfo de Morrosquillo to the entrance of Golfo de Urabá it is advisable to keep NW of Isla Fuerte (9°24′N, 76°11′W) and then pass not less than 10 miles off the salient points to avoid a number of offshore shoals.

Track

9.230

1 From a position 20 miles W of Isla Múcura (9°47′N, 75°52′W) the track leads SW, passing (with positions relative to Isla Fuerte Light (9°24′N, 76°11′W)):

NW of Isla Fuerte, which is low and wooded, and from which a light (9.228) is exhibited. Though well defined from the N, the island can only be distinguished at a distance of 7 or 8 miles when approached from the W. Foul ground extends 1½ miles NW and 2 miles S from the island. Thence:

2 NW of Bushnell Shoal (10 miles WNW) a coral patch, thence:

NW of Punta Broqueles (9½ miles S), which is low and rocky. Bajío Toro, an isolated rock, lies 1½ miles N of the point, and Farallón, a group of above-water rocks, lie 1¾ miles SW of the point. Thence:

3 NW of two isolated shoals, with depths of 5·9 and 6·9 m over them, lying 4 miles W of Punta de La Cruz, thence:

NW of Isla Tortuguilla (23¾ miles SSW), lying 4 miles offshore; the island is low and wooded. A light (9.228) is exhibited from the island.

The track then continues SW, passing (with positions relative to Punta Sabanilla (8°44′N, 76°38′W)):

4 NW of a patch of sand and coral (12 miles NE), with a depth of 6·4 m over it, lying 4½ miles W of Punta Arboletes. Punta Arboletes is low, but wooded and prominent, and is fringed by reefs. Thence:

NW of Punta San Juan (8¼ miles NE), which is bordered by cliffs up to 9 m high; the point is prominent from NE or WSW. Thence:

5 NW of a submerged volcano (5 miles WNW), fronting Punta Sabanilla. This volcano, was formerly Isla Carabodo, a small island 4 m high, reported to have formed in 1945; it subsided later in the same year, leaving only a shoal with an unknown depth over it. Punta Sabanilla is 7 m high and wooded.

6 The track then leads to a position about 10 miles NW of Punta Caribana (16½ miles WSW); a light (9.228) is exhibited from the point. Foul ground extends 3½ miles NNW from Punta Caribana; a light-buoy (N cardinal) marks the outer edge of this foul ground.

(Directions continue for Golfo de Urabá at 9.244)

Anchorage

Puerto Limon

9.231

1 Good anchorage can be obtained by small vessels drawing up to 3·7 m off Puerto Limon (9°23′N, 76°10′W) at the S end of Isla Fuerte. Local knowledge is required.

Small craft

Puerto Escondido

9.232

1 Puerto Escondido (9°01′N, 76°16′W) is a small town on a hillside close SSW of Cerro Tortugón (Colina Tortugon on Chart 1278) (9.228). A landing place exists abreast the middle of Puerto Escondido.

Isla Tortuguilla

9.233

1 Boats can obtain fair anchorage off a sandy beach on the SE side of Isla Tortuguilla (9°02′N, 76°21′W). A considerable swell has been experienced off the island.

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GOLFO DE URABÁ

GENERAL INFORMATION

Chart 1278

Area covered

9.234

1 This section covers the coastal waters of Golfo de Urabá, which is entered between Punta Caribana (8°37′N, 76°53′W) and Cabo Tiburón, 28 miles W, and extends 45 miles S. The delta of Río Atrato projects from its W shore forming Bahía Colombia, the head of the gulf. The principal port is Turbo (8°05′N, 76°44′W) (9.260) on the E side of the entrance to Bahía Colombia, 34 miles SSE of Punta Caribana.

2 The section is arranged as follows:

Golfo de Urabá – outer part (9.238).

Golfo de Urabá – inner part including Bahía Colombia (9.251).

Topography

9.235

1 The shores of Golfo de Urabá are generally low, heavily wooded and swampy on the E, S and SW sides; the N part of the W shore is steep and rocky, with coves and sandy beaches.

Driftwood

9.236

1 Driftwood is found in large quantities in the gulf.

Natural conditions

9.237

1 **Local squalls.** *Chocosanas* is the local name of S storms which are very common from June to October; they occur most frequently at night between 2200 and midnight, and are usually preceded by light N winds and general lightning around the horizon. The wind gradually shifts from N to S, increasing in force.

2 The main storm centre lasts about 30 minutes with winds attaining nearly hurricane force; it is accompanied by heavy rain and electrical disturbances, and up to 101 mm of rain may fall during one storm.

3 **Discolouration.** The rivers discharging into Golfo de Urabá discolour the water, giving the appearance of shoals, but this discolouration has no relation to depths.

GOLFO DE URABÁ — OUTER PART

General information

Chart 1278

Routes

9.238

1 Golfo de Urabá may be entered either from the N or the NW. The N route leads S, for 13½ miles, from a position about 10 miles NW of Punta Caribana (8°37′N, 76°53′W) to a position about 6½ miles SW of Punta Arenas del Norte (8°33′N, 76°56′W). The route then leads SE for a farther 10 miles to a position 8 miles SW of Punta Urabá (8°25′N, 76°47′W).

2 The NW route leads SE, for 23 miles, from a position about 10 miles NE of Cabo Tiburón (8°41′N, 77°21′W) to join the N route off Punta Arenas del Norte, which it then follows, for a farther 10 miles, to a position 8 miles SW of Punta Urabá.

Topography

9.239

1 **East side.** On the E side of the gulf the coast between Punta Arenas del Norte and Punta Urabá is heavily wooded and low; its SE part is backed by hillocks 59 m high 1 mile N of Punta Urabá.

West side. Cabo Tiburón, the W entrance point of the gulf, rises to 123 m close within the cape; it is very steep, with rocky bluffs, and is well wooded above the rocks. Between Cabo Tiburón and Punta Acandí, 11 miles SE, the coast is rugged and rocky with many bluffs and occasional beaches and coves; it is backed by steep and heavily wooded slopes up to 402 m high.

2 From Punta de Tolo, 2 miles SSE of Punta Acandí, the coast for 1 mile S is steep and rocky, thence it consists of a flat sandy beach for 5½ miles SE to Punta de la Goleta. This beach is backed by a heavily wooded plain extending 2 miles inland to some low hills.

The coast from Punta de la Goleta to Playa Tarena, 14 miles SE, consists of coves and sandy beaches between rocky points; it is backed by a range of hills up to 415 m high. Playa Tarena is low and sandy and is backed by swamps.

Depths

9.240

1 Depths off the E shore of the gulf are regular and navigation is easy if careful attention is paid to sounding. No known offshore dangers exist. On the W side of the gulf no known dangers exist more than 1½ miles offshore as far as Bahía Gloria (8°16′N, 77°01′W) at the N end of the delta of Río Atrato.

International boundary

9.241

1 The boundary between Colombia and Panama is marked by two concrete beacons standing on the NW extremity of Cabo Tiburón (8°41′N, 77°21′W); the seaward beacon stands on a pinnacle rock and is 81 m high.

Principal marks

9.242

1 **Landmark:**

Building standing close S of Punta de la Goleta (8°26′N, 77°10′W).

2 **Major lights:**

Punta Caribana Light (8°37′N, 76°53′W) (9.228).

Cabo Tiburón Light (red tower, white bands) (8°41′N, 77°21′W).

Punta Caimán (red and white tower) (8°16′N, 76°46′W).

Other navigational aid

9.243

1 **Racon:**

Cabo Tiburón (8°41′N, 77°21′W).

For further details see *Admiralty List of Radio Signals Volume 2*.

Directions

(continued from 9.230)

North approach

9.244

1 From a position about 10 miles NW of Punta Caribana (8°37′N, 76°53′W) the track leads S, passing (with positions relative to Punta Caribana):

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W of the foul ground (9.230) extending NNW from Punta Caribana, from which a light (9.228) is exhibited, thence:

2 W of the shoal water lying between Punta Caribana and Punta Arenas del Norte, thence:

W of Punta Arenas del Norte, from which a light (red and white tower) is exhibited. The point is the W extremity of a low sandy promontory. A stranded wreck, the position of which is approximate, lies close off Punta Arenas del Norte near the light; it was reported in 1992 that the wreck was no longer visible.

3 Thence when a position is reached about 6½ miles SW of Punta Arenas del Norte the track leads SE, passing (with positions relative to Punta Arenas del Norte):

NE of Roca Triganá (13¾ miles), a rock awash, and Peñon Triganá, an above-water rock, lying off Ensenada Triganá (9.249), thence:

4 NE of Islas Titumate (15½ miles SSW), a group of islets and rocks.

The track then leads to a position 8 miles SW of Punta Urabá (11¾ miles SE), a rocky bluff on which stands the village of Necoclí.

(Directions continue at 9.257)

North-west approach

9.245

1 From a position about 10 miles NE of Cabo Tiburón (8°41′N, 77°21′W) (9.239), from which a light (9.242) is exhibited and a racon transmitted, the track leads SE, passing (with positions relative to Cabo Tiburón):

NE of Terrón de Azucar (6½ miles SE), a precipitous dark offshore rock; the shallow ridge joining this rock to the coast is marked by breakers in heavy weather. A patch, with a depth of 4·9 m over it, lies 2 cables NW of Terrón de Azucar. Thence:

2 NE of Peñon de Jano (18¼ miles SE), consisting of two rocks fronting the N side of Punta de la Goleta; the point is steep and rocky. Thence:

NE of Isla Napú (21 miles SE), a steep and rocky islet lying about 5 cables offshore; it is covered with brush and small trees.

3 Thence from a position about 6½ miles SW of Punta Arenas del Norte (9.244) the track follows the latter part of the directions given for the N approach to a position 8 miles SW of Punta Urabá (8°25′N, 76°47′W) (9.244).

Anchorages

Punta Arenas del Norte

9.246

1 Good anchorage can be obtained from 6 to 7 miles SE of Punta Arenas de Norte (8°33′N, 76°56′W) in depths of 13 m, over a bottom of mud, but it is open to the S. For information on local winds see 9.237.

Bahía Zarzurro

9.247

1 **Description.** Bahía Zarzurro (8°40′N, 77°22′W), also known as Bahía Sapzurro, is a narrow cove situated on the S side of Cabo Tiburón; it provides good anchorage for small vessels. The cove should be approached with care as it contains many coral patches; a patch, with a 5·5 m over it, lies 2½ cables NE of the N entrance point.

2 **Useful marks:**

Light (red tower) exhibited from the N entrance point.

Light (green tower) exhibited from the S entrance point.

3 **Local knowledge** is required.

Bahía Estola

9.248

1 **Description.** Bahía Estola (8°31′N, 77°16′W), entered between Punta Acandí and Punta de Tolo 1¾ miles SE, provides an anchorage for small vessels; it is open E and SE. The shore of the bay is a very steep sandy beach on which landing is dangerous. Acandí, the largest village on the W side of Golfo de Urabá, stands at the head of Bahía Estola.

2 **Local knowledge** is required.

Ensenada Triganá

9.249

1 **Description.** Ensenada Triganá (8°22′N, 77°07′W) provides anchorage for small vessels in depths from 9 to 14 m, well sheltered from nearly all directions. Its entrance is narrowed to a width of 2½ cables by shoal depths on both sides. The cove may be approached through narrow and tortuous channels either between Peñon Triganá (9.244) and Roca Triganá (9.244), lying 4 cables NNE of it, or S of Peñon Triganá. There is a patch, with a depth of 7·3 m over it, in the N channel.

2 **Local knowledge** is required.

Small craft

Isla Tarena

9.250

1 **Description.** Well sheltered anchorage may be obtained between the W side of Isla Tarena (8°17′N, 77°03′W) and the mainland in a depth of 3·7 m. Isla Tarena is a steep, rocky and heavily wooded islet; its S end is joined to the mainland by a sandbar with depths of 1·0 m or less over it.

2 **Local knowledge** is required.

GOLFO DE URABÁ — INNER PART

General information

Charts 1278, 2262

Route

9.251

1 From a position 8 miles SW of Punta Urabá (8°25′N, 76°47′W) (9.244) the route initially leads SE, for about 13 miles, to a position 1¾ miles NE of Isla Los Muertos (8°08′N, 76°49′W), and thence SSE through the entrance to Bahía Colombia, for a farther 5 miles, to the pilot boarding area for Turbo 1¾ miles W of Punta Las Vacas (8°04′N, 76°44′W).

Topography

9.252

1 The main features of the inner part of Golfo de Urabá are the delta of Río Atrato (9.258), on the W side, and Bahía Colombia forming the head of the gulf. Bahía Colombia lies S of Punta Las Vacas, on the E side, and the delta of Río Atrato on the W side. The shores of the bay are low, covered with mangroves, and backed by heavily wooded swamps.

Depths

9.253

1 **East side of entrance to Bahía Colombia.** In 1994 it was reported that the coast was extending S from Punta

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Yarumul (8°07′N, 76°45′W) and in 1977 between Punta Yarumul and Punta Las Vacas, 3 miles S, the coast was reported to be extending W; also in 1982 extensive shoaling was reported in the vicinity of Punta Las Vacas.

2 **West side of entrance to Bahía Colombia.** It was reported in 1991 that E of Isla Los Muertos (8°08′N, 76°49′W), the sandspit extends about 5 cables SE and other depths in the vicinity may be less than charted; at its W extremity the island now adjoins the delta of Río Atrato. In 1978, the delta was also reported to be extending E between Boco del Coco (8°05′N, 76°50′W) and Boca Urabá, 2½ miles S.

Tidal levels

9.254

1 At Punta Yarumul (8°07′N, 76°45′W) the mean maximum range is about 0·5 m; mean minimum range about 0·1 m. For further information see the *Admiralty Tide Tables.*

Current

9.255

1 Between Punta Caimán (8°16′N, 76°46′W) and Punta Yerbasal, 10½ miles W, a surface current has been observed setting N with a rate up to 2 kn. A surface current with a considerable rate has also been observed setting erratically around Punta Yerbasal, but observations at a depth of 2·7 m showed a rate of about ½ kn, and that it was due mainly to the tidal streams. See also 9.144.

Principal marks

9.256

1 **Major lights:**

Punta Caimán (8°16′N, 76°46′W) (9.242).

Punta Yarumul Light (red and white tower) (8°07′N, 76°45′W).

Directions

(continued from 9.244)

9.257

1 From a position 8 miles SW of Punta Urabá (8°25′N, 76°47′W) (9.244) the track continues initially to lead SE, passing (with positions relative to Punta Yarumul (8°07′N, 76°45′W)):

NE of Punta Yerbasal (14½ miles NW), which is low, sandy, and covered with brush and low trees. Boca Tarena, about 2 miles W of the point, is the N mouth of Río Atrato (9.258). Thence:

2 NE of the shoal water extending up to 2 miles NE from Bocas Roto (11½ miles WNW), and:

SW of Punta Caimán (9½ miles N), from which a light (9.242) is exhibited. A stranded wreck, reported to be radar conspicuous, lies 1 mile N of Punta Caimán which is low and sandy. The coast in the vicinity of the Punta Caimán is backed by a range of hills rising to over 300 m about 6 miles SE of the point.

3 Thence when a position is reached about 1¾ miles NE of Isla Los Muertos (4 miles WNW) (9.258), from the E side of which a light (red and white tower) is exhibited, the track leads SSE, passing:

WSW of Punta Yarumul, from which a light (9.256) is exhibited, thence:

ENE of the shoal water extending 2½ miles SE of Boco del Coco (5 miles WSW).

4 The track then leads to a position 1¾ miles W of Punta Las Vacas (3 miles S), the W entrance point of Bahía Turbo from which a light (red and white tower, 10 m in height) is exhibited; the light-structure is not easily identified from NW at a distance of more than 2 miles.

5 **Caution.** The approach to the pilot boarding position off Punta Las Vacas offers no difficulty, but it is reported that the coastline between Punta Yarumul and Punta Las Vacas does not show up well on radar and should be given a berth of about 2 miles.

Useful mark:

Matuntugo Light (red and white tower) (8°07′N, 76°50′W) exhibited from a position close S of the entrance to Brazo Matuntugo.

(Directions continue for Turbo at 9.264)

Río Atrato

Description

9.258

1 Río Atrato, one of the largest rivers in South America, rises in a spur of the Antioquian Range several hundred miles S of Golfo de Urabá. The delta of the river, extending 16 miles SSE from the vicinity of Punta Yerbasal (8°15′N, 76°56′W) is a large area of mangrove-covered swampy ground, projecting about 7 miles from the general trend of the coast, and is intersected by a maze of channels. Isla Los Muertos, lying 10½ miles SE of Punta Yerbasal, is wooded with a sandspit at its E end; it is the only solid ground in the whole delta.

2 The seven principal mouths of the river, named from N, are Boca Tarena (8°16′N, 76°59′W), the largest and deepest mouth, Bocas Roto, Boca Barbacoas, Boca del Coco, Boca Urabá, Boca Pichindi and Boca Pichindicito (8°01′N, 76°52′W). These mouths are navigable by canoes and small local craft drawing up to 1·5 m, and such craft can ascend the river for about 340 miles.

Anchorages

9.259

1 **Bahía Candelaria.** Good anchorage may be obtained in Bahía Candelaria, which is entered between Punta Candelaria (8°11′N, 76°55′W) and a point 3 miles SSE, in depths of up to 23 m over a bottom of green mud. The anchorage is much restricted by shallow banks which limit the navigable width of the entrance to 6 cables. The bay should be approached from NNE so as to pass about 1½ miles SE of Punta Candelaria, thence 5 cables off the SSE entrance point.

2 **Bahía de Cocogrande.** For small vessels there is a good anchorage, the limits of which are shown on the chart, in the approaches to Bahía de Cocogrande, which lies between Isla Los Muertos (8°08′N, 76°49′W) and Boca del Coco, 2 miles SSW. Local knowledge is required.

Turbo

General information

9.260

1 **Position.** The port of Turbo (8°05′N, 76°44′W), situated on the E side of the entrance to Bahía Colombia within Bahía Turbo, also includes loading anchorages inside Bahía Colombia.

Function. Turbo is a lighterage port with vessels anchoring to load bananas and lumber; pesticides and paper are imported.

2 **Traffic.** In 1997 the port was used by 580 vessels with a total of 5 147 664 dwt.

Port Authority. Sociedad Portuaria Regional de Buenaventura SA, Av Portuaria, Edif Administracion, piso 3, Buenaventura, AA 478–10785, Colombia.

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Limiting conditions

9.261

1 **Controlling depths.** Charted depths in the entrance to Bahía Colombia vary from 10·4 to 20·5 m. However, mariners are warned that in the approaches to Turbo and within Bahía Colombia silt is being deposited at river mouths causing the coastline to be extended seaward in some places and eroded in others.

2 In particular, in 1978 it was reported that the E shore of Bahía Colombia within 2 miles S of Punta César (8°01′N, 76°44′W) was reported to be extending W, and in 1996 it was reported that considerable changes had taken place to both the E and W shores of the bay.

Tidal levels. See 9.254.

3 **Density of water.** The water is brackish and the density varies according to whether the season is wet or dry.

Arrival information

9.262

1 **Port radio.** There is a port radio station at Turbo. For details see *Admiralty List of Radio Signals Volume 6 (5).*

Notice of ETA required. Vessels should send an ETA and request for pilot 24 hours prior to arrival through Barranquilla Coast Radio Station. For further details see *Admiralty List of Radio Signals Volume 6 (5).*

2 **Outer anchorages.** Vessels awaiting a pilot may anchor between 1½ and 2 miles W of Punta Las Vacas (8°04′N, 76°44′W), in depths of 13 to 19 m. There is also a quarantine anchorage, the limits of which are shown on the chart, centred 3 miles SSE of Punta Las Vacas.

Pilotage is compulsory. The pilot boards 1¾ miles W of Punta Las Vacas. For further details see *Admiralty List of Radio Signals Volume 6 (5).*

3 **Tugs** are available but are generally involved in lighterage operations.

Customs. Turbo is a port of entry. The port authorities board off Punta Las Vacas (8°04′N, 76°44′W). Customs clearance for onward passage to the cargo anchorages is granted only between 0800 and 1800.

Harbour

9.263

1 **General layout.** The port of Turbo consists of Bahía Turbo and Bahía Colombia. Bahía Turbo, entered E of Punta Las Vacas, is only accessible to small craft and lighters; the town of Turbo stands among swamps at the head of the bay.

2 Although anchorage may be obtained anywhere in Bahía Colombia, the three principal cargo handling anchorages are Area E, S of Punta Las Vacas, Río León Anchorage, in the SE corner of the bay, and Pichindi Anchorage close off the S side of the delta of Río Atrato.

Directions for entering harbour

(continued from 9.257)

9.264

1 From a position 1¾ miles W of Punta Las Vacas (8°04′N, 76°44′W) the pilot conducts a vessel to the required cargo handling anchorage. There are no specific directions the chart being sufficient guide.

Useful marks:

2 Light (framework tower, red and white bands) (7°561N, 76°44′·9W) exhibited NW of the mouth of Río León.

Light (orange tower, 11 m in height) (7°55′·9N, 76°44′·6W) exhibited from the shore on the E side of the entrance to Río León.

Berths

9.265

1 **Area E Anchorage.** The anchorage, the limits of which are shown on the chart, is centred 1 mile S of Punta Las Vacas. It is suitable for cargo vessels with draughts up to 5·0 m. The anchorage is used by tankers discharging pesticides into barges.

2 **Río León Anchorage.** This anchorage off the mouth of Río León (7°56′N, 76°45′W), in the SE corner of Bahía Colombia, is used between May and December for loading bananas and lumber from barges. The recommended berth for anchoring is, in a depth of 18 m, about 2½ miles WNW of the river mouth.

3 **Pichindi Anchorage.** This anchorage, on the S side of the delta of Río Atrato, lies between Boca Pichindi (8°01′N, 76°51′W) and Boca Pichindicito, 1 mile W. It is used between December and May, when the anchorage affords some shelter from the prevailing N and NE winds; vessels load bananas and lumber as off Río León.

4 The recommended berth for anchoring is about 1 mile SSE of a light-buoy (8°01′·3N, 76°51′·3W), in a depth of 22 m. By day, the light-buoy is reported to be difficult to distinguish against the land, but the mooring buoys about 2 and 4 cables E of the light-buoy are more easily seen. The coastline in the vicinity of the anchorage does not show up well on radar; shoaling has also been reported off Boca Pichindi.

5 **Alongside berths.** There are two berths at Punta Las Vacas which are used by tankers, of 800 grt or less, to discharge refined petroleum products loaded at Bahía Cartagena (9.155); maximum allowed draught 3·0 m. There are also several small wharfs situated in Bahía Turbo used by local vessels.

Port services

9.266

1 **Repairs.** Minor repairs only at workshops ashore.

Other facilities: medical facilities at Turbo; no oily waste reception facilities; no garbage facilities.

Supplies: fuel and fresh water not available; it has been reported that provisions may be obtained.

Communications. There is an airport at Turbo.

Small craft

9.267

1 There is a small craft anchorage in the entrance to Bahía Turbo. The bottom is soft mud.

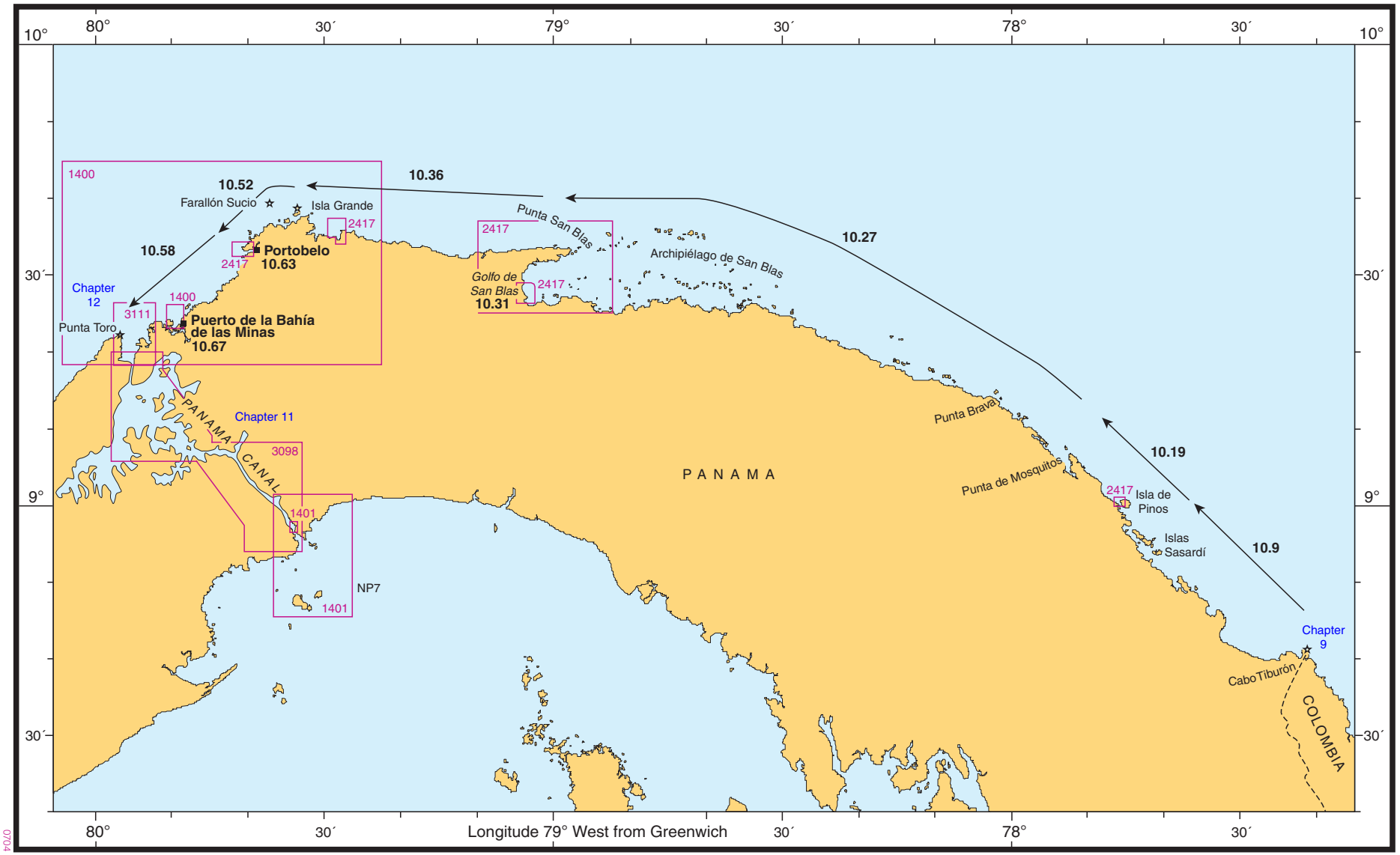
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Chapter 10 - Panama - Cabo Tiburón to the Panama Canal



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CHAPTER 10

PANAMA — CABO TIBURÓN TO THE PANAMA CANAL

GENERAL INFORMATION

Chart 396

Scope of chapter

10.1

1 This chapter describes the Caribbean coastal waters of Panama from Cabo Tiburón (8°41′N, 77°21′W) to Punta Galera (9°24′N, 79°52′W), about 155 miles WNW near the N entrance to the Panama Canal. The chapter is arranged as follows:

Cabo Tiburón to Punta Manzanillo (10.7).
Punta Manzanillo to the Panama Canal (10.48).

Topography

10.2

1 Extensive mountain ranges, more than 914 m (3000 ft) high, back the coast up to 5 miles inland for the first 100 miles NW of Cabo Tiburón; they recede from it in the vicinity of Punta San Blas (9°34′N, 78°58′W) and approach it again towards Punta Manzanillo about 33 miles W.

Navigation

10.3

1 The coast is almost devoid of navigational aids. There are lights on Isla Grande (9°38′N, 79°34′W) and on Farallón Sucio (9°39′N, 79°38′W), but between Cabo Tiburón Light (8°41′N, 77°21′W) and Isla Grande there are none apart from one in Puerto Obaldia (8°40′N, 77°25′W), close to Cabo Tiburón.

2 In the coastal passage from Cabo Tiburón to Punta Manzanillo, 142 miles WNW, it is advisable to keep more than 10 miles offshore to avoid shoal patches and the many dangers of Archipiélago de San Blas. Between Punta Manzanillo and the entrance to the Panama Canal, there are no known dangers more than 2 miles offshore.

Local knowledge

10.4

1 Local knowledge is necessary for approaching anchorages in the inlets and coves between Cabo Tiburón and Punta Manzanillo due to the intricacy of the channels between the numerous offshore reefs and cays.

Flow

10.5

1 The normal current off the coast between Cabo Tiburón and the approach to the Panama Canal is the E–going Caribbean Counter-current, which has rates varying between ¼ and 1 kn; it will be increased for a short period after strong W winds, and may disappear or be reversed during fresh E winds.

Rescue

10.6

1 For information on search and rescue services in Panama Caribbean coastal waters see 1.66.

CABO TIBURÓN TO PUNTA MANZANILLO

GENERAL INFORMATION

Chart 396 (see 1.16)

Area covered

10.7

1 This section covers the coastal waters of Panama from Cabo Tiburón (8°41′N, 77°21′W) to Punta Manzanillo (9°38′N, 79°33′W), 142 miles WNW. The section is arranged as follows:

Cabo Tiburón to Islas Sasardí (10.9).
Islas Sasardí to Punta de Mosquitos (10.19).
Punta de Mosquitos to Punta San Blas (10.27).
Punta San Blas to Punta Manzanillo (10.36).

Names

10.8

1 The majority of the names referred to in this section are not shown on the reference chart. For identification purposes geographical and relative positions are used; for further information land maps of Panama should be consulted.

CABO TIBURÓN TO ISLAS SASARDÍ

General information

Chart 396 (see 1.16)

Route

10.9

1 From a position about 10 miles NE of Cabo Tiburón (8°41′N, 77°21′W) the coastal route leads NW, for about 22 miles, to a position about 12 miles NE of Isla de Oro (8°54′N, 77°41′W), the SE–most island of Islas Sasardí.

Topography

10.10

1 Between the NW point of Cabo Tiburón, on which beacons (9.241) stand marking the border between Colombia and Panama, and Puerto Obaldia, 3 miles W, the coast is mostly steep and rocky with occasional sandy beaches. This coast is backed by heavily-wooded slopes rising steeply to Cerro Cascajal, 565 m high, about 1 mile inland and 2½ miles WSW of Cabo Tiburón.

2 From the W entrance point of Puerto Obaldia, a sandy beach extends 7 miles WNW to Puerto Perme (8°44′N, 77°33′W) (10.16) and is backed by a low wooded plain. Armila village (8°40′N, 77°27′W) stands near the SE end of this beach. Pico de Carreto (8°46′·4N, 77°32′·5W), with

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Puerto Carreto W of it, stands 2½ miles N of Puerto Perme; the intervening coast is composed mostly of coral with sandy beaches in the coves, and is fronted by numerous coral heads.

3 The coastline from Puerto Carreto then trends NW for 5½ miles to Punta Escocés (8°51′N, 77°38′W), backed by a hill 79 m high; Punta Escocés is the N extremity of a remarkable peninsula which rises to 177 m about 1 mile SE of the point and forms the NE side of Puerto Escocés (10.18).

Principal mark

10.11

1 **Major light:**

Cabo Tiburón Light (8°41′N, 77°21′W) (9.242).

Other aid to navigation

10.12

1 **Racon:**

Cabo Tiburón (8°41′N, 77°21′W).

For further details see *Admiralty List of Radio Signals Volume 2*.

Directions

10.13

1 From a position about 10 miles NE of Cabo Tiburón (8°41′N, 77°21′W) the track leads NW, passing (with positions relative to Cabo Tiburón):

NE of Ensenada Anachucuna (6 miles W), a large open bay lying between Puerto Obaldia (10.15) and Pico de Carreto, 8½ miles NW, thence:

2 NE of Bajo Makati (11½ miles NW), a shoal with a depth of 10·1 m over it, lying about 1¼ miles ENE of Pico de Carreto (8°46′·4N, 77°32′·5W); the position is approximate and the sea is reported to break on the shoal. Thence:

3 NE of Bajos Carreto (14 miles NW), lying 2 miles off the N entrance point of Puerto Carreto (13½ miles NW) (10.17). Bajos Carreto consists of two rocky patches which are steep-to, with a depth of 10 m over them; the sea breaks on them in fresh breezes. Thence:

4 NE of a patch (17 miles NNW), reported in 1976 to have a depth of 14·0 m over it. South-west of this patch, Las Isletas (8°49′N, 77°36′W), consisting of three rocky islets, lie 1 mile off the coast; the passage between them and a larger islet, lying on foul ground close inshore, has not been surveyed and should not be attempted. Thence:

5 NE of a number of shoals, with depths of less than 10 m over them, fronting Punta Escocés (18½ miles NW) and the N approaches to Puerto Escocés (10.18).

The track then leads to a position about 12 miles NE of Isla de Oro (23 miles NW), an islet of the Islas Sasardí group (10.23).

(Directions continue for the coastal route at 10.22)

Anchorages

Puerto del Miel

10.14

1 Puerto del Miel (8°39′N, 77°23′W), situated on the W side of Cabo Tiburón, is a small bay. It affords anchorage in depths from 11 to 18 m, but is open N and NW.

Puerto Obaldia

10.15

1 **Description.** Puerto Obaldia (8°40′N, 77°26′W), close E of which stands the town of Obaldia, can be identified by a prominent rock 2 m high, lying 7½ cables N of the E entrance point of the cove. The anchorage is exposed to N winds and seas. Coastal vessels call at Puerto Obaldia.

Useful mark:

A light (white framework tower, 12 m in height) is exhibited from low ground near the town.

2 **Port services.** Fresh provisions can be obtained in limited quantities. The Port Captain issues clearances, for recreational craft and yachts, to other countries or cruising permits for Panama waters.

Puerto Perme

10.16

1 Puerto Perme (8°44′N, 77°33′W), an abandoned port, provides good shelter for small vessels, which can anchor in the middle of the cove in depths from 5 to 6 m. Care needs to be taken in entering the cove as coral patches fringe the sides of the entrance; shoals also fringe the shores of the cove reducing the swinging room. A village stands 1 mile SSW of Puerto Perme.

Puerto Carreto

10.17

1 Puerto Carreto (8°46′N, 77°34′W) is entered between Punta Carreto and an islet close off a point 1 mile NW; it is exposed to the prevailing NE winds and is only used as an anchorage in the season of light winds from July to November.

2 A small village stands on the S side of the mouth of a river on the W side of Puerto Carreto.

Puerto Escocés

10.18

1 **Description.** Puerto Escocés (8°50′N, 77°38′W), entered between Punta Escocés and a point 1 mile WSW, extends 2 miles SSE. The inlet is the site of a failed Scottish attempt in 1698 to establish a settlement in Panama; there are still some remains of Fort St Andrew visible on the NE side of the inlet.

2 A number of shoals, with depths of less than 10·0 m over them, lie in the approach to Puerto Escocés. Arrecife Escocés, with a rock 1·0 m high in the middle of the reef, lies 7½ cables WNW of Punta Escocés.

3 **Directions.** A vessel with a draught of more than 6 m must avoid the shoals mentioned previously as they are dangerous during strong winds. The passage W of Arrecife Escocés is recommended as a patch, with a depth of 5·5 m over it, lies 2 cables ENE of the reef and foul ground, with a depth of 3·7 m over its W extremity, extends from the E shore to a position about 5 cables WSW of the hill on Punta Escocés.

4 Having entered Puerto Escocés care should be taken to avoid Middle Reef, with a depth of 2·0 m or less over it, lying in the fairway 1 mile SSE of Arrecife Escocés, and Roca Antonio, awash, lying 2 cables NW of a point (8°49′N, 77°38′W) which divides the head of the inlet into two coves. Middle Reef can usually be seen from aloft.

5 **Anchorage.** The inlet provides anchorage for small vessels, in a depth of 11·0 m, between 1 and 1½ cables S of Middle Reef. Landing is generally difficult.

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ISLAS SASARDÍ TO PUNTA DE MOSQUITOS

General information

Chart 396 (see 1.16)

Route

10.19

1 From a position about 12 miles NE of Isla de Oro (8°54′N, 77°41′W), the SE–most island of Islas Sasardí, the coastal route leads 18 miles NW, keeping well outside the dangers fringing this part of the coast, to a position about 10 miles NE of Punta de Mosquitos (9°07′N, 77°52′W).

Topography

10.20

1 Islas Sasardí (10.23), a chain of islands and rocks, extends NW for 5 miles, nearly to Punta Sasardí (8°58′N, 77°44′W). Isla de Pinos (10.26) lies 2¼ miles NNW of Punta Sasardí. The coast NW of Isla de Pinos is thickly wooded and consists of a sandy beach as far as Punta Navagandi (9°03′N, 77°49′W); it is then rocky for 5½ miles farther NW to Punta de Mosquitos.

Principal mark

10.21

1 **Landmark:**

Isla de Pájaros (9°03′N, 77°46′W) which, although low and covered with dense palm trees about 24 m in height, is reported to be an outstanding landmark

Directions

(continued from 10.13)

10.22

1 From a position about 12 miles NE of Isla de Oro (8°54′N, 77°41′W) the track leads NW, passing (with positions relative to Punta de Mosquitos (9°07′N, 77°52′W):

NE of Islas Sasardí (15 miles SE) (10.23), fronted by many rocks, thence:

2 NE of two shoals, with depths of 6·7 and 8·5 m over them, lying 1¾ miles E and 2½ miles NE, respectively, of Punta Sasardí (12 miles SE), thence:

NE of Isla de Pinos (10 miles SE) (10.26) Thence:

NE of Isla de Pájaros (7½ miles SE) (10.21), thence:

3 NE of a number of reefs and rocks, with depths of 2 m or less over them, lying within three miles of the coast between Isla de Pájaros and Punta de Mosquitos.

The track then leads to a position about 10 miles NE of Punta de Mosquitos, which is thickly wooded.

(Directions continue for the coastal route at 10.30)

Islas Sasardí and adjacent harbours

General information

10.23

1 **Description.** Islas Sasardí are a chain of islands and rock which extend NW from Isla de Oro (8°54′N, 77°41′W), the SE island, to within 7½ cables of Punta Sasardí (8°58′N, 77°44′W); they lie up to 2½ miles offshore. The channel between Islas Sasardí and the mainland is encumbered with rocks and shoals; Bahía Caledonia (10.24), at its SE end, and Bahía Sasardí (10.25), at its NW end, are well sheltered harbours but the approaches to them are intricate.

2 Isla de Oro, 143 m high, is the highest of Islas Sasardí. Isla Piedra, close S of Isla de Oro, lies at the S end of the chain and is very low. The reefs bordering Isla de Oro and extending S from it to Isla Piedra are steep-to and always visible.

3 Along the NE side of Islas Sasardí there are many dangers; these include Crag Rock (8°56′N, 77°42′W), an above-water rock, and Coral Rock, lying 1½ miles NW of Crag Rock. Crag Rock lies close NE of the NE islet of Islas Sasardí 1¾ miles NNW of Isla de Oro; this islet is 64 m high and has a fishing station at its S end. Coral Rock has a depth of 2 m or less over it; the sea breaks heavily on it during NE winds.

4 **Current.** A constant SE–going current sets through the channel between Islas Sasardí and the mainland at a rate of up to ½ kn.

Bahía Caledonia

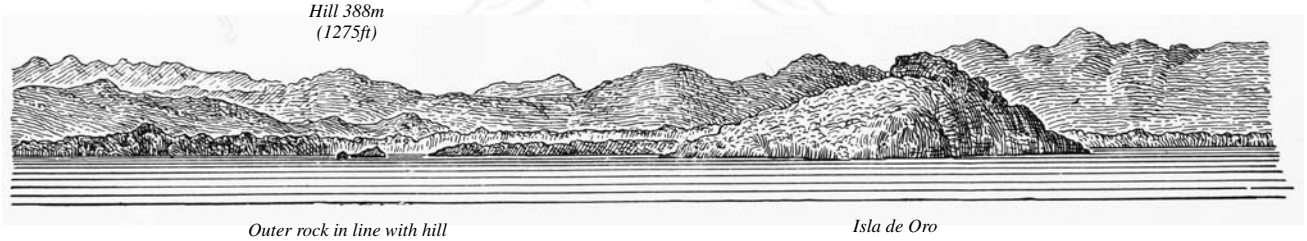
10.24

1 **Description.** Bahía Caledonia is entered between Punta San Fulgencio (8°53′N, 77°42′W), also known as Make Mulu, on the mainland, and a rocky cay at the S end of Islas Sasardí. The village of Acla stands on Punta San Fulgencio, and there is a larger village on the island NW of the same point. The harbour is much narrowed by cays and foul ground which extends nearly 1 mile from the SW shore.

2 To the S of Punta San Fulgencio lies Surf Bay, a cove which has depths of less than 5·5 m extending 1½ cables offshore; the best landing place in the cove is sheltered by a rocky ledge projecting nearly 1 cable N from the E side of Río Aglaseniqua.

Tidal levels. Mean maximum range about 0·3 m; mean minimum range about 0·1 m. For further information see the *Admiralty Tide Tables.*

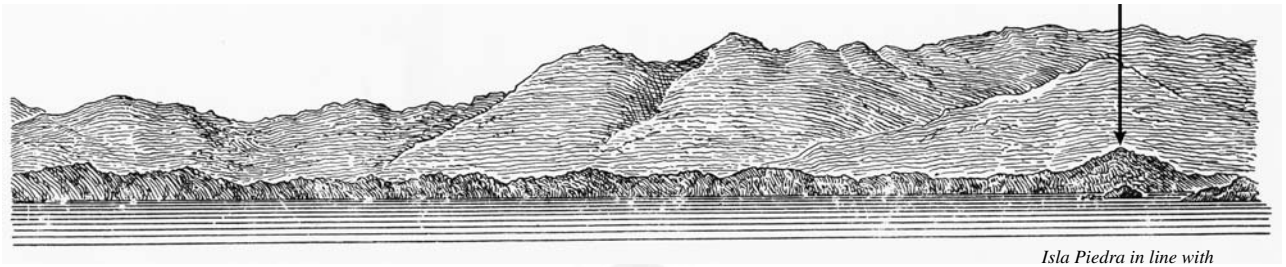
3 **Local weather.** From January to April or May, the winds sometimes blow strongly by day from between NNW and NNE, and raise a heavy sea; they may lull on the coast to nearly calm at night. At this season, the atmosphere is exceedingly moist and so hazy that, at times, the land



Bahía Caledonia – NE approach (10.24.1)

(Original dated 1854)

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Bahía Caledonia – E approach (10.24.2)
(Original dated 1854)

cannot be seen at a distance of 5 miles; yet the climate is generally healthy.

4 **Directions.** The approach to Bahía Caledonia from NE may be made along the line of bearing 240° of Isla de Oro until the alignment (about 227°) of Outer Rock, lying close SE of Isla Piedra (8°53′N, 77°41′W), with a hill 388 m high 4½ miles SW, is reached, passing between the offshore shoals.

5 The 388 m high hill is not easy to identify and is not considered to be a dependable mark. Isla Piedra is very low and difficult to distinguish, but the S extremity of an islet close NW of it is near enough to serve as a leading mark until Isla Piedra can be identified. The reefs between Isla de Oro and Isla Piedra should be given a berth of 2½ cables; care is necessary to keep NW of a shoal, with a depth of 4·9 m over it, lying 8½ cables ESE of Isla Piedra. See view 10.24.1.

6 Bahía Caledonia can also be approached from the E along the alignment (265°) of Isla Piedra with Mount Vernon, passing between the offshore shoals; Mount Vernon rises close within Punta San Fulgencio (8°53′N, 77°42′W) and is 61 m high. Care should be taken not to open Mount Vernon S of Isla Piedra before the alignment (333°) of Roca Oro, lying close off Isla de Oro, with Crag Rock (10.23) is reached, so as to pass NW of a shoal, with a depth of 6·4 m over it, lying 1 mile E of Isla Piedra. See view 10.24.2.

7 **Caution.** Once having entered Bahía Caledonia, it should be noted that the bottom cannot be seen in depths of 4·0 m or more.

Anchorage. The best anchorage is in depths of 18·0 m E of Punta San Fulgencio. The restricted anchorage within the harbour entrance is well sheltered from the prevailing winds and has good holding ground of soft green sand and mud.

Bahía Sasardí
10.25

1 **Description.** Bahía Sasardí (8°57′N, 77°45′W) is entered between the NW extremity of Islas Sasardí and Punta Sasardí 7½ cables NNW. The land is not as high here as that in the vicinity of Puerto Escocés (10.18); it is thickly wooded, with trees up to 46 m in height.

2 Sasardí Viejo village stands on the N side of the mouth of Río Sasardí 1 mile W of Punta Sasardí. There are larger villages on Islas Sasardí 1 mile and 3 miles from the NW extremity of the islands. Puerto Sasardí is situated SSE of an islet on the S side of Bahía Sasardí, between Islas Sasardí and the mainland; Mulatupu, a village, stands on the islet which is joined to the mainland by a causeway.

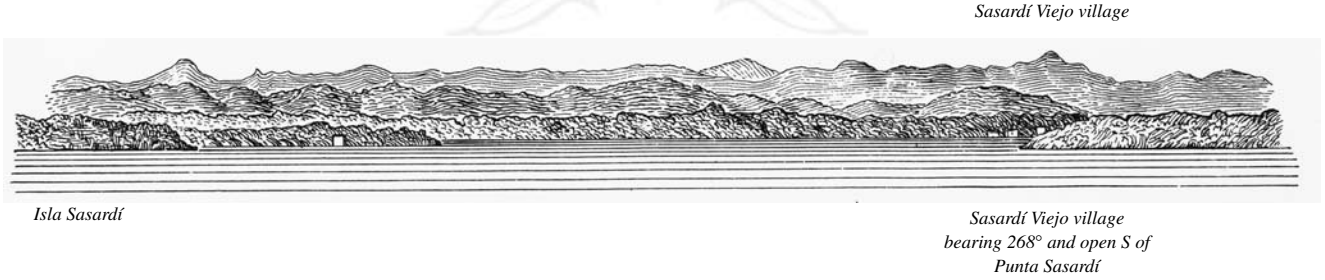
3 **Current.** See 10.23.

Directions for approaching Bahía Sasardí. A number of shoals with depths of less than 13·0 m over them, lie ENE and NE of Punta Sasardí. The entrance to Bahía Sasardí is approached from the E on the line of bearing 268° of Sasardí Viejo village, open S of Punta Sasardí, until the NW extremity of Islas Sasardí bears 200°.

4 The bay is then entered through a channel lying NW of rocks, with a least depth of 2·7 m over them, lying near the middle of the entrance, and by passing SE of a patch, with a depth of 3·7 m over it, about 2 cables SW of Punta Sasardí. Some of the shoals in the bay are almost awash and easily avoided.

See view 10.25.

5 **Clearing line.** The line of bearing of more than 162° of the summit of Isla de Oro (8°54′N, 77°41′W), well open E of Crag Rock, 1¾ miles NNW, clears E of shoals, with depths of 6·7 and 8·5 m over them, lying on the NE side of the approaches to Bahía Sasardí, 1¾ miles ENE and 2½ miles NE, respectively, of Punta Sasardí.



Bahía Sasardí – E approach (10.25)
(Original dated 1854)

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6 **Directions for entering Puerto Sasardí.** From within the NW entrance channel of Bahía Sasardí, the line of bearing 139° of the extremity of a point on the SW side of Islas Sasardí, 4 cables SSE of the N end of the N–most island, leads SSE into Puerto Sasardí; when within 1½ cables of this point, the deepest water will be found by passing midway between the point and a rocky shoal, with depths of 2·0 m or less over it, lying 1½ cables WNW.

7 Thence the coast of Islas Sasardí is clear of dangers as far as a patch, with a depth of 1·8 m over it, lying 1¼ cables offshore. The shoals are easily distinguished. Puerto Sasardí is separated from Bahía Caledonia (10.24) by a bar.

Puerto Sasardí can also be entered through a channel, passing:

8 SE of the rocks, with a least depth of 2·7 m over them, lying near the middle of the entrance to Bahía Sasardí, and:

NW of rocks, with depths of 2·0 m or less over them, extending 5 cables NE from the NW extremity of Islas Sasardí, thence:

One cable NW of the NW extremity of Islas Sasardí.

The least depth in this channel is 8·2 m.

9 **Anchorages:**

Bahía Sasardí. Anchorage can be obtained in the bay in depths from 7·0 to 12·0 m.

Puerto Sasardí, SSE of Bahía Sasardí, affords anchorage 1 mile within its entrance in depths from 9·0 to 11·0 m and is sheltered from all winds.

Facility. There is a hospital at Mulatupu.

Anchorage

Chart 2417 plan of Isla de Pinos Anchorage

Isla de Pinos

10.26

1 **Description.** Isla de Pinos (9°00′N, 77°45′W), which is separated from the mainland by a shallow channel about 2 cables wide, rises to a prominent ridge 122 m high and is thickly wooded. A large Indian village stands on the W side of the island. Reefs which border the seaward side of Isla de Pinos extend 6 cables SSE from the E extremity of the island.

2 The coast of Isla de Pinos has eroded, especially at the S and SW extremities, making it impossible to fix a vessel's position by tangents of the island as shown on the plan.

Anchorages:

3 South coast. Vessels can anchor 3 cables S of the S extremity of Isla de Pinos, in a depth of about 13·0 m (43 ft), care being taken to avoid a shoal, with a depth of 4·9 m (16 ft) over it lying 3½ cables SE of this extremity.

4 South-west coast. More sheltered anchorage is available, in depths from 6·0 to 7·0 m (20 to 23 ft), about 4 cables NW of the berth off the S coast; it should be approached by passing NE of a rocky shoal, with a depth of 2·7 m (9 ft) over it, which lies 3 cables WSW of the S extremity of the island.

5 North and W coasts. Anchorage off these coasts should only be used in case of necessity, and with great caution, as depths decrease suddenly and are very irregular; the sea often breaks in a depth of 7·0 m (23 ft). The W anchorage is the better, being partially sheltered from the sea breeze.

PUNTA DE MOSQUITOS TO PUNTA SAN BLAS

General information

Chart 396 (see 1.16)

Route

10.27

1 From a position about 10 miles NE of Punta de Mosquitos (9°07′N, 77°52′W) the coastal route leads initially NW for 45 miles, passing outside Archipiélago de San Blas, to a position about 10 miles NE of Isla Puyadas (9°28′N, 78°31′W). Thence the route leads WNW, for a farther 33 miles, to a position about 10 miles N of Punta San Blas (9°34′N, 78°58′W).

2 Within Archipiélago de San Blas there are several inshore routes which lead through navigable channels between the groups of cays to a number of sandy bays affording anchorages off the mainland. These inshore routes are not described as the scale of the chart is too small, local knowledge is essential, and the only guides are the prominent peaks on the mountain range close inland.

Topography

10.28

1 Archipiélago de San Blas, lying between Punta de Mosquitos and Punta San Blas, consist of a chain of cays, reefs, and shoals, about 70 miles long, lying up to 10 miles offshore. The cays are mostly low, flat, sandy, and thickly wooded.

Caution

10.29

1 Between Archipiélago de San Blas and the coast, current rips occur and unknown shoals may exist. Discoloured water, due to heavy rains, is frequently found.

Directions

(continued from 10.22)

10.30

1 From a position about 10 miles NE of Punta de Mosquitos (9°07′N, 77°52′W) the track leads initially NW, passing:

NE of the foul ground fringing the coast up to 6 miles offshore between Punta de Mosquitos and Punta Brava, 13 miles NW, thence:

NE of rocks, with depths of 2 m or less over them, lying up to 5 miles ENE of Punta Brava (9°15′, 78°03′W), thence:

2 NE of Cayos de Piedras (9°18′N, 78°07′W), lying 4½ miles NW of Punta Brava; which consists of cays 10 m high; a large dangerous reef over which the sea breaks lies 1½ miles NNW of them. Thence:

NE of Cayo Inglés (9°20′N, 78°11′N); shoals, with depths of 2 m or less over them, extend 1½ miles NNE from Cayo Inglés. Thence:

3 NE of Cayo Ratones (9°22′N, 78°16′W), the NW and largest of a group of cays. A patch, with a depth of 5·8 m over it, lies 2½ miles N of Cayo Ratones.

The track then leads to a position about 10 miles NE of Isla Puyadas (9°28′N, 78°31′W), which lies 7 miles NW of Punta la Coquera. Shoals, with depths of 5·8 m over them, extend 4 miles ENE from Punta Puyadas. Thence the track leads WNW, passing:

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4 NNE of Cayos Holandés, the largest and most seaward group of cays in Archipiélago de San Blas, which lie with their E end 9 miles NNE of Punta Mangles (9°27′N, 78°44′N); the cays extend W for 7 miles and are all wooded. Depths of less than 10 m extend 5 cables N from the drying reefs at the E end of Cayos Holandés and 1 mile N from the drying reefs at their W end. Thence:

5 NNE of Cayos Chichimé (9°35′N, 78°53′W), which lie 6 miles W of Cayos Holandés and on the E side of the N approach to Golfo San Blas.

The track then leads to a position about 10 miles N of Punta San Blas (9°34′N, 78°58′W), which is low.

(Directions continue for the coastal route at 10.40)

(Directions for Golfo de San Blas are given at 10.32)

Golfo de San Blas

Charts 396, 2417 plan of Golfo de San Blas including Puerto Mandinga and plan of Puerto Nicuesa

General information

10.31

1 **Description.** Golfo de San Blas is entered between Punta San Blas (9°34′N, 78°58′W) and Punta Mandinga, 6 miles S. Canal de San Blas, the principal entrance channel, lies W of Cayos Chichimé (9°35′N, 78°53′W) and Cayos Limón, 2 miles SSW, and E of reefs and cays extending 1¾ miles ENE from Punta San Blas.

2 Golfo de San Blas can also be approached from the ENE through Canal Caobo or through Canal Holandés, the channel W of Cayos Holandés; thence the gulf is entered through Canal Mayflower, the channel S of Cayos Limón. Local knowledge of these channels is required.

3 **Topography.** The shores of Golfo de San Blas are mostly low and fringed with mangroves; many creeks and rivers flow into it, but their entrances are obstructed by bars. The highest of several hills on the N side stands 1½ miles WSW of the extremity of Punta San Blas and is 61 m (200 ft) high; a hill rising 4 cables NW of the 61 m high hill is 45 m (150 ft) high.

4 **Landmarks:**

Radio tower (9°33′N, 78°59′W), the position of which is approximate, standing 8 cables SW of Punta San Blas.

A stranded wreck lying on the E side of Sail Rock (9°33′N, 78°57′W).

Directions

10.32

1 The following directions are only for the principal entrance channel Canal de San Blas. From the vicinity of 9°39′N, 78°58′W the track leads initially SSE along the line of bearing 155° of Channel Island (9°33′·1N, 78°54′·6W), passing (with positions relative to Channel Island):

ENE of an isolated patch (4 miles NW), with a depth of 11 m (36 ft) over it, thence:

2 WSW of a bank (3¼ miles N) extending E for 1½ miles, over which there is a least depth of 2·4 m (8 ft), thence:

ENE of the reefs (1¾ miles NW) and cays extending 1¾ miles ENE from Punta San Blas, and:

WSW of the foul ground and drying reefs fringing Cayos Chichimé (2½ miles NNE).

3 Thence, when a position is reached about 1½ miles from Channel Island, the track leads SSW, passing (with positions relative to Channel Island):

WNW of Channel Island, the NE–most islet of Cayos Limón, thence:

ESE of Sail Rock (2¼ miles WNW) on the E side of which lies a stranded wreck. The islet of El Porvenir (10.33) lies 3 cables NNW of Sail Rock. Thence:

4 WNW of Cayo Gallo (1 mile SSW), the SW–most islet of Cayos Limón.

Thence when a position is reached about 2¾ miles SW of Cayo Gallo the track leads SW through Canal Porter, passing (with positions relative to Punta Mandinga (9°27′·7N, 78°57′·9W)):

NW of the shoals and reefs fronting the N side if Islas Carti (1 mile N), thence:

5 NW of an isolated shoal (2 miles NW), with dangerous rocks on it, thence:

SE of Bajo Tridente (4 miles NW), a drying reef lying at the end of a chain of shoals and reefs; care is necessary to avoid rocks, with depths of 2 m or less over them, extending 7½ cables ENE from Bajo Tridente. And:

6 NW of Bajo Selfridge (2¾ miles WNW), with its NE end awash, lying between 1½ miles N and NW of Punta Redonda.

The track then leads to a position about 6 cables SSE of Cayo Guardia (4¾ miles WNW) from where Puerto Mandinga (10.34) and Puerto Nicuesa (10.35) can be directly accessed; care needs to be taken to avoid a patch, with a depth of 12·8 m (42 ft) over it, lying 3½ cables SSE of Cayo Guardia.

El Porvenir

10.33

1 El Porvenir (9°33′·6N, 78°55′·9W) is a small island lying on the NW side of the entrance to Golfo de San Blas. There is a custom house and a small pier at its W end; an airstrip occupies much of the cay. There are regular flights from the airstrip to Panama City.

Puerto Mandinga

10.34

1 **Description.** Puerto Mandinga is a roadstead situated on the W side of Golfo de San Blas, E of Punta Saliente (9°29′·5N, 79°04′·2W). It is entered between Islas Robeson, a chain of cays, reefs and shoals extending 3 miles SE from the NW shore, and Bajo Alden, a chain of shoals and reefs, which dry in places, extending WNW from Islas Ammen (9°27′·7N, 79°01′·7W) for 2½ miles to the W shore of the gulf.

2 **Tidal levels.** Mean maximum range about 0·3 m; mean minimum range about 0·1 m. For further information see the *Admiralty Tide Tables.*

Puerto Nicuesa

10.35

1 **Description.** Puerto Nicuesa is a roadstead situated on the SW side of Golfo de San Blas. It is entered by a channel through Bajo Alden (10.34); the channel is 1½ cables wide with depths from 19 to 34 m (62 ft to 19 fm).

Nicuesa, a former settlement on the W side of Puerto Nicuesa, has a wharf with a depth of 5·5 m alongside, but it was reported in 1949, to have been destroyed.

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2 **Directions.** The channel through Bajo Alden is entered on the line of bearing 226° of the E extremity of the point (9°27′·4N, 79°04′·0W) at the ruined wharf. When within the entrance, a vessel should haul about ½ cable NW so as to avoid a patch, with a depth of 1·2 m (4 ft) over it, lying 1½ miles W of Islas Ammen; care is needed as the position of this patch is approximate.

PUNTA SAN BLAS TO PUNTA MANZANILLO

General information

Charts 396, 2417, 1400 (see 1.16)

Route

10.36

1 From a position about 10 miles N of Punta San Blas (9°34′N, 78°58′W) the coastal route leads W for 34 miles, passing well N of Banco Escribanos (9°37′N, 79°10′W) (10.38), to a position about 5 miles N of Punta Manzanillo (9°38′N, 79°33′W).

Topography

10.37

1 Between Punta San Blas (9°34′N, 78°58′W) and Punta Cocos, 11 miles W, the coast is mostly low and fringed by reefs; it is wooded and has several villages along its W part. Punta Cocos is the E entrance point of Puerto Escribanos (10.47).

2 Between Puerto Escribanos and Punta Macolla, 17 miles W, the low coast is bordered by coconut palms, broken by scattered villages; it is mostly fringed by reefs extending up to 8 cables offshore. Isleta Culebra (9°34′N, 79°13′W), 11 m high, lies 5 cables off a small promontory on which stands a village. The islet shows up dark against the mainland and is easily identified. Between Punta de Playa Chiquita (9°34′N, 79°18′W) and Punta Cuango, 2 miles WNW, the coast recedes and consists of a sandy beach through which flows Río Cuango. The village of Cuango stands midway along this beach. Cayo Cuango lies 1 mile off Punta Cuango.

3 Two hills, Los Perdices 58 m high and La Playata 78 m high, stand near the coast 1½ miles SE and 1 mile S, respectively of Punta Macolla. Between Punta Macolla and Punta Manzanillo, 6¼ miles WNW, the coast is indented by Bahía San Cristobal (10.41).

Depths

10.38

1 The main danger along this part of the coast is Banco Escribanos (10.40), lying up to 6 miles offshore from 8 to 18 miles WNW of Punta San Blas (9°34′N, 78°58′W). From Punta San Blas to Puerto Escribanos, 11 miles W, the coastal bank, with depths of less than 18·3 m (60 ft) over it, extends up to 2 miles offshore; within this coastal bank there are many isolated shoals, with depths of 11·0 m (36 ft) or less over them.

2 From Puerto Escribanos to Punta Pescador (9°36′N, 79°28′W), 18 miles W on the E side of Bahía de San Cristobal, the coastal bank with depths of less 9·0 m (30 ft) over it, extends up to 1 mile offshore. Isolated shoals, with depths of 9·0 m (30 ft) or less over them, may be found outside the coastal bank.

Principal marks

10.39

1 **Landmarks:**

Cerro de la Gran Loma (9°28′N, 79°18′W) (not shown on chart) with a large summit and appearing to be the more prominent and highest of the peaks in the vicinity.

2 Cerro Saxina (9°30′N, 79°25′W) (not shown on chart) with two peaks close together and 544 m high.

Cerro Nombre de Dios (not shown on the chart), a single peak 378 m high, standing 4 miles WSW of Cerro Saxina.

Directions

(continued from 10.30)

10.40

1 From a position about 10 miles N of Punta San Blas (9°34′N, 78°58′W) the track leads W, passing:

N of a patch (9°37′N, 79°07′W), with a depth of 2·4 m (8 ft) over it, lying 1½ miles NNE of Arrecife Escribanos, at the E end of Banco Escribanos. Arrecife Escribanos is a drying reef lying 1½ miles offshore; shoals with depths of less than 9 m (30 ft) over them lie up to 4 cables SW, 1½ miles NW and 2½ miles NE, of the reef. A light-buoy is moored 3 cables ESE of Arrecife Escribanos. Thence:

2 N of the main part of Banco Escribanos, which consists of a chain of coral shoals, with depths of 9·1 m (30 ft) or less over them, extending 10 miles WNW and W from Arrecife Escribanos. The sea usually breaks heavily on Banco Escribanos. Thence:

3 N of a patch, with a depth of 3·5 m (11½ ft) over it, lying 3 miles N of Punta Cuango (9°34′N, 79°20′W), thence:

N of La Provendencia Shoal (9°39′N, 79°27′W), with a least depth of 8·0 m over it, lying 3 miles N of Punta Macolla. Punta Macolla is bold, high and easily distinguished; from W, it appears as a dark bluff. Peña Maco, a low above-water rock, lies 2½ cables E of the point. Thence:

4 N of Islas los Mogotes, lying close ENE of Punta Manzanillo (9°38′N, 79°33′W). The group consists of two islets and some above-water and submerged rocks. Mogote de Afuera, the outer islet, has a tree on its summit; Mogote de Adentro, the W islet, is wooded and round-topped.

The track then leads to a position about 5 miles N of Punta Manzanillo, which is a high and precipitous promontory rising to two hummocks resembling a saddle; it is the NE extremity of a ridge which extends SW along the coast for 16 miles to the mouth of Río Piedras (9°27′N, 79°44′W).

Useful mark:

Isla Grande Light (9°38′N, 79°34′W) (10.55).

(Directions continue for the coastal route at 10.55)

(Directions for Bahía San Cristobal are given at 10.42)

Bahía San Cristobal

Charts 1400, 2417 plan of Bahía Nombre de Dios and Rada Playa de Damas

General information

10.41

1 **Description.** Bahía San Cristobal is entered between Punta Pescador (9°36′N, 79°28′W) and Punta Manzanillo,

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5 miles WNW; it is indented by several small bays and coves, the largest of which is Ensenada Indio (10.45), forming the SW corner of the bay. Bahía Nombre de Dios (9°35′N, 79°29′W) (10.44) is a small port at the SE end of the bay.

2 **Landmarks:**

Punta Manzanillo (9°38′N, 79°33′W) (10.40).

Punta Espadón, 1½ miles SSE of Punta Manzanillo. Punta Espadón consists of almost sheer cliffs and is readily distinguished.

Directions

10.42

1 **Entry.** From a position about 3 miles NE of Punta Manzanillo (9°38′N, 79°33′W), the track leads S, passing (with positions relative to Punta Manzanillo):

W of La Provendencia Shoal (5½ miles ENE) (10.40), thence:

E of Islas los Mogotes (close ENE) (10.40).

The track then leads to a position about 2½ miles ESE of Punta Manzanillo where the track divides.

2 **Bahía Nombre de Dios.** For vessels bound for Bahía Nombre de Dios the track leads SE, passing (with positions relative to Punta Manzanillo):

SW of Los Bueyes (3¾ miles ESE), consisting of several rocky patches over which the sea breaks heavily; a buoy, the position of which is approximate, is moored 3 cables W of the NW patch. And:

3 NE of a shoal (3 miles SE), with a depth of 9·5 m (31 ft) over it, fronting the NE side of Las Viboras, thence:

SW of a shoal (4¼ miles ESE), with a depth of 9·1 m (30 ft) over it.

The track then leads either directly to the anchorage at Rada Playa de Damas or into Bahía Nombre de Dios.

4 **Ensenada Indio.** For vessels bound for Ensenada Indio the track leads SW from the position about 2½ miles ESE of Punta Manzanillo, passing (with positions relative to Punta Manzanillo):

SE of Los Caballitos (1¾ miles SE), a group of rocks which dry, and:

NW of Las Viboras (2¾ miles SE), consisting of two above-water rocks from which a reef, nearly awash, extends 7½ cables SE to within 1 cable of the shore reef.

Thence the bay is entered passing close SE of a reef partly awash extending 4 cables SE from Punta Caño Ciego (1¾ miles SSE); a group of above-water rocks stand on the S side of its outer end.

Rada Playa de Damas

10.43

1 **Description.** Rada Playa de Damas (Playa de Damas Roads on Chart 1400) (9°36′N, 79°28′W) is a roadstead situated within 5 cables WSW of Punta Pescador, which is bordered by a reef, awash, extending nearly 2½ cables from the point; it is sheltered from the NE by the point and by Isla Cuili (Cayo Cuili on Chart 2417), which lies close to the W end of the point. El Peñon, a hill 44 m (145 ft) high, rises close within the shore 5 cables S of Cayo Cuili.

2 **Anchorages.** Moderately good anchorage can be obtained in depths of 12 m (39 ft) about 4½ cables SW of Isla Cuili. Small vessels can anchor in a depth of 6 m (20 ft) about 1½ cables SSW of the islet.

Small craft. A channel, marked by iron perches, leads from Rada Playa de Damas, between Isla Cuili and Punta Pescador, to a light wharf on the SE side of the islet; in 2001 the pier was reported to have disappeared.

Bahía Nombre de Dios

10.44

1 **Description.** Bahía Nombre de Dios (9°35′N, 79°29′W), entered 1 mile SW of Punta Pescador (10.43), can be identified by Los Carboneros rising from the W entrance point to two summits; the W and higher summit is 79 m (260 ft) high. Cerro La Gloria which backs the village of Nombre de Dios, at the head of the bay, is 112 m (369 ft) high.

2 Wooded cays lie on drying reefs which extend 1 cable from both entrance points of the bay. A narrow channel leads S into the bay to the head of a pier. Río Terrain flows into the bay 3 cables S of the E entrance point. The entrance to the river is marked on each side by posts; a buoy is moored close off its N entrance point.

3 **Berth.** A pier projects E from the W entrance point and has a depth of 5·8 m alongside its head. The pier is served by a railway connecting it with plantations and manganese mines in the interior.

Port services: small repairs effected by the railway workshops; medical facilities at the village of Nombre de Dios; fresh water obtainable.

Ensenada Indio

10.45

1 Ensenada Indio (9°36′N, 79°31′W) is entered between Punta Caño Ciego and a point 1 mile SE, and is divided into two inlets. A heavy swell sometimes breaks across the inlets within their entrances. Rocks, with depths of 2 m (6 ft) or less over them lie up to 2 cables W of the SE entrance point of Ensenada Indio and in the middle of the NW inlet.

2 Puerto Porras is situated at the head of the SE inlet of Ensenada Indio; the remains of a dock built in 1913 lie at the mouth of Río Indio, which flows into the head of the inlet, and are the only indication of a former harbour used for loading coconuts.

Small craft

Chart 2417 plan of Golfo de San Blas including Puerto Mandinga

Puerto Geladi

10.46

1 Puerto Geladi (9°33′·8N, 79°03′·8W), a small cove, is situated 5¾ miles W of Punta San Blas. A hill 68 m (225 ft) high rises from the E side of Puerto Geladi and an islet 12 m (40 ft) high lies on the reef on the W side of the entrance to the cove.

Puerto Escribanos

10.47

1 Puerto Escribanos, a mangrove fringed inlet, is entered between shallow reefs W of Punta Cocos (9°33′·4N, 79°09′·4W); a large house stands on Punta Cocos. The inlet provides a well protected anchorage and is suitable for small craft with draughts up to 2·1 m (7 ft). There is a dock in the inner W corner of the inlet.

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PUNTA MANZANILLO TO THE PANAMA CANAL

GENERAL INFORMATION

Chart 1400

Area covered

10.48

1 This section covers the coastal waters of Panama from Punta Manzanillo (9°38′N, 79°33′W) to the entrance to the Panama Canal, 27 miles SW. The section is arranged as follows:

Punta Manzanillo to Punta Mantilla (10.52).
Punta Mantilla to Punta Galeta (10.58).
Puerto de la Bahía de Las Minas (10.67).

Landfall

10.49

1 The first land usually sighted when approaching from NE is the mountain range about 9 miles S of Punta Manzanillo, the high coast extending WSW from the point, Isla Tambor (9°39′N, 79°34′W), or Farallón Sucio standing 4½ miles W of Isla Tambor, depending on the visibility.

2 The mountain range is generally covered with haze when the trade winds are strongest, from December to April; in the season of *Vendavales* and variable winds, early summer and autumn, it is often visible between 0800 and 0900 and between 1600 and 1700, while it is obscured by clouds during the rest of the day.

3 Cerro La Bruja (9°29′N, 79°35′W) (not shown on chart) rises to a knob at the end of the E part of the mountain range and is 933 m high; in clear weather, when bearing less than 180°, this knob shows sharply against the sky, but it is not so visible when bearing more than 180°, Several peaks in the range are nearly as high as Cerro La Bruja.

Fishing

10.50

1 Turtle nets and buoys may be found near the coast between Punta Manzanillo and the entrance to the Panama Canal; as they are moored over rocks, a vessel coming among them might be in danger. The buoys attached to the nets are of wood or bamboo and float horizontally; they may be distinguished from driftwood by being grouped in one locality

Current

10.51

1 Near the coast between Punta Manzanillo (9°38′N, 79°33′W) and the entrance to the Panama Canal, the currents are much affected by winds. During fresh W or SW winds, the rate of the normal E–going Caribbean Counter-current will be increased for 1 or 2 days after the W winds have ceased to blow. During prolonged fresh E winds, this normal current may disappear or even be reversed.

2 A W or SW wind usually brings rain and flooded rivers, so that driftwood may sometimes be found more than 30 miles offshore. An accumulation of driftwood indicates that the winds have been W and that the E–going current may be stronger than usual.

3 Inshore between Bahía de Portobelo (9°33′N, 79°40′W) and the entrance to the Panama Canal the normal current sets parallel with the coast; over Salmedina Reef (9°34′N, 79°42′W) (Bajo Salmedina on Chart 2417) it is NE–going and past Los Farallones (9°39′N, 79°38′W) it is E–going. Close E of Isla Tambor (9°39′N, 79°34′W), this current usually has a S component which soon disappears farther E.

4 The rate of the normal E–going current between Punta Manzanillo and Los Farallones is about 1 kn, increasing up to 3½ kn during W winds, and dissipating during prolonged E winds. A NW set of 6 kn has also been experienced. The rate of the current at Salmedina Reef is about 1 kn.

Variable currents should be expected.

PUNTA MANZANILLO TO PUNTA MANTILLA

General information

Chart 1400

Route

10.52

1 From a position about 5 miles N of Punta Manzanillo (9°38′N, 79°33′W) the coastal route initially leads W for 7 miles to a position about 4½ miles NNW of Farallón Sucio (9°39′N, 79°38′W). The route then leads SW, for a farther 7½ miles, to a position about 5 miles NW of Punta Mantilla (9°34′N, 79°41′W). Mariners not acquainted with this coast should give it a berth of at least 3 miles.

Topography

10.53

1 Between Punta Manzanillo and Punta Cacique, 5 miles WSW, the coast is indented by several coves. Punta Cacique is high, precipitous, and is backed by two hummocks; it is steep-to on its N side. Coastal hills are Cerro Pava, nearly 3 miles SW of Punta Manzanillo and Loma Vigía, 5 miles WSW of the point.

2 Between Punta Cacique and Punta Mantilla, 4¾ miles SW, the coast is high and scarped in places. The bays and coves along this coast are mostly foul. The villages of Majagual and José Pobre stand on the coast 5 cables ENE and 4 cables S, respectively, of Punta Esperanza (9°37′N, 79°38′W).

Local knowledge

10.54

1 Local knowledge is required when navigating in the coves between Punta Manzanillo and Punta Cacique, 5 miles WSW.

Directions

(continued from 10.40)

10.55

1 From a position about 5 miles N of Punta Manzanillo (9°38′N, 79°33′W) the track leads initially W, passing (with positions relative to Farallón Sucio (9°39′N, 79°38′W)):

N of Mafu Rocks (5½ miles E), a rocky shoal, thence:

2 N of Isla Tambor (4½ miles E), which is a flat-topped islet and highest at its N end; a confused sea and tide-rips are almost always found in its vicinity. Isla Grande, from the NE of which a light (white metal tower on stone base, 26 m in height) is exhibited, is joined at its N end to Isla Tambor, 2½ cables NNW, by a line of reefs. Thence:

3 N of La Lavandera (2½ miles ESE), consisting of two steep-to rocks, with a least depth of 0·9 m over them. The sea nearly always breaks over these rocks; when very smooth, the sea may not break

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on the rocks for periods of 15 to 20 minutes. Thence:

4 N of Los Farallones, a group of above-water and submerged rocks lying 1¾ miles offshore, extending 6 cables ENE from Farallón Sucio, the largest rock which is 24 m high. A light (white conical pyramidal tower, 7 m in height) is exhibited from Farallón Sucio. From a distance Los Farallones and the rocks adjacent to it appear as one and are easily distinguished by their bare whiteness, contrasting with the dark appearance of Isla de las Dos Hermanas.

5 When a position is reached about 4½ miles NNW of Farallón Sucio the track leads SW, passing (with positions relative to Farallón Sucio):

NW of Los Farallones, thence:

NW of Isla de las Dos Hermanas (3½ miles SSW), which are two prominent wooded cays lying 4 cables WNW and W of Punta Sabanilla. A reef extends 1 cable NW from the N cay, and the area between the cays is foul.

6 The track then leads to a position about 5 miles NW of Punta Mantilla (5½ miles SSW).

(Directions continue for the coastal route at 10.62)

Small craft

Isla Grande and Puerto Bastimentos

10.56

1 **Isla Grande** (9°38′N, 79°34′W) (10.55) is separated from the mainland by a channel, with a least depth of 6·4 m; a heavy swell rolls into this channel and it should not be entered without local knowledge. Anchorage can be obtained S of the sandy S extremity of Isla Grande.

2 **Puerto Bastimentos**, a sheltered cove, lies 7 cables S of the S extremity of Isla Grande. It is narrowed by reefs and is only suitable for small boats.

Puerto Garrote

10.57

1 **Description.** Puerto Garrote (9°36′·5N, 79°35′·5W) is approached between the NW extremity of Isla Lintón and Pedro Pelada, an above-water rock 4 cables W; the channel between Isla Lintón and the mainland is only suitable for boats. The entrance to Puerto Garotte has a navigable width of 1½ cables between the reefs on each side and a depth of 10·4 m.

2 **Berths.** The middle of the cove has a depth of 6 m, over a bottom of mud, with limited anchorage space. A branch of the Panama Canal Yacht Club is situated at the head of the cove; there is a stone pier at the club with a depth of about 2 m at its head. The village of Garotte stands on the shores of the cove.

PUNTA MANTILLA TO PUNTA GALETA

General information

Chart 1400

Route

10.58

1 From a position about 5 miles NW of Punta Mantilla (9°34′N, 79°41′W) the coastal route leads SW to a position in the N approaches to the Panama Canal, about 5 miles NNW of Punta Galeta (9°24′N, 79°52′W); the route is clear except for some charted dangers lying within 1 mile of the shore. Mariners not acquainted with this coast should give it a berth of at least 3 miles.

Topography

10.59

1 Between Punta Mantilla and Punta Galeta the coast is irregular in shape and at its SW end is indented by Bahía de Las Minas. It is high as far as the mouth of Río Piedras, 7½ miles SSW of Punta Mantilla, and thence to Cayos Naranjos, a farther 3½ miles WSW, it becomes low and is fringed with mangroves. The villages of María Chiquita and María Grande stand on this part of the coast 1 mile SW and 2 miles WSW, respectively, from the mouth of Río Piedras.

Principal marks

10.60

1 **Landmark:**

Gas flare (9°23′·2N, 79°49′·1W) (10.83) at Puerto de la Bahía de Las Minas.

Major lights:

Bahía Limón East Breakwater Light (green triangle on green metal tower) (9°23′·3N, 79°54′·9W).

2 Bahía Limón West Breakwater Light (red rectangle on metal tower) (9°23′·3N, 79°55′·3W).

Punta Toro Light (white metal tower, stone base) (9°22′·3N, 79°57′·0W).

Other aid to navigation

10.61

1 **Racon:**

Bahía Limón East Breakwater Light (9°23′·3N, 79°54′·9W).

For further details see *Admiralty List of Radio Signals Volume 2*.

Directions

(continued from 10.55)

10.62

1 From a position about 5 miles NW of Punta Mantilla (9°34′N, 79°41′W) the track leads SW, passing (with positions relative to Punta Langosta (9°28′N, 79°44′W)):

NW of Salmedina Reef (6¼ miles NNE) (Bajo Salmedina on Chart 2417), a coral reef on which the sea breaks, fronting the W side of Punta Mantilla, thence:

2 NW of the coastal bank (4½ miles NE), with depths of less than 6·0 m over it, extending 9 cables offshore from the S side of Bahía de Buenaventura (10.66), thence:

NW of two shoals, with depths of 8·0 and 9·1 m over them, fronting the NW side of Punta Gorda (1 mile NE); the point rises to a height of 46 m about 3 cables S of its extremity. Thence:

3 NW of a group of shoals (3¼ miles WSW), with depths of less than 9·0 m over them, lying between 4 cables N and 1½ miles NE of Cayos Naranjos. Cayos Naranjos consists of two islets, Isla Naranjo Arriba and Isla Naranjo Abajo. Thence:

NW of Cayos Naranjos (4¼ miles SW), which are heavily wooded, fringed with reefs and separated from the mainland by a narrow boat channel. Thence:

4 NW of the entrance (6 miles SW) to Bahía de Las Minas (10.67).

The track then leads to a position in the N approaches to the Panama Canal, about 5 miles NNW of Punta Galeta (9 miles SW). Peñas Guapas, a dangerous rock over which

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the sea breaks, lies 3 cables offshore 6½ cables ENE of Punta Galeta; another dangerous rock, over which the sea breaks, lies 4 cables N of the point.

(Directions continue for Colón and associated terminals at 11.20, for the N entrance to the Panama Canal at 11.74, for an offshore route W at 12.10, and for the coastal route to Bahía Almirante at 12.17)

(Directions for Puerto de la Bahía de Las Minas are given at 10.84)

Bahía de Portobelo

Chart 2417 plan of Portobelo

General information

10.63

1 **Description.** Bahía de Portobelo, entered between Iron Castle Point (9°33′·5N, 79°40′·8W) and Punta Coco, 8 cables S, is one of the best harbours W of Bahía de Cartagena (9.155); it affords sheltered anchorage for vessels of any draught. However, the port is of little commercial importance.

2 The town of Portobelo stands at the SE corner of the harbour and is flanked by the ruins of Fort Triana and Fort San Jeronimo.

Depths. The harbour has general depths from 27 m (11 fm) in the entrance to 11 m (36 ft) off a shallow bank extending 2½ cables W from its head. In 1968, depths in the harbour were reported to be up to 1 m (3 ft) less than charted due to silt from the outflow of Río Cascajal at its head.

3 **Local weather.** From May to November, light breezes from SW and W, with heavy rain, prevail at Bahía de Portobelo; these are replaced towards morning by light airs from NE. The harbour is sheltered from the North-east Trade Winds, which are strongest from December to April.

4 **Health.** Hills from 183 to 396 m high on the N and S sides of the harbour shelter it from regular breezes, and the ground at the head is swampy; these conditions combine to make the climate unhealthy.

Landmarks:

Church (9°33′·3N, 79°39′·4W), with a large red roof and small white tower, standing on the E part of the town.

5 Lookout tower, standing at the S corner of the ruined Fort San Fernando (9°33′·7N, 79°40′·1W).

Lookout towers standing at the NW corners of the ruined Fort Triana and Fort San Jeronimo at the W and E ends of the town respectively.

Directions

10.64

1 **Main approach.** The main approach and entry to Bahía de Portobelo is made from the W, passing (with positions relative to Isla Drake (9°33′·8N, 79°41′·2W)):

S of Salmedina Reef (6 cables W) (Bajo Salmedina on Chart 2417), thence:

S of an isolated patch (5 cables WSW), with a depth of 8·5 m (28 ft) over it, thence:

2 S of Isla Drake, lying on the edge of the shore bank extending SW from Punta Puerto Bello; the islet is steep-to on the W side and its W end appears as a detached rock 6 m high. And:

3 N of the shoal bank extending 5 cables W from Punta Coca (1 mile SSE). On the NW side of this bank there are depths from 5·5 to 9·1 m (18 to 30 ft); a patch, with a depth of 9·8 m (32 ft) over it lying 6 cables WSW of Punta Coca is the most seaward danger off this point. Punta Coca should be given a berth of 5 cables. Thence:

4 S of Iron Castle Point (6 cables SE).

The track then leads ENE to the head of the harbour, passing NNW of the coral reefs bordering the S shore of the harbour; the water is not clear enough for the edge of these reefs to be visible. Attention is also drawn to a detached patch (1¼ miles ESE), with a depth of 11 m (36 ft) over it, lying 1¾ cables S of Fort San Fernando.

5 **Alternative approach.** The entrance to the harbour may also be approached by small vessels from the N keeping at least 5 cables W of Isla de las Dos Hermanos (9°36′N, 79°40′W) (10.55) (Chart 1400), thence passing between Bajo Salmedina and Isla Drake; this passage has depths of more than 20 m (11 fm) over a width of 3 cables. The passage E of Isla Drake is dangerous and requires local knowledge; it is only suitable for small craft.

Port services

10.65

1 **Facility.** There is a short pier for boats at the town of Portobelo.

Supplies. Fresh water and limited provisions are available.

Small craft

Chart 1400

Bahía de Buenaventura

10.66

1 **Description.** Bahía de Buenaventura (9°32′N, 79°41′W), entered between Isla Los Mogotes, the outer of two islands within 3 cables SW of Punta Coca, and a point 6 cables S, is partly obstructed by shoals and reefs. As the cove has not been thoroughly surveyed, entry should not be attempted without local knowledge.

2 **Anchorage.** Yachts can obtain anchorage in a depth of 6 m S of a small point on the N shore, 2½ cables W of a bridge spanning the head of the bay; anchorage may also be obtained in depths of 9 m further out and S of Isla Los Mogotes.

PUERTO DE LA BAHÍA DE LAS MINAS

General information

Chart 1400 plan of Puerto de la Bahía de Las Minas

Position

10.67

1 Puerto de la Bahía de Las Minas (9°24′N, 79°49′W), occupies the E part of Bahía de Las Minas, 5 miles E of the entrance to the Panama Canal.

Function

10.68

1 It is mainly an oil port, specialising in importing crude oil and exporting refined products.

Approach and entry

10.69

1 Puerto de la Bahía de Las Minas is approached from the NNW and entered 1¼ miles W of Isla Naranjo Abajo (9°26′N, 79°48′W), the SW islet of Cayos Naranjos (10.62). From the entrance a buoyed channel leads 2½ miles S and SSE to the berths on the NE side of Isla Payardí.

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Traffic

10.70

1 In 1997 the port was used by 208 vessels with a total of 3 883 533 dwt.

Port Authorities

10.71

1 **National.** Autoridad Portuaria Nacional, Apartado 8062, Panama 7, Republic of Panama.

Local. Refineria Panama S.A., P.O. Box 1176, Bahía Las Minas, Colon, Republic of Panama.

Limiting conditions

Controlling depths

10.72

1 In 1998 the channel leading to the tanker berths was dredged to a depth of 13·1 m; the channel leading S from the oil berths to the cargo dock was dredged to 6·7 m.

Maximum draughts

10.73

1 Draughts up to 11·5 m are allowed alongside at the oil berths. For tankers 245 m in length turning off the oil berths the maximum allowable draught is 8·5 m.

Deepest and longest berths

10.74

1 North and South Docks (10.85).

Density of water

10.75

1 1·025 g/cm^3.

Maximum size of vessel handled

10.76

1 Vessels up to 245 m LOA, 11·5 m draught and 70 000 dwt are handled.

Arrival information

Port radio

10.77

1 There is a port radio station. For details see *Admiralty List of Radio Signals Volume 6 (5).*

Notice of ETA required

10.78

1 A request for a pilot should be made 24 hours in advance. For further details see *Admiralty List of Radio Signals Volume 6 (5).*

Outer anchorage

10.79

1 Vessels awaiting a pilot may either obtain anchorage in depths of 20 m, 3 cables WNW or 2 cables E of Seabuoy Light-buoy (9°25′·7N, 79°49′·6W). The recommended anchorages are shown on the chart.

Pilotage

10.80

1 Pilotage is compulsory and available 24 hours a day. The pilot boards 2½ cables WNW of Seabuoy Light-buoy. The pilot boat has a black hull and white superstructure. In bad weather conditions, a tug is used for boarding. For further details see *Admiralty List of Radio Signals Volume 6 (5).*

Tugs

10.81

1 One tug is on 24 hour stand-by duty; the pilot station can summon additional tugs.

Harbour

General layout

10.82

1 The harbour contains two oil berths and a dry cargo dock; they are arranged from N to S along the NE side of Isla Payardí. There is a turning basin for oil tankers off the oil berths; it is marked by light-buoys on the E side of the channel, and on the W side by the ends of the North and South Docks.

Principal mark

10.83

1 **Landmark:**

Gas flare (9°23′·2N, 79°49′·1W) from a chimney at the oil refinery; it has been reported to be visible up to 20 miles to seaward.

Directions for entering harbour

10.84

1 **Caution.** It was reported in 2003 that the leading marks where difficult to identify.

Track. From the coastal route (10.58), in the vicinity of 9°32′N, 79°51′W, the track leads SSE for 6 miles to Seabuoy Light-buoy (safe water) (9°25′·7N, 79°49′·6W), at the beginning of the outer leading line:

2 Front light (orange diamond on beacon) (9°23′·8N, 79°49′·3W).

Rear light (similar structure) (80 m SSE from front light).

3 The alignment (171°) of these marks leads SSE through a channel 300 m wide, marked by light-buoys (lateral), for 1¼ miles to a position about 6½ cables NNW of the front leading light, at the beginning of the following inner leading line:

4 Front light (orange diamond on beacon) (9°23′·3N, 79°48′·7W).

Rear light (similar structure) (160 m SSE from front light).

5 The alignment (148¾°) of these marks then leads SSE for about 1 mile, through a channel 100 m wide marked by light-buoys (lateral), into the harbour where the berths become directly accessible.

Berths

10.85

1 The berths are as follows (with positions relative to North Dock (9°23′·8N, 79°49′·1W)):

North Dock: a T–shaped jetty with mooring dolphins at either end; approximately 91·5 m in length; used solely for the import of crude oil.

2 South Dock (2 cables SSE): a T–shaped jetty with mooring dolphins at either end; approximately 91·5 m in length; used for the handling of refined products, LPG and small crude oil shipments; vessels loading refined products are berthed heading seaward.

3 Cargo Dock (4 cables SSE): length 91·4 m with a depth of 6·7 m alongside; used by Ro-Ro vessels, berthing bow or stern to the wharf; vessels up to 180 m LOA handled.

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Port services

Repairs

10.86

1 Machine shop at the refinery which can effect minor repairs; patent slip, with a 90 by 40 ft cradle, situated at the NE corner of Isla Samba Bonita (9°23′·4N, 79°50′·2W).

Other facilities

10.87

1 Medical facilities at Colón (9°22′N, 79°54′W); oily waste and food waste reception facilities.

Supplies

10.88

1 Fuel, fresh water and provisions obtainable.

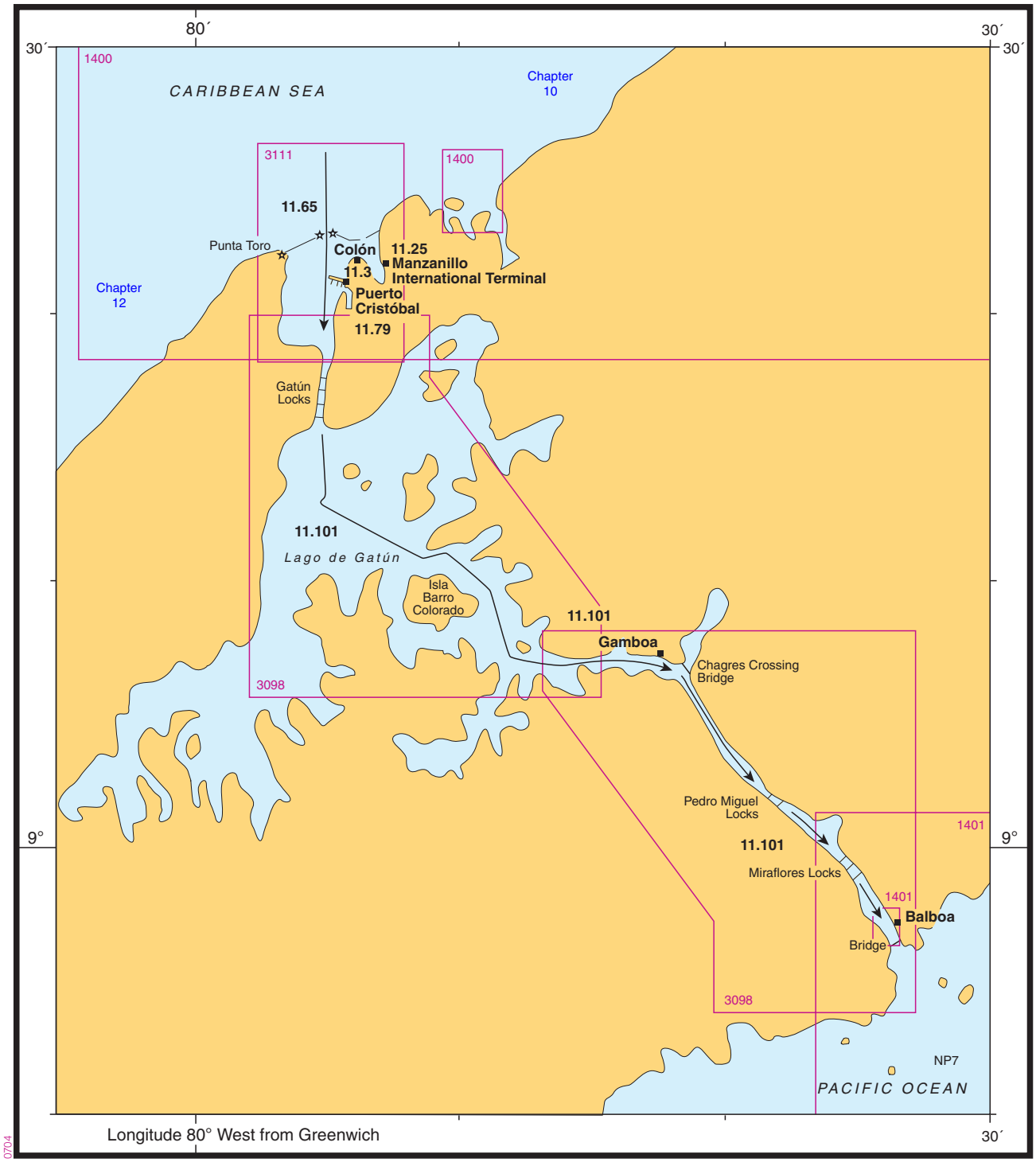
Communications

10.89

1 There is a small airport at Colón. The nearest international airport is Tocumen International Airport at Panama City, 90 km from Colón.

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Chapter 11 - Panama - Colón and the Panama Canal



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CHAPTER 11

PANAMA — COLÓN AND THE PANAMA CANAL

GENERAL INFORMATION

Charts 3111, 3098, 1400

Area covered

11.1

1 This chapter describes the Panama Canal and its N approaches and includes a description of the harbours of Colón (9°22′N, 79°54′W) (11.3), including the passenger and cargo terminals in Bahía Manzanillo, and Puerto Cristóbal (9°21′N, 79°54′W) (11.79). The S approaches to the Panama Canal and the port of Balboa are described in *South America Pilot Volume III*. The chapter is arranged as follows:

2 Colón and associated terminals (11.3).
Panama Canal including Puerto Cristóbal (11.33)

Rescue

11.2

1 For information on search and rescue services in Panama Caribbean coastal waters see 1.66.

COLÓN AND ASSOCIATED TERMINALS

General information

Charts 1400, 3111

Position

11.3

1 Colón (9°22′N, 79°54′W) occupies the greater part of Manzanillo Island, on the E side of Bahía Limón. Terminals for shipping are located on the E and W sides of Manzanillo Island and on the E shore of Bahía Manzanillo opposite Colón.

Function

11.4

1 Colón, the second largest city in the Republic of Panama, is also with it's adjacent terminals the principal N coast port; in 1995 Colón had a population of 156 289. It mainly functions as a transhipment port for cargo in containers; cruise vessels are also handled.

2 There is an International Free Trade zone, customs free, adjacent to the port, where goods must be exported either as originally imported or after repacking or processing.



Bahía Limon and Colón with the entrance to Bahía Manzanillo in foreground (11.3)

(Original dated prior to 2004)

(Photograph – Panama Canal Authority)

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Approach and entry

11.5

1 The port is approached from the N and entered through a dredged channel on the alignment of leading lights. This channel passes through the E entrance in the East Breakwater of Bahía Limón, 4½ cables WSW of Punta Margarita (9°23′·1N, 79°53′·4W).

Traffic

11.6

1 In 1997 the port was used by 984 vessels with a total of 23 704 793 dwt.

Port Authority

11.7

1 **Address.** Autoridad Portuaria Nacional, Apdo 8062, Panama 7, Panama.

Website. Manzanillo International Terminal; www.mitpan.com.

Limiting conditions

Controlling depths

11.8

1 Dredged depths are as follows:

Entrance channel; 15 m.

Turning basin off Colón Container Terminal and Manzanillo International Terminal; 14 m.

Channel leading to Colón 2000 Terminal; 10 m.

Deepest and longest berth

11.9

1 Manzanillo International Terminal (9°21′·7N, 79°53′·1W) (11.25).

Tidal levels

11.10

1 Mean maximum range about 0·3 m; mean minimum range about 0·1 m. For further information see the *Admiralty Tide Tables.*

Density of water

11.11

1 The density of the water is 1·025 g/cm^3.

Arrival information

Vessel Traffic Management System

11.12

1 The vessel traffic management system for the Panama Canal covers the approaches to Colón and its terminals. Vessels should contact the VTMS when 5 miles from the breakwater and inform them that they are proceeding to Bahía Manzanillo. For further details see 11.49 and *Admiralty List of Radio Signals Volume 6 (5).*

Port radio

11.13

1 There is a port radio station at Colón and Manzanillo International Terminal. For further details see *Admiralty List of Radio Signals Volume 6 (5).*

Pilotage

11.14

1 Pilotage is compulsory and available 24 hours. The pilot boards in the vicinity of 9°24′·5N, 79°53′·9W, 1½ miles N of the entrance through East Breakwater. For further details see *Admiralty List of Radio Signals Volume 6 (5).*

Tugs

11.15

1 Tugs are available; large vessels are met just inside the breakwater.

Harbour

General layout

11.16

1 The main berthing areas for Colón are at Coco Solo North (9°22′·4N, 79°53′·2W), comprising Colón Container Terminal and Colón Port Terminal, and Manzanillo International Terminal (9°21′·7N, 79°53′·0W), on the E and SSE sides of Bahía Manzanillo. There is also a passenger terminal at Colón 2000 (9°21′·5N, 79°53′·5W) on the E side of Manzanillo Island.

2 A secondary berthing area is situated on the W side of Manzanillo Island in Puerto Colón (9°21′·6N, 79°54′·4W). It is used only by small vessels engaged in the coastal trade with Colombia and Bocas del Toro at the W end of the Republic of Panama.

Development

11.17

1 In 2000 further works and reclamation were in progress close SSE of the charted berths at Manzanillo International Terminal.

Principal marks

11.18

1 **Landmarks:**

Gas flare (9°23′·2N, 79°49′·1W) (10.83) at Puerto de la Bahía de Las Minas.

Control tower (9°21′·8N, 79°52′·8W) on the E side of Manzanillo International Terminal.

Control tower (9°21′·7N, 79°53′·0W) beside the berths at Manzanillo International Terminal.

2 **Major lights:**

Bahía Limón East Breakwater Light (9°23′·3N, 79°54′·9W) (10.60).

Bahía Limón West Breakwater Light (9°23′·3N, 79°55′·3W) (10.60).

Punta Toro Light (9°22′·3N, 79°57′·0W) (10.60).

Other aid to navigation

11.19

1 **Racon:**

Bahía Limón East Breakwater Light (9°23′·3N, 79°54′·9W).

For further details see *Admiralty List of Radio Signals Volume 2.*

Directions for entering harbour

(continued from 10.62)

General remarks

11.20

1 **Movement.** All vessels proceeding to or from Manzanillo Bay must use the E entrance in the East Breakwater. However, vessel movement through Anchorage D (East Inner Anchorage) in Limón Bay can be authorised on a case-by-case basis by the Canal Operations Captain. Small local coastal vessels can utilise this passageway as long as they move outside the anchorage limits.

2 **Caution.** It was reported in 1998 that at night the lights exhibited from buoys, the E entrance breakwater lights and the leading lights were difficult to see against the bright terminal lights on approaching the port.

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Bahía Manzanillo

11.21

1 From a position about 5 miles NNW of Punta Galeta (9°24′N, 79°52′W) the track leads SSE, passing:

Clear of the light-buoy (safe water) (9°26′·3N, 79°54′·5W), marking the NE corner of the Atlantic Expansion anchorage, thence:

Through the pilot boarding area (9°24′·5N, 79°53′·9W).

2 The track then leads to the beginning of the Bahía Manzanillo entrance leading line:

Front A Light (white diamond with black stripe on beacon) (9°21′·9N, 79°53′·8W).

Rear B Light (similar structure) (60 m S of front light).

3 The alignment (179¼°) of these marks leads S for 1¾ miles through a channel, marked by light-buoys (lateral), which passes through the E entrance in East Breakwater into Manzanillo Bay. When a position is reached about 5 cables N of the front light the track then leads SSE towards the main berthing areas.

4 **Useful marks:**

Lights (9°22′·9N, 79°53′·8W) exhibited from the E and W sides of the E entrance.

VTS Tower (9°21′·9N, 79°53′·7W) standing on the NE side of Manzanillo Island.

Water towers (9°22′·3N, 79°52′·9W) at Coco Solo.

Puerto Colón

11.22

1 The best approach for small vessels bound for Puerto Colón is to pass through the main entrance to the Panama Canal, directions for which are given at 11.75. Thence when a position is reached about 5½ cables NNW of the head (9°21′·3N, 79°54′·9W) of Muelle Cristóbal proceed ESE towards the berths (11.27), situated on the W side of Manzanillo Island.

Directions for vessels bound from Manzanillo Bay to the Panama Canal

11.23

1 Vessels bound S through the Panama Canal must first exit Bahía Manzanillo, following the directions for entry (11.20) in reverse, through the E entrance in East Breakwater before proceeding to the Panama Canal anchorages or into the canal itself.

Basins and berths

Coco Solo North

11.24

1 Coco Solo North (9°22′·4N, 79°53′·2W) consists of a large basin situated on the E side of Bahía Manzanillo. Colón Container Terminal (Pier No 1) lies on the N side of the basin, with Colón Port Terminal (Pier No 4) on the S side; Pier No 3, a finger pier, projects from the head of the basin, separating the two terminals.

2 These terminals, with a total of nine berths, are also collectively known as the Panama Container Terminal; apart from containers, break bulk, general cargo and timber are also handled. The largest and deepest berths are at Colón Container Terminal, which is capable of handling two Panamax vessels or three feeder vessels simultaneously; the quay has an approximate length of 600 m with an alongside depth of 14 m.

Manzanillo International Terminal

11.25

1 Manzanillo International Terminal, with eight numbered berths as shown on the chart, is situated on the SE side of Bahía Manzanillo, S of Coco Solo North. Details of berths are as follows:

Berths No's 1, 2 and 3 at the N end of the terminal handle break bulk, container and Ro-Ro vessels. The quay has a total length of 250 m, with a depth of 13 m alongside; there is a Ro-Ro ramp 25 m wide at its inner end. Vessels using these berths must have their own cargo handling gear.

2 Berths No's 4 to 8 are for container vessels; total continuous length 1240 m, with a depth of 14 m alongside.

Colón 2000

11.26

1 Colón 2000 (9°21′·5N, 79°53′·5W), situated on the E side of Manzanillo Island, is a passenger terminal for cruise vessels. A buoyed channel, dredged to a depth of 10·0 m, leads to the berth; details of length and depth alongside not known.

Puerto Colón

11.27

1 The following berths for coasters are situated at Puerto Colón (9°21′·6N, 79°54′·4W):

Quay 2; length 75 m with a depth of 4·90 m alongside.

Quay 3; length 58 m with a depth of 2·05 m alongside

Port services

Repairs

11.28

1 None available in Bahía Manzanillo. Emergency repairs are possible at the small Mount Hope Shipyard (9°20′·5N, 79°54′·0W), S of Colón; for further details see 11.97.

Other facility

11.29

1 There is a hospital in the city of Colón.

Supplies

11.30

1 Fuel oil and fresh water available by barge; provisions are obtainable.

Communications

11.31

1 France Field Airport is situated close E of Manzanillo International Terminal.

Small craft

Margarita Bay

11.32

1 **Description.** Margarita Bay (9°22′·8N, 79°53′·2W) situated on the NE side of Bahía Manzanillo, is entered between Punta Margarita and Punta Coco Solo, 5 cables S; there are depths from 4·6 to 9·6 m in the fairway, but it is much narrowed by foul ground. A patch, with a depth of 4·1 m over it, lies 2½ cables WNW of Punta Coco Solo and close off the end of a shallow spit extending from the point.

2 The fairway of the entrance to the bay is marked on the N side by No 1 Buoy, moored 2½ cables N of Punta Coco

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Solo, and on the SE side by No 2 Buoy moored 2 cables NNE of the point. In the bay there are a number of dolphins arranged in an irregular line.

Berths. A small pier projects from the N shore of Margarita Bay. A dock, with two dolphins off its entrance, stands close ESE of the pier and near the head of the bay.

PANAMA CANAL INCLUDING PUERTO CRISTÓBAL

GENERAL INFORMATION

Introduction

Charts 3111, 3098

Area covered

11.33

1 The limits of the Panama Canal, referred to as the Canal Operation Compatibility Area, form a continuous area generally following the course of the Panama Canal, and generally contiguous to it, running from the Atlantic Ocean to the Pacific Ocean. It includes the Atlantic entrance and its anchorages, Puerto Cristóbal, Gatún Locks, Gatún Dam, Gatún Spillway, Gatún power station, portions of Lago de Gatún, Culebra Cut, Pedro Miguel Locks, Lago de Miraflores, Miraflores Locks, Miraflores Spillway, Miraflores Filtration Plant, Miraflores power station, the port of Balboa, the Pacific entrance and its anchorage areas, as well as the land and water areas encompassing them.

2 The section is arranged as follows:

North approach to the Panama Canal (11.65).
Puerto Cristóbal (11.79).
Panama Canal transit – Puerto Cristóbal to Balboa (11.101).

Description

11.34

1 The Panama Canal crosses the Isthmus of Panama in a general SE direction from the Atlantic Ocean to the Pacific Ocean for a distance of 45·02 sea miles (83·33 km). The former Canal Zone, a strip of land 10 miles wide, ceased to exist on 1st October, 1979, when the Republic of Panama shared control of the canal with the USA. After 31st December, 1999, the Canal Area and its revenues became solely administered by the Republic of Panama.

2 Ports of entry for the canal are Puerto Cristobal (9°21′N, 79°55′W) in Bahía Limón, on the Atlantic, and Balboa (*South America Pilot Volume III*) on the Pacific. The canal is largely made possible by Lago de Gatún watershed and Río Chagres, lying near the middle of the isthmus.

Locks and levels

11.35

1 The sea level section on the Atlantic side extends from the entrance to Bahía Limón for nearly 6½ miles to the three flights of Gatún Locks (9°16′N, 79°55′W), which are about 1 mile long; the upper lock opens into Lago de Gatún, the surface of which is normally 25·9 m (85 ft) above sea level and the highest level of the canal.

2 Corte Gaillard (Gaillard Cut) conducts the waters of Lago de Gatún from Gamboa (9°07′N, 79°42′W) across the continental divide for 7 miles to Pedro Miguel Locks, about 27½ miles from Gatún Locks. The descent to the Pacific is by Pedro Miguel Locks and two flights of locks at Miraflores. Lago de Miraflores, between Pedro Miguel and Miraflores Locks, is about 1 mile long and 16·5 m (54 ft) above sea level. The sea level section on the Pacific side is about 7½ miles long.

Canal traffic

11.36

1 **Movements.** About 13 000 vessels transit the Panama Canal each year. Between October 2002 and September 2003 a total of 188·3 million long tons of cargo passed through the canal.

In 2003 the average time spent in canal waters was less than 23 hours, with an average time in transit from terminal to terminal of 8 to 10 hours.

2 **Capacity.** The canal can handle about 48 lockings a day, which may include a greater number of vessels as two or more small vessels can be locked through in one chamber.

Canal organisation

11.37

1 **Department of Maritime Operations**. This department under the Maritime Operations Director, is the organisational unit of the Panama Canal Authority responsible for the control of maritime traffic through the canal and its terminal ports, and through which all Panama Canal Authority services to shipping are handled. This department is divided up into the Admeasurement Unit, the Board of Inspectors, the Transit Operations Division and the Traffic Management Unit.

2 **Admeasurement Unit.** This unit is responsible for ascertaining the correct Panama Canal tonnage of vessels transiting the canal, boarding and clearing of vessels, general ship inspections, gathering information for the Ship Data Bank, and generating billing invoices for transits and related services.

3 **Board of Inspectors.** This board is responsible for the official inquiry and examination into marine accidents which occur in the canal operating area, harbours, and areas adjacent involving Panama Canal Authority personnel and/or equipment, and for the certification of marine credentials of employees.

4 **Transit Operations Division.** Responsibilities include the immediate direction of daily maritime operations, emergency response and recovery, supervision and enforcement of rules and regulations, approval of new construction compliance, and for ensuring that vessels arriving for transit are properly equipped. In addition the unit is responsible for matters involving the safety aspects of vessel traffic flow and control, vessel material conditions and inspections, hazardous cargo, canal physical conditions, and emergency response for fires or oil/chemical spills.

5 **Traffic Management Unit.** This unit is responsible for processing ETA information, preparation of the daily transit schedule, monitoring and co-ordinating all vessel movements within canal operating areas, and administering the Panama Canal Transit Booking System.

Canal Authority

11.38

1 **Addressees:**

Autoridad del Canal de Panama (ACP) (Panama Canal Authority), Maritime Operations Department, Building 729, Balboa-Ancon, Panama.

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Panama Canal Authority (ACP), ACP–MR, PO Box 025543, Miami, FL 33102–5543, USA.

2 **Website:** www.pancanal.com.

Limiting conditions

Controlling depths

11.39

1 The controlling depth in the Atlantic approach channel is 12·8 m; at the Pacific end, between No 1 and 2 Light-buoys (8°53′·3N, 79°31′·3W) and the Miraflores Lock South Gate, the controlling depth is 12·9 m.

Maximum permitted draught

11.40

1 The maximum permitted draught for canal transits is set at 12·04 m in Tropical Fresh Water at a Lago de Gatún level of 24·84 m or higher. This provides an under keel clearance of at least 1·52 m over critical points in the canal proper and a clearance over the S sill of Pedro Miguel Locks of 0·5 m at a Lago de Miraflores level of 16·61 m.

2 Prior to the initial transit of a vessel whose transit draught will exceed 10·82 m, owners, operators or agents must supply in full the information required in the regulations, and request the maximum authorised transit draught, not later than two weeks prior to the loading of the vessel; this request will be returned with the approved maximum authorised transit draught stamped there on.

Minimum permitted draughts

11.41

1 The minimum tropical salt water draughts for transiting vessels are as follows:

Length	*Minimum draughts*
Up to 129·54 m	Trimmed so that the pilot can see the ranges over the forecastle from the centre of the navigation bridge
2 Over 129·54 m	2·44 m forward; 4·30 m aft
Over 144·80 m	5·50 m forward; 6·10 m aft
Over 160·02 m	6·10 m forward; 6·71 m aft
Over 176·80 m	6·71 m forward; 7·32 m aft
Over 190·50 m	7·32 m forward; 7·93 m aft

3 Special permission is required for these draughts to be reduced.

Seasonal draught restrictions

11.42

1 During the rainy season from May to December, Lago de Gatún and Madden Lake, the upstream reservoirs for the canal, are filled to capacity. During the dry season from December to May, the Madden Lake reserve is drawn off to keep Lago de Gatún at an optimum level. In an unusually dry season, the Madden Lake reserve is exhausted and the Lago de Gatún level continues to decrease.

2 As the Lago de Gatún level is depleted below 24·84 m it becomes necessary to reduce the maximum allowable draught to preserve the safe navigation margin. The reductions are made in 15·24 cm decrements, with three weeks advance notice given when possible.

3 Ships already loaded to a prevailing draught limitation at the time of promulgation of a new draught restriction are waived for transit, subject to overriding safety considerations. Ships loading after promulgation of a new draught restriction are held to a tolerance of not more than 15·24 cm above that restriction, and may be required to trim or off-load the ship to achieve a safe transit draught.

Deck Cargo

11.43

1 Deck cargo on vessels in transit may protrude, on one side only, up to 4·752 m; the maximum beam, including protrusions, must not exceed 25·9 m.

Maximum dimensions

11.44

1 **Length.** The maximum length a commercial vessel may have for transiting the canal on a regular basis is 289·6 m LOA, except for passenger and container ships which are allowed up to 294·13 m. Vessels transiting the canal for the first time with LOA exceeding 274·32 m are subject to the requirement of inspection. The maximum LOA for a regular transit of an integrated tug-barge combination is 274·32 m including the length of the tug. The maximum LOA for a transit of a non self-propelled vessel is 259·1 m, including the length of the tugs.

2 **Beam.** The maximum beam is 32·31 m, but 32·61 m may be allowed by prior arrangement. The maximum beam for a transit of a non self-propelled vessel is 30·5 m.

Height. The maximum allowable height for any vessel transiting the canal or entering the port of Balboa at any state of the tide is 57·91 m measured from the waterline to the highest point of the vessel. A height of 62·5 m may be permitted subject to a case-by-case approval, with passage at MLWS at Balboa. The height restrictions are due to the tide on the Pacific side, unpredictable upward movements of water, and maintenance equipment suspended beneath the bridge at Balboa.

Maximum size of vessels handled

11.45

1 **Longest.** The longest ship to transit the canal was the bulk carrier *San Juan Prospector*, length 296·6 m, beam 32·3 m, in 1973.

Widest. The USS *New Jersey*, length 268·2 m, beam 32·9 m, was the widest.

2 **Largest.** The largest vessel was RMS *Queen Elizabeth II*, 65 683 grt, length 293·5 m, beam 32·0 m.

Advance information required

Transit reservation system

11.46

1 In order to provide improved service and to increase canal efficiency a voluntary transit booking system is in operation. The Panama Transit Reservation System allows vessels to reserve transit slots in advance of arrival in Panama Canal waters and be moved through the canal on pre-assigned dates. An additional payment on top of the normal transit fees is incurred for this service.

2 Vessels agents only may request reserved transits during the following booking periods:

First period, from 365 to 22 days prior to the requested transit.

Second period, from 21 to 4 days prior to the requested transit.

Third period, from 3 to 2 days prior to the requested transit.

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3 A total of 21 reserved transit slots are available for all three booking periods, allocation of which among the booking periods is to be determined by the Panama Canal Authority. From time to time the Authority may adjust the total number of available reserved transit slots, commensurate with the safe and efficient operation of the canal.

Notice of ETA required
11.47

1 A vessel bound for the Panama Canal is required to report to the Traffic Management Unit (11.37) of the Panama Canal at least 96 hours in advance, and then 12 hours before arrival at Cristóbal if there has been a change in ETA of 1 hour or more.

2 For further information see *Admiralty List of Radio Signals Volume 6 (5).*

Information to be given
11.48

1 The following list is a summary of the information to be given to the Traffic Management Unit 96 hours before arrival:

Designator	*Information required*
ALFA	Vessel's Panama Canal Identification Number
2 BRAVO	ETA and request for transit
CHARLIE	Arrival draught
DELTA	Any changes in the vessel's name or country of registry
ECHO	Will the vessel dock at Cristóbal or Balboa
3 FOXTROT	Nature and tonnage of any deck cargo
GOLF	Details of any explosives carried
HOTEL	Details of any packaged dangerous cargo other than explosives
4 INDIA	Quarantine and immigration information

For further details see *Admiralty List of Radio Signals Volume 6 (5).*

Arrival information

Vessel Traffic Management System
11.49

1 An enhanced Vessel Traffic Management Traffic System is maintained for the control of shipping in the Panama Canal. The system integrates Automatic Identification Systems (AIS) for tracking vessels, and DGPS information, with a maritime operations information database to pinpoint every transiting ship and all canal resources. For further information see *Admiralty List of Radio Signals Volume 6 (5).*

Identification
11.50

1 **Radio.** Vessels arriving or departing from the Atlantic Anchorages are required to contact the Port Entry Co-ordinator (PEC) at Cristóbal Signal Station on VHF Ch 12. The Port Entry Co-ordinator should contact vessels when they are 5 miles off the breakwaters, if they have not previously called to determine their intentions.

2 **Automatic Identification Systems.** The Panama Canal Authority has made the carriage of Automatic Identification Systems (AIS) in Panama Canal waters mandatory. Until the final implementation date required by IMO of December 2004, the Panama Canal Authority will have AIS ready vessel tracking portable units available for rent at a nominal fee. For further information see *Admiralty List of Radio Signals Volume 6 (5)* and 1.39.

Pilotage
11.51

1 **General remarks.** Pilotage is compulsory throughout the whole of the Panama Canal, including Puerto Cristóbal, for the following vessels:

Vessels over 1000 Panama Canal gross tons.

Vessels carrying hazardous cargo over 500 Panama Canal gross tons.

Passenger vessels over 500 Panama Canal gross tons.

2 Vessels are boarded either on arrival just inside the breakwater heads or at an anchorage; if requiring to be met outside the breakwaters, they should remain there and make a signal to that effect.

Pilot ladders are to be rigged in accordance with Regulation 17, Chapter V of *The Regulations of the International Convention for Safety of Life at Sea* (SOLAS), including all current amendments, annexes and resolutions.

3 **Control.** The pilot assigned to a vessel shall have control of the navigation and movements of such vessel. The Master, or his qualified representative, must be on the bridge at all times when the vessel is moving, in order to keep the pilot informed concerning the individual peculiarities in the handling of the vessel, so that the pilot may be better able to control her navigation and movement.

4 **Pilotage shelters.** The Panama Canal Authority require pilot shelter platforms to be installed on the following vessels:

Vessels with a breadth of 30·48 m and LOA of 274·4 m or more, which may require two or more pilots when transiting.

Certain smaller ships, when the Panama Canal Authority determines that three or more pilots are required.

5 For further details see *Maritime Regulations for the Operation of the Panama Canal* (11.57).

Quarantine
11.52

1 **General remarks.** All vessels are subject to quarantine; until granted free pratique, they should display the *International Code of Signals* flag "Q" and observe all other requirements for a vessel actually in quarantine. Provisional pratique will be granted to those vessels not held in quarantine, but subject to further quarantine procedure or observation; the termination of provisional pratique places the vessel in free pratique.

2 Free or provisional pratique may, under special conditions, be withdrawn by the Quarantine Officer. Masters of all vessels should familiarise themselves with the quarantine regulations and requirements for the canal area. The Quarantine Officer's launch exhibits a violet light at night.

3 **Pratique by radio.** The Quarantine Officer in charge may grant pratique by radio to a vessel on the basis of information regarding the vessel, cargo, and persons aboard, received before arrival, when, in his judgement and in accordance with instructions, entry of the vessel will not result in the spread of communicable diseases.

Port Captain
11.53

1 Under the supervision of the Traffic Operations Division (11.37), the Port Captain at Cristóbal or Balboa is in charge

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of all matters of service to shipping in their respective areas. The Port Captain is the medium through which, in whatever connection, the master of a vessel can conveniently and promptly place himself in direct touch with the appropriate canal authority.

Order of dispatch of vessels
11.54

1 The scheduling of all ship transits is the responsibility of the Traffic Management Unit (11.37). The canal is operated on a 24 hour basis. Being a lock-type canal, the convoy system is not employed; Lago de Gatún, with its anchorage (11.113), is used as a staging area to ensure an even flow of traffic in both directions.

2 The specific daily order of vessels and mix of vessel types transiting the canal, whether booked or regular transits, is determined by the canal authorities. Subject to being booked for transit, commercial passenger vessels will be given preference over other vessels in transiting. Priority of arrival at a terminal does not give any vessel the right to pass through the canal ahead of another vessel which may arrive later, although the order of arrival will be a consideration in determining the order of passage.

3 Very large vessels, tankers and vessels carrying dangerous cargoes are despatched at the discretion of the Port Captain; normally, they are not allowed to proceed unless they can clear Corte Gaillard before nightfall. The movement of vessels in Corte Gaillard is regulated by the Traffic Operations Division (11.37).

Small craft
11.55

1 Yachts and other recreational vessels are able to transit the canal. A transit for small craft is referred to as a Handline Transit. A summary of the procedure is as follows:

1. All small craft desiring to transit the Panama Canal vessel must be boarded, measured and cleared by an Admeasurer or Canal Boarding Official.

2 2. To request attendance of an Admeasurer or Canal Boarding Official vessels should call Cristóbal Signal Station or Flamenco Island Signal Station on VHF Ch 12.

3 3. A vessel is required to have four lines on board, each 125 ft long with a 3 ft eye, recommended at least 7/8 inch in diameter, so that they can be placed around the bitts located on the lock walls. A clean toilet, sufficient fenders and a whistle are also required.

4 4. Before transiting a transit fee and a buffer fee must be paid, based on length overall. This can be arranged through a local agent or directly at a Citibank ashore. The buffer fee is refunded if not used.

5 5. The canal transit must be made with either a Pilot or Transit Advisor on board. Transit Advisors are normally used for the smaller boats, with Pilots for larger commercial craft.

Regulations

General remarks
11.56

1 The following are selected extracts from *Maritime Regulations for the Operation of the Panama Canal* and *2003 Maritime Regulations for Transiting the Panama Canal*. These extracts are for reference purposes only and are not to be regarded as a statement of the applicable law. The full text of the regulations is the sole authoritative statement of the applicable law and it is recommended that it is consulted.

Publications
11.57

1 The following publications containing regulations for the Panama Canal are available:

Maritime Regulations for the Operation of the Panama Canal, issued by Autoridad del Canal de Panama (ACP) (Panama Canal Authority).

Maritime Regulations for Transiting the Panama Canal, published by ProStar Publications, USA.

2 Panama Canal Authority regulations require that a copy of the *Maritime Regulations for the Operation of the Panama Canal* be maintained on board all transiting vessels. A free copy of the book is obtainable from the Admeasurement Unit (11.37) of the Department of Maritime Operations through the vessel's agent.

Tonnage certificate
11.58

1 Vessels arriving without a current Panama Canal Tonnage certificate may be subject to delay for admeasurement by the Canal Authorities. If a certificate has been obtained at a port outside the canal area, the measurements will be checked by the Boarding Officer (11.69) on arrival. It is advisable for the Master to be present when the vessel is being measured.

Ballast
11.59

1 All vessels should have sufficient ballast to permit safe handling during transit of the canal.

Steering light
11.60

1 A steering light must be fitted to vessels more than 100 m in length, at or near the stem. It should be a fixed blue light, clearly visible from the bridge along a vessel's centreline, but not visible from ahead. The height of the light is to be close as possible to the height of eye level on the bridge.

Vessels carrying dangerous cargo
11.61

1 Vessels carrying dangerous cargoes shall test alarms, safety and shut down devices, within 24 hours prior to arrival. The result of this test, including a detailed list of any discrepancies or defects, is to be brought to the attention of the boarding officer, and is to be recorded in the ship's log, which is to be available for inspection.

2 At night vessels must exhibit an all-round red light, visible for 2 miles, and by day the *International Code of Signals* flag "B" if carrying flammable or explosive commodities. If the cargo is toxic or radio active only the *International Code of Signals* flag "T" is to be displayed.

Vessels carrying containers on deck
11.62

1 Since October 1, 2002, the Panama Canal Authority has been reviewing the maximum above deck carrying capacity for all vessels transiting the Panama Canal. A vessel carrying containers on deck should have a *Cargo Securing Manual* prepared in accordance with the *Guide-lines for the Preparation of the Cargo Securing Manual* as established by IMO.

2 Upon arrival in the Panama Canal, Masters should be prepared to present Panama Canal Authority Boarding

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Officers with a complete set of drawings and a complete copy of the *Cargo Securing Manual,* specifically the container stowage certificate.

Visual signals
11.63

1 Each ship should display throughout her transit the flags or flags designating the schedule number on which it is running. Vessels should also display a courtesy flag, their colours and house flags, by day, when in Panama Canal waters.

International Safety Management Code
11.64

1 Safety is of the utmost concern to the Panama Canal. Consequently all vessels arriving for transit are expected to comply with the requirements of the International Safety Management Code (ISM Code). A valid copy of the Safety Management Certificate (SMC) and a valid copy of the operator's Document of Compliance (DOC) should be kept on board.

2 Vessels that fail to comply with the ISM Code, as required by international convention, will be denied transit of the Panama Canal.

NORTH APPROACH TO THE PANAMA CANAL

General information

Chart 3111

Route
11.65

1 From a position about 5 miles NNW of Punta Galeta (9°24′N, 79°52′W) the route into the Panama Canal leads S for 8 miles, passing between the heads of East Breakwater and West Breakwater into Bahía Limón on the alignment of leading lights, to a position about 1 mile SSW of the head of Muelle Cristóbal (9°21′·3N, 79°54′·9W).

Topography
11.66

1 Bahía Limón is entered between Punta Margarita (9°23′·1N, 79°53′·3W) and Punta Toro, which is low and wooded, 3½ miles WSW. Two breakwaters protect the bay from N. East Breakwater extends W and WNW from Punta Margarita and West Breakwater extends ENE from Toro Point. The main entrance between the heads of the breakwaters is 594 m wide; there is also a second entrance through the East Breakwater, 5 cables WSW of Punta Margarita.

Atlantic approach channel
11.67

1 A dredged channel leads S from between the heads of the breakwaters to the Panama Canal; it is maintained to a least width of 152 m. For the controlling depth see 11.39.

Currents
11.68

1 An E set across the channel outside the entrance to Bahía Limón is normally encountered. Fresh NW winds may cause some current within Bahía Limón, setting SE towards Puerto Colón and Puerto Cristóbal.

Boarding
11.69

1 The Boarding Officer, who acts as admeasurer for determining Panama Canal tolls and ensures compliance with quarantine, customs and immigration regulations, boards a vessel on arrival inside the breakwaters at Bahía Limón.

2 When not boarded immediately on arrival, a vessel will anchor in a designated anchorage area (11.77) and await the Boarding Officer. A vessel arriving after 2000 for a maiden transit will normally be admeasured on the following day.

List of documents for the Boarding Officer
11.70

1 **Documents required:**
- Cargo declaration (Panama Canal Form 4363).
- Clearance from last port.
- Crew list (Panama Canal Form 1509).
- Dangerous cargo manifest.
- Declaration of all arms and munitions of war aboard other than explosives declared separately.

2
- General arrangement and engine room plans.
- National register.
- Panama Canal Tonnage certificate.
- Passenger lists, transiting and landing (Panama Canal Forms 18 and 20).
- Ship's information and quarantine declaration (Panama Canal Form 4398).
- Stores list.

3 **Documents for examination only:**
- International Oil Pollution Certificate for vessels carrying dangerous cargo in bulk.
- Certificate for the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW).
- SOLAS certificate for ships carrying dangerous cargo in bulk.

4
- Ship's documents for classification, construction, load lines, equipment, safety and sanitation.
- Ship's log.

Speed limit
11.71

1 From the Atlantic Entrance to Gatún Locks a vessels speed should not exceed 12 kn.

Principal marks
11.72

1 **Landmarks:**
- Gas flare (9°23′·2N, 79°49′·1W) (10.83) at Puerto de la Bahía de Las Minas.
- Large hotel (9°21′·9N, 79°54′·4W), standing at the NW end of Manzanillo Island.

2
- Radio mast (elevation 106 m, red obstruction lights) (9°21′·5N, 79°54′·3W), standing on the W side of Manzanillo Island.
- Old signal station (metal framework tower) (9°21′·3N, 79°54′·9W), standing at the head of Muelle Cristóbal.

3 **Major lights:**
- Bahía Limón East Breakwater Light (9°23′·3N, 79°54′·9W) (10.60).
- Bahía Limón West Breakwater Light (9°23′·3N, 79°55′·3W) (10.60).
- Punta Toro Light (9°22′·3N, 79°57′·0W) (10.60).

Other aid to navigation
11.73

1 **Racon:**
- Bahía Limón East Breakwater Light (9°23′·3N, 79°54′·9W).

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For further details see *Admiralty List of Radio Signals Volume 2*.

Directions
(continued from 10.62)

General remarks
11.74

1 **Approach.** When using coastal routes from either direction, vessels should give the coast a wide berth. The East and West Breakwater Lights have been reported to give good radar responses at distances of up to 10 miles. A vessel normally proceeds directly to an appropriate anchorage inside the breakwaters as indicated by the Port Captain by VHF radio, through the Canal Signal Station 2 cables ENE of the head of Pier No 9 at Cristóbal. If Bahía Limón is congested, a vessel may be instructed to anchor outside West Breakwater.

2 **Caution.** Many factors combine to make the Atlantic terminus of the Panama Canal a difficult area to navigate safely. Some of the factors which mariners must be alert for are:

Frequent vessel movements not only to and from the canal, but also to and from anchorages inside and outside the breakwaters.

3 Traffic to and from the local port. Ships that are either arriving or departing from the Panama Canal should also be aware that traffic to and from the terminals in Bahía Manzanillo may cross their path.

Rain squalls which suddenly reduce visibility may be encountered.

4 Shallow water effects which frequently cause vessels to respond in unexpected ways.

At night, background lights making it difficult to identify aids to navigation and the navigation lights of other vessels.

Track
11.75

1 From a position about 5 miles NNW of Punta Galeta (9°24′N, 79°52′W) the track leads S, passing W of the light-buoy (9°26′·3N, 79°54′·5W) marking the NE corner of the Atlantic Expansion Anchorage, to a position about 1 mile N of the main entrance to Bahía Limón, at the beginning of the following leading line:

2 Front light (9°17′·5N, 79°55′·2W).

Middle light (conical concrete tower, 23 m in height) (5½ cables S of the front light).

Rear light (conical concrete tower, 14 m in height) (1·23 m S of the front light).

3 The alignment (180¼°) of these marks leads S through a dredged channel, passing (with positions relative to the head of Muelle Cristóbal (9°21′·3N, 79°54′·9W)):

Between the heads (2 miles N) of West and East Breakwaters from which lights (10.60) are exhibited, thence:

Between Anchorage Area A (1 mile NW) and Anchorage Area D (1 mile N), thence:

4 Between the head of Muelle Cristóbal and a prohibited anchorage area (3 cables W). The E edge of the channel at this point is marked by No 1 Light-buoy (port hand) and the prohibited anchorage is marked by No 2 Light-buoy (starboard hand).

5 The track then leads to a position about 1 mile SSW of the head of Muelle Cristóbal.

Useful marks:

Signal station tower (9°21′·2N, 79°54′·3W) at Cristóbal, ENE of Pier 9.

6 Water tanks (9°20′·0N, 79°53′·9W) and a radio tower (elevation 57 m, red obstruction lights) at Mount Hope.

(Directions continue for the Panama Canal at 11.111)

Anchorages

General remarks
11.76

1 Anchorage areas controlled by the Panama Canal Authority, are designated according to the size and draught of vessels. The general increase in traffic through the canal requires the use of all available anchorage space. The holding ground is good, especially inside the breakwaters.

2 **Caution.** Masters are advised that anchoring outside the limits of designated anchorage areas may damage submarine cables.

Anchorage areas
11.77

1 Anchorage areas delineated on the chart are:

	Area	*Used by*
	Atlantic Expansion Anchorage; outside the breakwaters N of 9°25′·3N	Large deep-draught ships or any ship so directed
2	Atlantic Anchorage; between the N side the breakwaters and the S limit of the Atlantic Expansion area	Large deep-draught ships or any ship so directed; there is an obstruction in this anchorage, the position of which is approximate, 9 cables WNW of the head of West Breakwater
3	Anchorage Area A; west of dredged channel and N of Muelle Cristóbal	Ships with deep salt water draught between 10·4 and 11·9 m
	Anchorage Area B; west of Area A and N of spoil ground	Ships with deep salt water draught less than 9·7 m; there is a least charted depth of 8·0 m 1¾ cables NNE of H Light-buoy
4	Anchorage Area C; west of dredged area and S of Muelle Cristóbal	Required pilotage anchorage for inward-bound ships
	Anchorage Area D; east of dredged channel and N of Puerto Colón	Ships more than 109·4 m long with deep salt water draught less than 10·7 m; there is a least charted depth of 8·6 m.
5	Anchorage Area F; east of dredged channel and S of Puerto Cristóbal	Small craft and yachts
	Outer Hazardous Anchorage; 1½ miles NW of the head of West Breakwater	Ships carrying dangerous cargoes as defined in the *International Dangerous Goods Code* or which are subject to the *Bulk Chemical Code, Gas Carrier Codes* or *Appendix B of the Solid Bulk Code.* Vessels are to await instructions before anchoring
6	Inner Hazardous Anchorage; N sides of Areas A and B	As above; least charted depth 9·4 m

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Prohibited anchorages

11.78

1 Anchorage is prohibited as follows:

On or near the axis of the dredged channel.

Within an area extending 1½ cables W from the dredged channel and 1½ cables N and S of No 2 Light-buoy (9°21′·3N, 79°55′·3W).

Within an area between the E side of the dredged channel and the W limit of Puerto Colón.

Anywhere in the canal area except in a designated anchorage or in an emergency.

PUERTO CRISTÓBAL

General information

Chart 3111

Position

11.79

1 Puerto Cristóbal (9°21′N, 79°54′W) is situated in Bahía Limón on the SW side of Manzanillo Island.

Function

11.80

1 Puerto Cristóbal is the port of entry for the Panama Canal and is also used for handling containerised cargo, general cargo ships, and to bunker vessels.

Port limits

11.81

1 The port encompasses Muelle Cristóbal and the piers extending SW from it, along with French Canal; the limits are shown on the chart.

Traffic

11.82

In 1997 the port was used by 726 vessels with a total of 13 146 016 dwt.

Port Authority

11.83

1 Autoridad Portuaria Nacional, Apdo 8062, Panama 7, Panama. The Port Captain's (11.53) office stands on Pier No 9 (9°21′·2N, 79°54′·4W).

Limiting conditions

Deepest and longest berth

11.84

1 Pier No 16 (11.95).

Density of water

11.85

1 1·021 g/cm^3.

Maximum size of vessel handled

11.86

1 There are no restrictions as to length and beam; maximum allowed draught is 12·2 m.

Arrival information

Port radio

11.87

1 There is a port radio station at Puerto Cristóbal. For details see *Admiralty List of Radio Signals Volume 6 (5).*

Pilotage

11.88

1 Pilotage is compulsory and is provided by the Panama Canal Authority.

Submarine cables

11.89

1 Submarine cables are laid across the harbour NW from Pier No 16 and across French Canal 3 cables SE of the head of this pier. For further information on submarine cables see 1.42.

Tugs

11.90

1 Tugs are available.

Harbour

General layout

11.91

1 Puerto Cristóbal consists of a dredged area entered between the head (9°21′·3N, 79°54′·9W) of Muelle Cristóbal and No 5 Light-buoy, 1 mile SSW; in its S part is Anchorage Area F (11.77), marked by light-buoys.

2 French Canal, the E part of the harbour, is entered E of the head (9°21′·0N, 79°54′·4W) of Pier No 16; the limits of the dredged area in this arm are marked by a buoy, moored on the E side of the entrance, thence by light-beacons. Mount Hope Shipyard (9°20′·5N, 79°54′·0W) (11.97) is situated towards the head of French Canal on its SE side.

Climatic table

11.92

1 See 1.167 and 1.177.

Directions for entering harbour

11.93

1 Puerto Cristóbal is approached from the dredged channel, the directions for which are given at 11.75, which leads S from the heads of West and East Breakwaters to Gatún Locks.

Berths

Muelle Cristóbal

11.94

1 **Piers No's 6, 7, 8 and 9**, separated by dredged basins, project SW from Muelle Cristóbal. Pier No 10 extends E from the SW end of Pier No 9. These piers are primarily for cargo operations. The longest berth is at Pier No 9, with a length of 325 m. The deepest berth is on the SE side of Pier No 6, with a depth of 12·5 m alongside; maximum allowed draught 12·2 m.

2 **Piers No 9 and 10** form a container terminal; they can accommodate the largest vessels transiting the canal.

French Canal

11.95

1 **Piers No 14 and 15.** These are repair berths situated on the N and S sides, respectively, of the basin at Mount Hope Shipyard (11.97).

Pier No 16. Situated at the entrance to French Canal this pier is used for handling petroleum products; both the NE and SW sides of Pier No 16 are 326 m long, with a depth of 12·5 m alongside; maximum draught allowed 12·2 m.

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Muelle Mindi

11.96

1 Muelle Mindi (9°18′·3N, 59°55′·0W), 3 miles S of the head of Muelle Cristóbal, is used exclusively for handling explosives. The berth is 83·8 m long, with a depth of 7·9 m alongside.

Port services

Repairs

11.97

1 Emergency repairs are possible at the small Mount Hope Shipyard (9°20′·5N, 79°54′·0W), which is for the maintenance of the Panama Canal Authorities floating equipment. The shipyard has a dry dock 117·8 m in length, 17·9 m wide, and with a depth over the blocks at MHWS of 6·55 m. There is also a slipway with cradle 60·96 m in length, 12·8 m wide, and depths over blocks 4·17 m forward and 4·72 m aft; lifting capacity 750 tonnes. Divers are available from the Panama Canal Authority.

Other facilities

11.98

1 Four floating cranes, up to 250 tons lifting capacity and 7·6 m radius, are based at Gamboa (9°07′N, 79°42′W) (Chart 3098) and are available by special arrangement; limited salvage services provided by the Panama Canal Authority; hospital; Deratting Exemption Certificates are issued; ballast, slops, garbage and oily waste reception available.

Supplies

11.99

1 Fuel, fresh water and provisions are available.

Communications

11.100

1 A railway and road cross the isthmus and connect the port with Balboa; Tocumen International Airport, 77 km distant near Balboa, operates scheduled air services.

PANAMA CANAL TRANSIT — PUERTO CRISTÓBAL TO BALBOA

General information

Charts 3111, 3098

Navigational aids

11.101

1 **System.** The system of lighting and buoyage in the canal makes use of leading lights in all reaches, with light-beacons and light-buoys placed along the sides and at turns; in many places, unlighted buoys are moored between the light-buoys. The buoys conform to IALA Maritime Buoyage System (Region B); the direction of buoyage changes at Pedro Miguel Locks (9°01′N, 79°37′W).

2 Leading lights (circular concrete or steel towers) stand at both ends of the reaches so as to be always ahead for a vessel proceeding in either direction; they are sited a little to starboard of the axis of the channel to provide ample room for vessels to pass if they keep to their respective leading lines.



Gatun Locks from N (11.101)

(Original dated prior to 2004)

(Photograph – Panama Canal Authority)

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In Corte Gaillard, between 9°06′·3N, 79°41′·4W and 9°01′·2N, 79°37′·0W, the channel is marked by fixed green lights on the E bank and fixed red lights on the W bank. The lights are spaced about 152 m apart and 2 m above water level.

3 **Numbering of aids.** Aids to navigation are numbered in five sections:

From the Atlantic entrance to Gatún Locks.
From Gatún Locks through Lago de Gatún to Corte Gaillard.
Corte Gaillard.
Lago de Miraflores.
From the Pacific entrance to Miraflores Locks.

Depths in Corte Gaillard

11.102

1 Controlling factors for depths in Corte Gaillard (Gaillard Cut) depend upon the level of Lago de Gatún. Depths, with controlling factors, are:

13·4 m near the end of the rainy season, in December, when the level of Lago de Gatún is brought up to 26·5 m.

2 12·8 m when the level of Lago de Gatún is maintained at 25·9 m from June to the end of October.

11·9 m when the level of Lago de Gatún has fallen to 25·0 m near the end of the dry season.

A minimum under keel clearance of 1·5 m is considered essential to minimise the interaction occurring in shallow restricted channels.

Locks

11.103

1 The locks and their approach walls are in duplicate so that vessels may pass in opposite or in the same direction simultaneously. The lock gates, valves and fender chains are electrically operated from a central control station. Electric locomotives, known as "mules", run on tracks on both sides of a lock, hauling a vessel through on steel towing wires and holding it in position. The chambers of the locks are all 304·8 m long and 33·5 m wide, with a normal maximum depths over sills of 12·3 m.

2 Gatún Locks, with three flights of double chambers, raises a vessel 25·9 m from sea level, depending on the season (11.42); they have intermediate gates to shorten the length for smaller vessels, thereby conserving water. Pedro Miguel Locks, with a single flight of chambers, drops 9·4 m to the level of Lago de Miraflores. Miraflores Locks, with two flights of chambers, drops 16·5 m to sea level.

Flow

11.104

1 **Atlantic entrance.** Tidal flow in the Atlantic entrance is discernible up to Gatún Locks, but is slight. Spilling at these locks causes strong currents for a short time in the channel immediately below them.

Lago de Gatún. In the Lago de Gatún section of the canal, currents may be caused by winds and flood inflow, but they are seldom strong enough greatly to affect shipping.

2 **Corte Gaillard.** Currents in Corte Gaillard are produced by water being drawn into Pedro Miguel Locks and may attain a rate of 1½ kn.



Gatún Locks from N (11.103)

(Original dated 1994)

(Photograph – Crown Copyright)

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Pacific entrance. Tidal flow in the Pacific entrance extends to Miraflores Locks, and currents with a rate of 1 kn or more, usually setting parallel to the channel, are frequently observed.

Tugs

11.105

1 Tugs, which are based at Puerto Cristóbal (9°21′N, 79°54′W), Gamboa (9°07′N, 79°42′W) and Balboa, are needed for the largest vessels in Corte Gaillard and in the approaches to locks. The Panama Canal Authority reserves the right to assign a tug to any vessel when conditions make it advisable.

Speed limits

11.106

1 Vessels in transit through the canal shall not exceed the following speeds except in an emergency:

Location	*Knots*
Atlantic entrance to Gatún Locks	12
Lago de Gatún in the 304·8 m channel	18
2 Lago de Gatún in the 243·8 m channel	15
Lago de Gatún in the 152·4 m channel	12
Lago de Gatún when rounding No 17 Light-buoy (9°12′·6N, 79°55′·1W), N–bound	10
Corte Gaillard, in the straight reaches	8
3 Gamboa, when passing reserve fleet basin, concrete dock, or floating crane berth	6
When using a tug astern	6
Miraflores Lock to No 14 Light-buoy	6
No 14 Light-buoy to Pacific entrance (see *South America Pilot Volume III*)	12

4 A vessel in Panama Canal waters at locations other than those specified above, including the anchorage in Lago de Gatún, the Bordada Bohío, Mamei Curve, Lago de Miraflores, and in or near locks, shall not exceed a speed which is safe under the existing circumstances and conditions, except in an emergency.

5 The Transit Operations Division (11.37) may authorise departure from the maximum speeds in the case of vessels whose handling characteristics are such as to indicate that a higher speed can be prudently allowed.

Vertical clearance

11.107

1 Puente Centenario, a second bridge over the Panama Canal, is under construction approximately 1¼ miles NW of Pedro Miguel Locks (9°01′N, 79°37′W); it is expected to be completed by the end of 2004 and have a vertical clearance of about 80 m.

Hawsers and fenders

11.108

1 Hawsers, lines and fenders should be ready for passage through the locks before a vessel begins transit of the



Entering Gatún Locks from Lago de Gatún

(Original dated 1994)

(Photograph – Crown Copyright)

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Bordada Gamboa from E

(Original dated prior to 2004)

(Photograph – Panama Canal Authority)

canal; both anchors should be ready for letting go, and at least one boat should be ready to be lowered for handling lines.

Signals

11.109

1 Traffic and lock signals for the canal are given in *Maritime Regulations for the Operation of the Panama Canal* (11.57).

Development

11.110

1 In 2002 the Lago de Gatún navigational channels where being dredged 1 m deeper to increase the capacity of the lake. The deepening will augment the canal's total water reservoir volume by about 25%. This will allow for more efficient draught administration and will reduce the impact of water shortages on shipping during periodical droughts.

Directions

(continued from 11.75)

General remarks

11.111

1 A vessel should always keep as nearly as possible in mid-channel in the 152·4 m wide reaches, and should favour a mid-channel course in the 243·8 m reaches. In the 304·8 m reaches, the leading lines should always be followed.

2 Passing on a bend is not permitted; a vessel with the convex side of the canal on the port side has right of way.

Track

11.112

1 From a position about 1 mile SSW of the head of Muelle Cristóbal (9°21′·3N, 79°54′·9W) the track continues to lead S through a dredged channel, marked by light-buoys (lateral) to Gatún Locks, on the alignment (180¼°) of the leading lights described at 11.75.

2 Thence from Gatún Locks the track, comprising of eight reaches, leads through Lago de Gatún as far as Gamboa (9°07′N, 79°42′W); the reaches, named in order from NW, are Bordada Gatún, Bordada Pena Blanca, Bordada Bohío, Bordada Buena Vista, Bordada Tabernilla, Bordada San Pablo, Mamei Curve and Bordada Gamboa.

3 From Chagres Crossing, on the E side of Gamboa, the track then leads through Corte Gaillard, comprising six reaches, to Pedro Miguel Locks (9°01′N, 79°37′W); the reaches, from N to S, are Bordada Bas Obispo, Bordada Las Cascades, Bordada Empire, Bordada Culebra, Bordada Cucaracha and Bordada Paraiso.

4 Thence the track from Pedro Miguel Locks leads a short distance across Lago de Miraflores to Miraflores Locks, and then from Miraflores Locks through Bordada Balboa to Balboa, at the Pacific entrance (see *South America Pilot Volume III*).

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Miraflores Locks from NW

(Original dated prior to 2004)

(Photograph – Panama Canal Authority)



Pedro Miguel Locks from Lago de Miraflores

(Original dated prior to 2004)

(Photograph – Panama Canal Authority)

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Chagres Crossing from SW
(Original dated 1985)

(Photograph – R. Tyzack)

	Section of canal	*Distance in sea miles*	*Minimum width of channel*
5	Breakwaters to Gatún Locks	6·43	152·4 m
	Gatún Locks	1·04	–
	Lago de Gatún	20·70	198·1 m
	Corte Gaillard	6·97	152·4 m
6	Pedro Miguel Locks	0·72	–
	Lago de Miraflores	0·85	228·6 m
	Miraflores Locks	0·90	–
	Miraflores Locks to Pacific entrance	7·41	152·4 m
7	Total distance	45·02	–

Anchorage

11.113

1 A designated anchorage basin (9°15′N, 79°55′W), with depths from 15·7 to 24·0 m, extend 2 miles S from the S end of Gatún Locks; it lies immediately E of Bordada Gatún and its limits, shown on the chart, are marked by light-buoys.

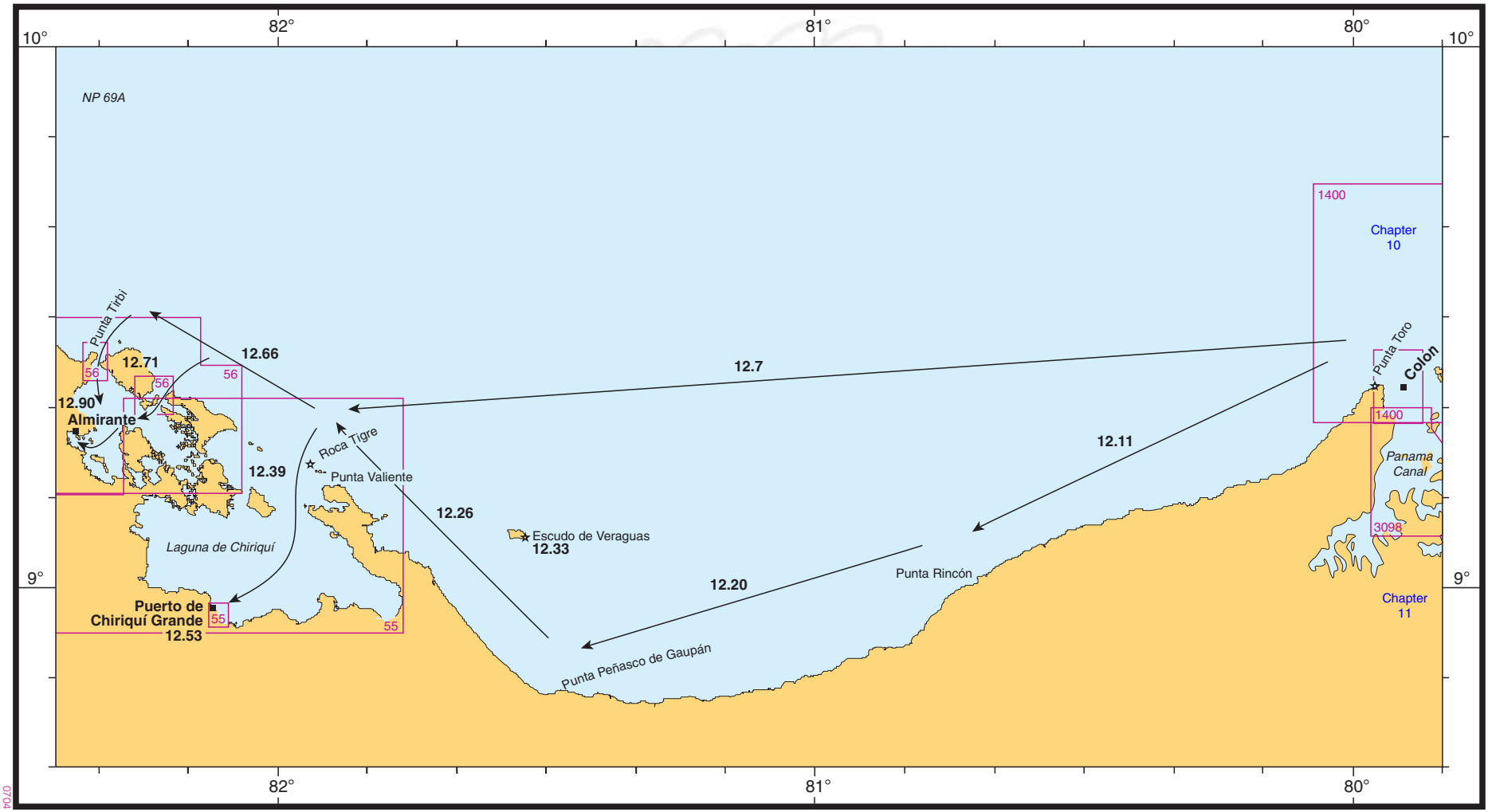
2 No vessel shall anchor in any other part of the canal except in an emergency.

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Chapter 12 - Panama - Panama Canal to Punta Tirbi



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CHAPTER 12

PANAMA — PANAMA CANAL TO PUNTA TIRBI

GENERAL INFORMATION

Chart 2145

Scope of chapter

12.1

1 This chapter covers the Caribbean coastal waters of Panama from the N entrance of the Panama Canal to Punta Tirbi (Punta Terraba on Chart 56) (9°26′N, 82°21′W), 143 miles W; it includes the extensive Laguna de Chiriquí (12.39) and Bahía Almirante (12.71), entered W of Punta Valiente (Cabo Valiente on Chart 2145) (9°11′N, 81°55′W) and fronted by numerous islands and reefs.

2 The principal ports and the only towns of any size on this coast are Chiriquí Grande (8°57′N, 82°07′W) (12.53), at the head of Laguna de Chiriquí, and Bocas del Toro (9°20′N, 82°15′W) (12.83) and Almirante (12.90), 10 miles WSW, in Bahía Almirante.

The chapter is arranged as follows:

Panama Canal to Punta Valiente (12.6).

3 Punta Valiente to Punta Tirbi (12.36).

Topography

12.2

1 The coastline W of the N entrance to the Panama Canal is formed by Golfo de Los Mosquitos (Mosquito Gulf on Chart 2145). This coast is generally low, with occasional bold promontories and bluffs. The summits of inland peaks are usually obscured by clouds and seldom visible except at dawn or on sudden cessation of heavy rains when the atmosphere will almost instantly become remarkably clear.

International boundary

12.3

1 The boundary between the Republics of Panama and Costa Rica (see *East Coasts of Central America and Gulf of Mexico Pilot)* joins the coast about 13 miles WNW of Punta Tirbi (9°26′N, 82°21′W).

Rescue

12.4

1 For information on search and rescue services in Panama Caribbean coastal waters see 1.66.

Natural conditions

12.5

1 **Flow.** The E–going Caribbean Counter-current in Golfo de Los Mosquitos attains a rate up to 1 kn. For further information see 1.142.

Fogs are rare, but the frequent heavy rains may reduce visibility to as low as thick fog.

PANAMA CANAL TO PUNTA VALIENTE

GENERAL INFORMATION

Chart 2145

Area covered

12.6

1 This section covers the Caribbean coastal waters of Panama from the N entrance to the Panama Canal to Punta Valiente (9°11′N, 81°55′W), 120 miles W. The section is arranged as follows:

Offshore route (12.7).
Panama Canal to Punta Rincón (12.11).
Punta Rincón to Punta Peñasco de Guapán (12.20).
Punta Peñasco de Guapán to Punta Valiente (12.26).

OFFSHORE ROUTE

General information

Charts 1400, 2145

Route

12.7

1 From a position about 5 miles NNW of Punta Galeta (9°24′N, 79°52′W), in the N approaches to the Panama Canal, the offshore route leads W, for 120 miles, to a position about 8 miles N of Punta Valiente (9°11′N, 81°55′W). This is the direct route to the ports of Chiriquí Grande and Almirante, W of the Panama Canal, and is clear of dangers.

Principal marks

12.8

1 **Major lights:**

Bahía Limón East Breakwater Light (9°23′·3N, 79°54′·9W) (10.60).
Bahía Limón West Breakwater Light (9°23′·3N, 79°55′·3W) (10.60).
Punta Toro Light (9°22′·3N, 79°57′·0W) (10.60).

Other aids to navigation

12.9

1 **Racons:**

Bahía Limón East Breakwater Light (9°23′·3N, 79°54′·9W).
Roca Tigre Light (9°13′·1N, 81°56′·5W).

For further details see *Admiralty List of Radio Signals Volume 2*.

Directions

(continued from 10.62)

12.10

1 From a position about 5 miles NNW of Punta Galeta (9°24′N, 79°52′W) the track leads W, passing (with positions relative to Escudo de Veragua Light (9°06′N, 81°33′W)):

N of a shoal (71 miles ENE), with a depth of 13·3 m (43½ ft) over it, lying 9 miles offshore, and:

2 S of Banco Volcán (72 miles NE); there is a least charted depth of 40 m (22 fm) over this bank. Thence:

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N of Escudo de Veraguas (Escudo de Veragua on Chart 2145) (12.33) from which a light is exhibited (12.33), thence:

3 N of a coral patch (12½ miles NW), with a depth of 18·3 m (60 ft) over it, which is steep-to.

The track then leads to a position about 8 miles N of Punta Valiente (23 miles WNW).

(Directions continue, for Laguna de Chiriquí at 12.47, and for the coastal route NW at 12.70)

PANAMA CANAL TO PUNTA RINCÓN

General information

Charts 1400, 2145

Route

12.11

1 From a position about 5 miles NNW of Punta Galeta (9°24′N, 79°52′W), in the N approaches to the Panama Canal, the coastal route leads SW, for 54 miles, to a position about 8 miles NW of Punta Rincón (Punta del Rincon on Chart 2145) (9°01′N, 80°43′W).

Topography

12.12

1 From Punta Toro (9°22′·3N, 79°57′·0W) the coast trends about 2½ miles WSW to Punta Brujas (12.17) and is bordered by a coral ledge which nearly dries; about midway between the points is a small sandy bay. From Punta Brujas the coast trends about 2 miles SW to a bluff on the N side of the entrance to Río Chagres; it consists of rocky bluffs, the tops of which are covered with thick vegetation.

2 From Punta Arenas (12.18), the S entrance point of Río Chagres, the low sandy coast which is backed by coconut trees, extends about 7 cables SW to the mouth of a small creek close off which there is a rock awash and some sunken rocks. Thence the coast becomes high and trends about 5 cables SW to Los Morillos (12.17); about halfway along and ½ cable offshore is a rock awash.

3 From Los Morillos the coast trends about 2½ miles SW to the mouth of Río Piña. A steep rocky cliff is situated about 1½ cables S of Los Morillos; thence the coast, for 7½ cables SW, is composed of red clay banks with but little vegetation on them. The village of Piña is situated on the N side of Río Piña.

4 From the mouth of Río Piña the coast, which is low, trends about 3½ miles SW to the mouth of Río Lagarto (9°12′·5N, 80°07′·5W). Thence the coast WSW of the mouth of Río Lagarto continues low, with some occasional cliffs, for 36 miles to Punta Rincón; its central part is backed by a range of hills for about 18 miles, and 14 miles WSW of the mouth of Río Lagarto there is a remarkable ridge of low red cliffs, about 5 cables long, with a round hill 108·5 m (356 ft) high, abreast the middle of them and close to the coast.

5 Inland, Sierra de Miguel de La Borda (9°03′·5N, 80°24′·0W) rises almost abruptly close within the mouth of Río Mangle (Río Mangalee on Chart 2145) to an elevation of 180 m; it then continues to ascend in irregularly densely wooded ridges to its summit, 5 miles SSE of the river mouth. Pilon de Miguel de La Borda (8°55′·0N, 80°16′·8W), an isolated conical peak 14 miles inland, is occasionally visible from the offing.

6 Sierra de Coclé del Norte (Sa. Coclet on Chart 2145) (9°01′·5N, 80°36′·8W) rises to a conical peak about 6 miles E of Punta Rincón. This peak is joined to Sierra de Miguel de La Borda by a wooded ridge up to 274 m (900 ft) high; the ridge rises directly from the coast close E of the village standing on the E side of the mouth of Río Coclé del Norte (R. Coclet on Chart 2145) (9°04′·8N, 80°35′·5W).

Depths

12.13

1 Between the mouth of Río Lagarto (9°12′·5N, 80°07′·5W) and Punta Platanal, 25 miles WSW, a number of shoals lie on the coastal bank, which extends up to 2 miles offshore, with depths of less than 13 m (42 ft) over them.

Submarine cable

12.14

1 A submarine cable is laid, in a general N direction, from a point on the coast 2 cables NNW of Punta de Castillo (9°19′·4N, 80°00′·2W), across the Caribbean Sea to Jamaica. For further information on submarine cables see 1.42.

Principal marks

12.15

1 **Major lights:**

Bahía Limón East Breakwater Light (9°23′·3N, 79°54′·9W) (10.60).

Bahía Limón West Breakwater Light (9°23′·3N, 79°55′·3W) (10.60).

Punta Toro Light (9°22′·3N, 79°57′·0W) (10.60).

Other aid to navigation

12.16

1 **Racon:**

Bahía Limón East Breakwater Light (9°23′·3N, 79°54′·9W).

For further details see *Admiralty List of Radio Signals Volume 2*.

Directions

(continued from 10.62)

12.17

1 From a position about 5 miles NNW of Punta Galeta (9°24′N, 79°52′W) the track leads SW, passing (with positions relative to Punta Toro (9°22′N, 79°57′W)):

NW of Punta Brujas (2½ miles WSW), a bold, rocky, and wooded headland. Brujas Rock, standing close offshore 5 cables NE of Punta Brujas, has sheer sides and is covered with bushes; it is prominent when seen open of the headland. A stranded wreck lies 4 cables SW of the point. Thence:

2 NW of a shoal (4½ miles SW), with a depth of 9 m (29½ ft) over it, lying in the approaches to Puerto Chagres (12.18), thence:

NW of Los Morillos (5½ miles SW), a group of above-water rocks, lying close off an abrupt cliff, thence:

NW of a patch (13½ miles SW), reported in 1914 to have a depth of 11 m (36 ft) over it; its position is approximate. Thence:

3 Clear of a shoal (24½ miles SW), with a depth of 13·3 m (43½ ft) over it, thence:

NW of the entrance (32 miles SW) to Río Mangle (Río Mangalee on Chart 2145); the river can be identified by a low rocky point on the E side of its mouth.

The track then leads to a position about 8 miles NW of Punta Rincón (50½ miles SW) (Punta del Rincon on Chart 2145), which is a bold, scarped and rocky headland rising

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to 168 m (550 ft) about 7½ cables inland; the land about 3 miles S of it is 244 m (800 ft) high.

(Directions continue for the coastal route at 12.23)

Minor harbour and anchorage

Puerto Chagres

12.18

1 **Description.** Puerto Chagres, formed by the mouth of the Río Chagres, is entered between Punta de Castillo (9°19′·4N, 80°00′·2W) and Punta Arenas, 2 cables SSE. Castillo Lorenzo, a ruined castle and fort, stands on a bluff about 40 m high rising from Punta de Castillo.

2 Punta Arenas, the S entrance point, is low, sandy, and is backed by coconut palms; heavy breakers front the low sandy beach extending WSW from the point for 7 cables to Punta Boca de la Furnia, where the coast becomes rocky and higher.

3 Río Chagres is the outlet for the surplus waters of Lago de Gatún, the flow being regulated by spillways in Gatún Dam. Chagres, a small town, stands on the NE bank of the river close within its mouth.

Depths. In 1952, least depths were 3·0 m (10 ft) in the channel E of Arrecife Laja (9°19′·4N, 80°00′·4W) and 4·3 m (14 ft) in the channel SW of the reef; depths in both channels are subject to change.

4 **Directions.** Local knowledge is required for entering Puerto Chagres. There are no specific directions but attention is drawn to Arrecife Laja which lies in the fairway of the approach to the river about 2 cables W of Punta de Castillo; rocks, awash, lie 1¼ cables SW of Arrecife Laja.

5 **Anchorage.** There is a good berth in the open roadstead off Puerto Chagres with the ruins of Castillo Lorenzo bearing 123° and Brujas Rock (9°21′·8N, 79°58′·8W) (12.17) bearing 055°, about 1 mile offshore or farther out if necessary, in depths of 18 m (59 ft), over a bottom of mud.

Vessels anchoring should take care to avoid the submarine cable (12.14), as shown on the chart, which lands on the coast close NNW of Punta de Castillo.

6 **Small craft** can cross the bar of Río Chagres N of Punta Arenas and anchor about 5 cables E of the point. There is a wharf on the NE side of the river, with a depth of 7·0 m alongside, close inside its entrance.

During the rainy season in November and December water from Lago de Gatún may be released by Gatún Dam into the river. A patrol boat will alert visiting craft to leave the river.

Coastal anchorage and landing

12.19

1 **General remarks.** Surf is heavy and continuous off the coast WSW of Puerto Chagres (9°19′N, 80°00′W) and there is no sheltered anchorage. Landing is generally not safe except in local boats in favourable conditions; local knowledge is required.

2 **Temporary anchorage** may be obtained in depths from 14 to 18 m (46 to 59 ft), sand and mud, about 2 miles off the coast within 8 miles ENE of the mouth of Río Mangle (9°08′·5N, 80°25′·4W).

Landing on the coast between Puerto Chagres and Punta Rincón is difficult and dangerous except under favourable conditions as coral reefs, on which the sea breaks, extend up to 5 cables offshore.

PUNTA RINCÓN TO PUNTA PEÑASCO DE GUAPÁN

General information

Chart 2145

Route

12.20

1 From a position about 8 miles NW of Punta Rincón (9°01′N, 80°43′W) the coastal route leads SW, for 33 miles, to a position about 5 miles N of Punta Peñasco de Guapán (Peñasco de Buppan on Chart 2145) (8°49′N, 81°29′W), at the head of Golfo de Los Mosquitos.

Topography

12.21

1 The coast SW of Punta Rincón becomes gradually lower and is broken by several rivers; it is backed by mountain ranges which forms the head of Golfo de Los Mosquitos between Punta Rincón and Punta Icaco (Coco Plum Pt. on Chart 2145).

2 Silla de Veragua (Saddle of Veragua on Chart 2145) (8°43′N, 80°38′W), 19 miles SSE of Punta Rincón, resembles a double peak or saddle when seen from the NW; it rises from the Panamanian plain and forms the E end of Cordillera de Veragua, a mountain range about 15 miles inland, extending 70 miles W and attaining more than 2133 m (700 ft) in height.

3 From the base of Castillo Choco (Castle Choco on Chart 2145) (12.22), a mountain 15 miles WSW of Silla de Veragua, irregular wooded hills extend NW and rise to a summit 947 m (3107 ft) high 6 miles SSW of Punta Zapatero (12.23); thence a range backs the coast for about 40 miles W.

4 Pico del Rey Buppan (King Buppan's Peak on chart 2145) (8°45′N, 81°27′W), standing 4 miles S of Punta Peñasco de Guapán, is narrow and conical; it is backed by the much higher peaks of Cerros de Santa Catalina (Catalina Hills on Chart 2145).

Principal marks

12.22

1 **Landmarks:**

Castillo Choco (Castle Choco on Chart 2145) (8°35′N, 80°52′W), which rises almost vertically to a flat summit; it is easily identified as the summit resembles a huge square castle, with a small tower at an angle, but is frequently enveloped in clouds and seldom visible.

2 Red cliffs, from 30 to 61 m high, rising boldly from the sea 1½ miles W of the mouth (8°49′N, 81°05′W) of Río Guasora (Río Wasora on Chart 2145), and extending 2½ miles W. When the sun shines on these cliffs from a low altitude, they glitter and sometimes resemble white sails; the E cliff has been likened to the stern of a large ship.

Directions

(continued from 12.17)

12.23

1 From a position about 8 miles NW of Punta Rincón (9°01′N, 80°43′W) the track leads SW, passing (with positions relative to Punta Rincón):

NW of Punta Palizada (Pta. de la Palisado on Chart 2145) (12 miles SW), the NE entrance point of Ensenada de San Cristobal; the SW entrance point, 2½ miles WSW, of the bay is Punta San Cristobal. Belén village stands on the E side of the mouth of Río Belén 1¾ miles E of Punta Palizada. Thence:

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2 NW of Punta Zapatero (20¼ miles SW), which is low and sandy and marked by breakers extending 5 cables off it; there is a remarkable red cliff, 30 m high, 5 cables W of the point. Concepción, a small town, stands on the E side of the mouth of Río Concepción (Gold or Conception River on Chart 2145) about 1 mile E of Punta Zapatero. Thence:

NW of the mouth of Río Guasora (Río Wasora on Chart 2145) (23½ miles SW); a shoal, with a depth of 6·7 m (22 ft) over it, lies about 1¼ miles NE of Río Guasora. Thence:

3 NW of some red conspicuous cliffs (25¾ miles SW) (12.22); the coast from the cliffs to Río Calovebora (Río Calawawa on Chart 2145), 4 miles WSW, consists of beaches of dark sand and rocky shelves, and is backed by a prominent valley about 4 miles wide. A ridge on the SE side of this valley, is 797 m (2612 ft) high, and Río Candelaria flows into the sea from the E part of the valley. Thence:

4 NW of the mouth of Río Calovebora (31 miles SW) which can be identified by coconut palms on the W side and by some red cliffs, capped by trees, about 7½ cables WNW of it, thence:

NW of Punta Coaica (Pta. de Coaita on Chart 2145) (35 miles SW), which is low and sandy and fringed by a reef. A sandy beach, with some low rocky shelves, extends 6 miles W from Punta Coaica. Thence:

5 NW of the mouth of Río Pasaula (Río Pasiowla on Chart 2145) (41 miles WSW). Punta Peñasco Colorado, a ridge of red cliffs, lies about 1 mile W of the river mouth.

The track then leads to a position about 5 miles N of Punta Peñasco de Guapán (Peñasco de Buppan on Chart 2145) (46 miles WSW), a bluff point lying 1 mile W of a bold promontory consisting of two bluff headlands close together. All three bluffs rise steeply from the W end of a sandy bay to rounded cones from 213 to 244 m high.

(Directions continue for the coastal route at 12.32)

Small craft

Río Calovebora

12.24

1 A beach affords a landing, sheltered by a ledge extending 2½ cables offshore, close W of a point 1¾ miles W of the mouth (8°47′N, 81°13′W) of Río Calovebora. This beach extends about 3 miles W to Punta Coaica.

Punta Peñasco de Guapán

12.25

1 In moderate weather, landing can be effected under the lee of a small above-water ledge extending about 2 cables from Punta Peñasco de Guapán (8°49′N, 81°29′W).

PUNTA PEÑASCO DE GUAPÁN TO PUNTA VALIENTE

General information

Charts 2145, 55

Route

12.26

1 From a position about 5 miles N of Punta Peñasco de Guapán (8°49′N, 81°29′W) the coastal route leads generally NW, between the mainland and Escudo de Veraguas (Escudo de Veragua on Chart 2145) (9°06′N, 81°33′W), for about 38 miles, to a position about 8 miles N of Punta Valiente (9°11′N, 81°55′W).

Topography

12.27

1 From Punta Peñasco de Guapán to Punta Icaco (Coco Plum Pt. on Chart 2145) (9°02′N, 81°44′W), 20 miles NW, the coast is low and sandy; it is broken by the mouths of Río Chiriquí, about 6 miles WNW of Punta Peñasco de Guapán, and Río Caña about 1½ miles S of Punta Icaco.

2 The coast from Punta Icaco to Punta Valiente (Cabo Valiente on Chart 2145), 15 miles NW, is very irregular and fringed by coral reefs; it forms the NE side of Península Valiente which is hilly and wooded, rising to 142 m (465 ft) high about 4 miles W of Punta Icaco.

3 Beaches on the NE side of Península Valiente, NW of Punta Gorda de Tobobo (9°08′N, 81°49′W), and those on the N sides of the offshore cays and islands in this vicinity, are the first consisting of white sand to be encountered W of Puerto Chagres (12.18). Elsewhere, as far NW as San Juan del Norte (10°55′N, 83°42′W) in Costa Rica (see *East Coasts of Central America and Gulf of Mexico Pilot*, the beaches are composed of dark, almost black, ferruginous sand impregnated with metallic particles.

Depths

12.28

1 The continental shelf, with depths of less than 200 m (110 fm), extends 7 miles from Punta Peñasco de Guapán; 12 miles N of this point it diverges seaward to include Escudo de Veraguas (12.33) where it extends nearly 20 miles from the coast.

Current

12.29

1 The current usually sets NW as an eddy between Escudo de Veraguas and the mainland.

Principal mark

12.30

1 **Landmark:**

Cabeza del Tigre (Tiger Head Peak on Chart 2145) (8°48′N, 81°41′W) stands near the NW end of a spur which slopes in a gradual descent to the plain; it is prominent from the NE and NW, and is generally visible when the higher peaks are obscured by cloud.

Other aid to navigation

12.31

1 **Racon:**

Roca Tigre Light (9°13′·1N, 81°56′·5W).

For further details see *Admiralty List of Radio Signals Volume 2*.

Directions

(continued from 12.23)

12.32

1 From a position about 5 miles N of Punta Peñasco de Guapán (8°49′N, 81°29′W) the track leads NW, passing (with positions relative to Escudo de Veragua Light (9°06′N, 81°33′W)):

NE of a shoal (17 miles S), with a depth of 4·0 m (13 ft) over it, lying 1½ miles WNW of Punta Peñasco de Guapán and 7½ cables offshore, thence:

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SW of Escudo de Veraguas (12.33), from which a light (12.33) is exhibited, and:

2 NE of a patch (9 miles SW), with a depth of 10·7 m (35 ft) over it, thence:

NE of Punta Icaco (Coco Plum Point on Chart 2145) (11 miles SW). A shoal, with a depth of 7·8 m (25 ft) over it, lies 2¼ miles SE of Punta Icaco and 1¼ miles offshore; another shoal, with a depth of 14·6 m (48 ft) over it, lies 4½ miles NE of the point. Thence:

3 NE of Tobobo Bank (not named on Chart 2145) (10½ miles WNW), fronting Punta Vieja Isabel (Old Bess Point on Chart 2145), with a least depth of 12·8 m (42 ft) over it; it is marked by heavy rollers. A reef extends 7½ cables NE from Punta Vieja Isabel, which forms the SE entrance point of Tobobo Bight. The bight is encumbered with reefs on which the sea breaks up to 1½ miles offshore; mangroves fringe the shores of the bight. Thence:

4 Clear of or over, depending on draught, a coral patch (12½ miles NW) with a depth of 18·3 m (60 ft) over it, and:

NE of Cayo de Plátanos (Plantain Cay on Chart 2145, Big Plantain Cay on Chart 55) (16 miles WNW), fronting the NE side of Punta Gorda de Tobobo. Cayo de Plátanos is wooded, steep and 70 m (230 ft) high; between it and Punta Gorda de Tobobo, which is a bold headland 152 m (500 ft) high and prominent, lies Cayo de Tobobo, 48 m (150 ft) high and also wooded. Thence:

5 NE of Punta Chiriquí (21 miles WNW), 2¼ miles E of Punta Valiente. The coast between Punta Gorda de Tobobo and Punta Valiente is backed by bold and irregular hills; rocks, some above-water, lie up to 5 cables off it. Thence:

NE of Punta Valiente (Cabo Valiente on Chart 2145) (23 miles WNW), which is the bold extremity of Península Valiente; the point is backed by densely wooded hills more than 152 m high. Pico Valiente stands 9 cables SE of Punta Valiente and is easily distinguished as it is considerably higher than other summits in the vicinity. Thence:

6 NE of Cayos Tigre (Tiger Cays on Chart 2145) (24 miles WNW), a chain of reddish islets covered with vegetation.

The track then leads to a position about 8 miles N of Punta Valiente.

Useful mark:

Light (12.47) exhibited from Roca Tigre (9°13′·1N, 81°56′·5W).

(Directions continue for the coastal route at 12.70, and for Laguna de Chiriquí at 12.47)

Escudo de Veraguas

General information

12.33

1 **Position.** Escudo de Veraguas (Escudo de Veragua on Chart 2145) (9°06′N, 81°33′W) lies with its W end 10 miles ENE of Punta Icaco.

Topography. The island is low and wooded, with trees from 30 to 55 m high; its E part consists of soft, reddish-brown cliffs up to 15 m high.

2 The N and E coasts have been eroded by sea action, forming occasional islets close inshore; some islets have been pierced and the arches, surmounted by dense foliage and trees up to 24 m high, are remarkable.

The W and S sides of the island are very low and swampy, with beaches of dark sand similar to those on the mainland.

3 **Depths.** Around the island the depths are irregular, but no known dangers exist outside a distance of 2 miles off its coasts. Reefs extend up to 5 cables from the island.

Tidal levels. Mean maximum range about 0·3 m; mean minimum range about 0·0 m. For further information see the *Admiralty Tide Tables.*

4 **Useful mark:**

Escudo de Veraguas Light (white square framework tower, 6 m in height) is exhibited from close within the E point of the island.

Anchorage

12.34

1 **Description.** A vessel can anchor off the SW extremity of Escudo de Veraguas, but will ride very uneasily and will not always be secure; the bottom of sand and gravel is only a thin layer over a flat coral shelf, which does not afford good holding ground.

2 **Current.** At the anchorage, by day, the current is generally W–going, but it ceases at night.

Landing places

12.35

1 The SW extremity of Escudo de Veraguas is steep-to and provides a landing, which is often difficult of access due the heavy surf. Another landing place is available at the E end of the island.

PUNTA VALIENTE TO PUNTA TIRBI

GENERAL INFORMATION

Chart 2145

Area covered

12.36

1 This section covers the Caribbean coastal waters of Panama from Punta Valiente (9°11′N, 81°55′W) (Cabo Valiente on Chart 2145) to Punta Tirbi (Punta Terraba on Chart 56) (9°26′N, 82°21′W), 29 miles NW. The section is arranged as follows:

Laguna de Chiriquí and approaches (12.39).

Coastal passage – Punta Valiente to Punta Tirbi (12.66).

Bahía Almirante and approaches (12.71).

Topography

12.37

1 Between Punta Valiente and Punta Tirbi the coast is very irregular and indented by Laguna de Chiriquí and Bahía de Almirante; these inlets are almost landlocked, being separated from each other and from the sea by many islands and reefs. The main entrances are Canal del Tigre (Tiger Channel on Chart 2145) (9°08′N, 82°00′W), leading into Laguna de Chiriquí, and Bocas del Toro (9°21′N, 82°13′W), leading into Bahía de Almirante.

2 Cordillera de Salamanca, a range about 20 miles from the SW shores of Laguna de Chiriquí and Bahía de Almirante, extends NW from a position about 40 miles SSW of Punta Valiente; on its SE part are two remarkable

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peaks which are seldom visible except at dawn, near sunset, or after very heavy rains when the atmosphere suddenly clears with a shift of wind from offshore.

3 Volcán de Chiriquí (8°49′N, 82°34′W) is 3350 m (10 991 ft) high. When seen from E, its peak and hollow crater are clearly defined and easily identified; but from N, its summit appears round and massive, with regular heights on either side.

Cerro Kámuk (Pico Blanco on Chart 2145), standing 39 miles NW of Volcán de Chiriquí, is 3565 m (11 696 ft) high; it appears as a rounded peak from all directions, the hollow of the crater being scarcely visible. The top of the range is flat and regular for some distance on each side of this peak.

4 Pico Róbalo (Robalo Peak on Chart 2145) (9°11′N, 82°39′W), about 23 miles SW of Punta Tirbi, is an isolated mountain with a large rounded summit 2175 m (7136 ft) high.

Current

12.38

1 The current off the coast between Punta Valiente and Punta Tirbi sets SE at a rate of about 2 kn. In the approaches to Canal del Tigre and Bocas del Toro, currents will be found setting E at rates from 1 to 2 kn.

LAGUNA DE CHIRIQUÍ AND APPROACHES

General information

Chart 55

Description

12.39

1 Laguna de Chiriquí affords secure anchorage clear of offshore dangers in most parts, sheltered from the N by Isla Cayo Agua (9°09′N, 82°02′W), Isla Popa, Split Hill Island and the peninsulas on each side of these islands. Puerto de Chiriquí Grande (12.53) is situated 12 miles SSW of Isla Cayo Agua, on the S shore of the lagoon.

2 From a position about 8 miles N of Punta Valiente (9°11′N, 81°55′W) the route into Laguna de Chiriquí leads generally SSW for 15½ miles, passing WNW of Roca Tigre (9°13′·1N, 81°56′·5W) and thence through Canal del Tigre. The route then leads across the lagoon for a farther 6½ miles to a position about 3 miles NNE of Eureka Pier (8°57′·1N, 82°06′·9W) at Puerto de Chiriquí Grande.

Topography

12.40

1 The E and S shores of Laguna de Chiriquí for a considerable distance inland, as far W as the mouth of Man Creek (8°56′N, 82°03′W), are low, swampy and fringed by mangroves, and there are only a few places where landing can be effected; the shores are broken by rivers and creeks, and there are some scattered villages.

2 About 1 mile SW of the mouth of Man Creek a spur from the mountain range of the interior reaches the coast; about 2 miles inland this spur attains a height of 814 m (2670 ft) at Baboon Hill (Chart 2145). This spur extends about 5 miles W to Valle de Chiriquí, 3 to 5 miles wide, which separates it from another ridge; this ridge rises to Chiriquí Peaks (Chart 2145), 866 m (2840 ft) high, about 8 miles WNW of Baboon Hill.

3 The greater part of the W side of Laguna de Chiriquí is low and swampy, but about 4 miles inland the land rises to a height of 482 m (1581 ft). Split Hill (not named on chart), 282 m (926 ft) high and prominent, the NE extremity of this high land, lies about 14 miles NNW of Chiriquí Peaks.

4 The N side of the lagoon is formed by Isla Cayo Agua (9°09′N, 82°02′W), Isla Popa, Split Hill Island and a peninsula to the W. Isla Cayo Agua is low, swampy and densely wooded. Isla Popa is up to 124 m high at the tree-tops on the SW part of the island 3¾ miles NW of Punta Laurel (9°08′W, 82°06′W), its S extremity. Split Hill Island, lying close off the SW side of Isla Popa, is 153 m high and partly cultivated. Saddle Hill, about 3 miles NW of Split Hill Island and with a conspicuous tree near its summit, is 179 m high.

Depths

12.41

1 **Controlling depth.** Depths in the fairway of Canal del Tigre vary between 26 and 69 m, although lesser depths may be found. The fairway has been swept to a depth of 18·3 m.

2 **Shoals and coral reefs.** Numerous uncharted shoals and coral heads are known to exist in two areas, the limits of which are shown on the chart, SW of Península Valiente, between Punta Bluefield (9°08′N, 81°57′W) and Punta Red Clay 6½ miles SE, and SW and S, respectively, of Isla Cayo Agua (9°09′N, 82°02′W) and Isla Popa.

3 There are also many shoals in the SE part of Laguna de Chiriquí, almost filling Ensenada Anita. On the NW side of the lagoon, other shoals continue WNW from the uncharted danger area S of Isla Popa, along the N side of Laguna de Chiriquí, as far as Ensenada Uyama. Within Ensenada Uyama there are several coral reefs, which partly dry, and the shore of the bay is fringed with many shoal patches.

Notice of ETA required

12.42

1 An ETA for the pilot boarding position outside Laguna de Chiriquí should be given at least 72 hours in advance via the ship's agent; any subsequent variation of more than 4 hours should be advised.

For further details see *Admiralty List of Radio Signals Volume 6 (5).*

Pilotage

12.43

1 Pilotage for entering Laguna de Chiriquí is optional; vessels may proceed directly through Canal de Tigre to anchorages in the lagoon. Outward bound vessels have priority in the buoyed channel. If a pilot has been requested, he will board in the vicinity of 9°12′N, 81°59′W, 2¾ miles WSW of Roca Tigre.

2 For further details see *Admiralty List of Radio Signals Volume 6 (5).*

Flow

12.44

1 Tidal streams are seldom experienced within Laguna de Chiriquí, but a N–going outset according to the state of the rivers, may be experienced. In the dry season, from March to June, off the mouth of Río Cricamola (8°59′N, 81°55′W), and as far as the entrance to Canal del Tigre, the out-going stream attains rates of from ½ to 1 kn; there is a weak in-going stream on the rising tide.

2 Outside, and in the small channel between the islands to the W, there is a constant out-going current which obtains rates of from 1 to 2 kn, and after long and heavy rains a rate of as much as 3 kn has been experienced in the main channel.

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Principal marks

12.45

1 **Landmarks:**

Punta Bluefield (9°08′N, 81°57′W), a bluff wooded headland at the W extremity of Península Valiente; it is 55 m high at the tree-tops and easily identified.

Cerro Popa (9°13′N, 82°07′W), a distinctive isolated hill with a rounded summit, standing on the N part of Isla Popa.

2 Radio tower (red obstruction lights, elevation 250 m) (8°57′N, 82°08′W) standing close W of Chiriquí Grande.

Three oil tanks, 2 cables W of the radio tower; lights, reported to be visible at a great distance, are exhibited from the tanks.

Other aid to navigation

12.46

1 **Racon:**

Roca Tigre Light (9°13′·1N, 81°56′·5W).

For further details see *Admiralty List of Radio Signals Volume 2*.

Directions

(continued from 12.10 and 12.32)

Approach

12.47

1 **Caution.** Great care is needed when proceeding into Laguna de Chiriquí, for the water in the entrance is so opaque that the shoals cannot be seen; sounding is almost useless as the shoals are steep-to, with very irregular depths between them.

2 **Track.** From a position about 8 miles N of Punta Valiente (9°11′N, 81°55′W) the track leads SSW, passing (with positions relative to Punta Piedra Roja (9°08′·6N, 82°00′·5W)):

ESE of the shoal water fringing a reef extending 9 cables SE from Cayos Zapatilla (6¾ miles NNW). The two sandy cays forming Cayos Zapatilla are thickly covered with tall trees. And:

3 WNW of Reventazones Tigre (5¾ miles NNE) (not named on chart), a small rock, over which the sea normally breaks heavily, lying 4 cables WNW of Roca Tigre; a coral patch, with a depth of 7·0 m over it, lies 3 cables NW of the rock. Reventazones Tigre should be given a berth of not less than 1 mile. A light (metal tower) is exhibited and a racon (12.46) transmits from Roca Tigre.

4 After passing Reventazones Tigre, the opening into Laguna de Chiriquí, between Punta Bluefield and Punta Piedra Roja, becomes easily identifiable. The track then continues SSW for a short distance to the pilot boarding position (3¾ miles NNE).

Clearing line. The alignment (221°) of Punta Norte (9°11′N, 82°03′W), the NW extremity of Isla Cayo Agua, with Punta Laurel on Isla Popa, 4 miles SW, clears SE of the reef extending SE from Cayos Zapatilla.

Entry and within Laguna de Chiriquí

12.48

1 From the pilot boarding position the track leads initially S, passing (with positions relative to Punta Piedra Roja (9°08′·6N, 82°00′·5W)):

W of a shoal (4½ miles NE), with a depth of 5·5 m over it, fronting a bank, on which Cayos Valiente (12.49) and Virginia Rocks (12.61) lie; the bank extends 1¼ miles W and 1½ miles SW from Punta Valiente. Thence:

2 W of Cayos del Toro (3½ miles E), a group of dark and wooded cays lying on the outer part of a reef extending 1 mile NNW from Punta Bluefield (12.45).

3 The track then leads SSW through a narrow channel, marked by numbered light-buoys (lateral), into Laguna de Chiriquí, passing ESE of the shore bank fronting Punta Piedra Roja, backed by trees about 30 m high, and between the shoals lying SW and S, respectively, of Punta Bluefield and Isla Cayo Agua.

4 When clear of the buoyed channel a vessel may shape a course as convenient, taking care if bound S or W to give the shoals extending off the mouths of Man Creek (8°56′N, 82°03′W), Río Chiriquí (8°59′N, 82°10′W) and Río Guarumo (9°00′N, 82°11′W) (not named on chart) a wide berth. A large vessel should not proceed E of the meridian of Río Cricamola (8°59′N, 81°55′W) on account of the shoals in the E part of the lagoon.

5 For vessels bound for Puerto de Chiriquí Grande (12.53) the track leads SSW, from the S end of Canal del Tigre, in deep water for 6½ miles to a position about 3 miles NNE of Eureka Pier (8°57′·1N, 82°06′·9W), at the beginning of the Chiriquí Grande leading line.

(Directions continue for Puerto de Chiriquí Grande at 12.57)

Side channels

Canal Valiente

12.49

1 **Description.** Canal Valiente, a channel 1½ miles wide, lies between Punta Valiente (9°11′N, 81°55′W) (12.32) and Cayos Tigre (12.32) to the N. The swell is usually very heavy in this channel and it should not be attempted without local knowledge.

2 **Flow.** The SW–going stream on the rising tide attains a rate from ½ to 1 kn, and the NE–going stream on the falling tide attains from 1 to 2 kn; the greater rate of the latter is caused by the combination of the E–going current and the tidal stream out of Laguna de Chiriquí.

3 **Directions.** From a position about 2 miles NE of Punta Chiriquí (9°11′N, 81°53′W) (12.32) the track leads W, passing (with positions from Punta Chiriquí):

N of Cusapin Cays (close NW), fringing the shore NW of Punta Chiriquí, thence:

Clear of Reventazones Valiente (1¾ miles NW) (not named on chart), with a depth of 7·6 m over it. This small bank is steep-to and rollers break heavily on it, even in the finest weather. Thence:

4 Between Punta Valiente (2¼ miles W) and Cayos Tigre (2¾ miles NW), thence:

Clear of a shoal (2¾ miles WNW), with a depth of 7·5 m over it, thence:

N of Cayos Valiente (3 miles W), a group of islets up to 12 m high lying near the end of a reef extending 1 mile W from Punta Valiente, thence:

5 Between an isolated shoal (3¾ miles W), with a depth of 5·5 m over it, and Roca Tigre (4 miles NW) (12.47), from which a light is exhibited.

The track then leads out into Canal del Tigre.

Channel between Cayo Agua and Isla Popa

12.50

1 **Description.** This channel leads into Laguna de Chiriquí W of Punta Norte (9°11′N, 82°03′W). It is not recommended as it is much narrowed by reefs and shoals,

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and there is an area of uncharted dangers, as shown on the chart, at its S end. Local knowledge is essential.

2 **Current.** The current through the channel is constantly N–going, or out-going, with a rate of about 1 kn.

Small craft channels

Canal Crawl Cay

12.51

1 Canal Crawl Cay (9°14′N, 82°08′W) lies at the head of the bight formed by the islands and reefs SW of Cayos Zapatilla, between Isla Popa and Isla Bastimentos (Provision Island on Chart 2145); it forms the E entrance to Bahía Almirante (12.71). The channel requires local knowledge, being encumbered with coral reefs and shoals.

Split Hill Island

12.52

1 On either side of Split Hill Island (9°09′N, 82°10′W) narrow channels lead from the NW side of Laguna de Chiriquí into the SE end of Bahía Almirante; local knowledge is essential for navigating these channels as their approaches are much encumbered by reefs and shoals.

2 Vehicular ferries use these channels, providing a regular connection between the towns of Chiriquí Grande and Almirante (12.90). The channels are marked by drums stuck on mangrove poles with a variety of coloured stripes and other designs on them.

Puerto de Chiriquí Grande

General information

12.53

1 **Position.** Puerto de Chiriquí Grande (8°57′N, 82°07′W) is situated on the S shore of Laguna de Chiriquí at Eureka, 133 miles WSW of the N entrance to the Panama Canal. The town of Chiriquí Grande stands 4 cables S of Eureka and close S of the mouth of a creek which is spanned by a bridge.

2 **Function.** Crude oil is exported from Puerto de Chiriquí to the United States S and E coast refineries. The oil originates in Alaska and is piped from the Charco Azul Terminal at Puerto Armuelles (*South America Pilot Volume III*) on the Pacific Coast. The port also exports bananas and handles general cargo.

3 **Traffic.** In 1997 the oil terminal at Chiriquí Grande was used by eight vessels with a total of 81 413 dwt.

Port Authority. Petroterminal de Panama, S.A., Apartado 8–169, Panama 8, Republic of Panama.

Limiting conditions

12.54

1 **Controlling depth.** There are depths of 22 m at the oil terminal SBM's.

Tidal levels. Maximum range 0·64 m; mean range 0·24 m.

2 **Density of water:**

Offshore the density is 1·025 g/cm^3.

At Puerto de Chiriquí Grande, near the shore, the density is about 1·010 g/cm^3, during the rainy season from November to March.

3 **Maximum size of vessel handled.** Tankers up to 120 000 dwt, with a maximum draught of 20·4 m are handled.

Local weather. Rain squalls accompanied by strong winds of a short duration can be expected from time to time, especially from November to March.

Arrival information

12.55

1 **Port radio.** There is a port radio station at Puerto de Chiriquí Grande. For details see *Admiralty List of Radio Signals Volume 6 (5).*

Notice of ETA required. Vessels should contact the terminal when within range, about 50 miles, on VHF. See also 12.42. For further details see *Admiralty List of Radio Signals Volume 6 (5).*

2 **Outer anchorage.** Large vessels awaiting a pilot for Puerto Chiriquí Grande may obtain anchorage in position 9°12′N, 82°00′W, in a depth of about 33 m, with good holding ground of mud, 4 miles WSW of Roca Tigre.

Pilotage. See 12.43. The use of a Berthing Master is compulsory when securing to the SBM's at the offshore oil terminal; the Master remains on board during the loading operations.

3 **Tugs.** None available.



Puerto de Chiriquí Grande Leading Lights (12.57)

(Original dated 2003)

(Photograph – Crown Copyright)

Harbour

12.56

1 **General layout.** The harbour consists of an offshore buoyed terminal for loading oil and an alongside pier at Eureka (8°57′·1N, 82°06′·9W) for the handling of dry cargo. Cemetery Cay lies close NW of the pier.

Landmarks:

2 Radio tower (red obstruction lights, elevation 250 m) (8°57′N, 82°08′W) standing close W of Chiriquí Grande.

Three oil tanks (12.45), 2 cables W of the radio tower.

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Directions for entering harbour

(continued from 12.48)

12.57

1 From a position about 3 miles NNE of the pier at Eureka (8°57′·1N, 82°06′·9W) the berths at Puerto de Chiriquí are approached along the following leading line:

Front light (white round tower, black stripe) (8°56′·5N, 82°06′·8W).

Rear light (similar structure) (60 m SSW from front light).

2 The alignment (212°) of these lights leads SSW for a short distance towards the SE–most SBM. Vessels bound for the pier should leave the leading line well clear of the SBM.

Berths

12.58

1 **Anchorages.** Vessels awaiting a berth may obtain anchorage, over a soft bottom of mud, NE and ENE of the SBM's at Puerto de Chiriquí Grande in the following positions, as shown on the chart:

North-east in the vicinity of 9°00′·0N, 82°04′·0W.

East-north-east in the vicinity of 8°59′·5N, 81°02′·0W.

2 East-north-east in the vicinity of 8°59′·0N, 82°00′·1W.

Vessels should keep at least two miles clear of the SBM's.

3 **Oil Terminal.** The terminal consists of two SBM's, the positions of which are shown on the chart, connected to the shore by submarine pipelines. The system has a maximum loading capacity of 50 000 barrels per hour through two 12 inch hoses.

4 **Eureka Pier.** The pier is 600 ft long and 80 ft wide. It is suitable for vessels up to 90 000 dwt with a maximum draught of 10·9 m. Cargo is handled using ship's gear.

Port services

12.59

1 **Repairs** can be carried out.

Other facilities: limited medical facilities; no oily waste or ballast reception; no garbage facilities.

Supplies. Fresh water and fuel available at the pier.

Anchorages and minor inlet

Cayos Zapatilla

12.60

1 Well sheltered anchorage can be obtained about 1½ miles SSW of the W extremity of the NW cay of Cayos Zapatilla (9°16′N, 82°03′W) (12.47), in irregular depths varying between 9 and 20 m, over a bottom of sand and mud. However attention is drawn to charted depths of 7 m or less close by this anchorage.

Cemetery Cay



Puerto de Chiriquí Grande – Eureka Pier (12.58)

(Original dated 2003)

(Photograph – Crown Copyright)

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Laguna de Bluefield

12.61

1 **Description.** Laguna de Bluefield is entered between a shallow bank extending 1½ miles SW from Punta Valiente and a bank on which Cayos del Toro (12.48) lie, extending 1¼ miles WNW from Scrubby Point (9°09′·1N, 81°56′·5W).

2 Densely wooded hills rise on the N side of the inlet to Pico Valiente (12.32); those on the S side are up to 134 m high. Bluefield Peak (9°08′·9N, 81°51′·7W) (not named on chart) 184 m high, is the summit of a narrow ridge of irregular hills standing at the head of the inlet.

3 **Directions.** From a position about 2½ miles WNW of Scrubby Point the track leads ESE into Laguna de Bluefield, passing (with positions relative to Scrubby Point):

NNE of the shoal water, fronting the N side of Cayos del Toro (8 cables W), thence:

4 NNE of a patch (5 cables NNW), with a depth of 6·1 m over it, thence:

NNE of Scrubby Point, which is low and wooded, thence:

5 SSW of Bluefield Rock (1¼ miles ENE), standing on the S edge of the shallow bank; it is a small sheer black rock capped with a few trees and is easily identified from W. Thence:

NNE of Punta Sirain (1 mile E).

6 The track then leads E to the anchorage, the position of which is shown on the chart. The inner part of the inlet, E of Carolina Point (not named on chart), 1¼ miles ESE of Punta Sirain, is mostly foul and should not be approached without local knowledge.

7 If approaching Laguna de Bluefield from Canal Valiente (12.49) the line of bearing, 175°, of Punta Bluefield (9°08′N, 81°57′W) leads towards the entrance, passing W of a shoal, with a depth of 5·5 m over it, lying 6 cables NW of Virginia Rocks, which are only 1 m high.

8 **Anchorage.** Vessels may obtain good shelter in depths of 20 m, over a bottom of mud, with Observation Point (9°10′·3N, 81°55′·1W) (not named on the chart), a prominent bluff, bearing 340°, and Bluefield Rock bearing 292°.

Landing can be effected on the S shore 3 cables SW of Carolina Point.

Green Bay

12.62

1 **Description.** Green Bay (9°08′·1N, 81°56′·6W) (not named on chart) is entered 4 cables SE of Punta Bluefield. The bay provides anchorage for small vessels, but local knowledge is required. Attention is drawn to a patch, with a depth of 3·9 m over it, lying 6 cables SSE of Punta Bluefield.

2 **Caution.** The bay is exposed to W winds and is then dangerous.

Small craft

Río Cricamola

12.63

1 Río Cricamola, the largest river to enter the lagoon, has its N mouth close W of Cricamola village (8°59′N, 81°55′W), which stands on a salient point backed by trees up to 37 m high. A low mangrove-covered cay W of this point divides the river mouth into two channels.

2 Boats can ascend the river in depths of about 2 m for 7 or 8 miles to some rapids, though the bar may have a depth of only 0·3 m over it in the dry season.

Ensenada Deliscanos

12.64

1 Ensenada Deliscanos (9°01′N, 82°16′W) (not named on chart), with a narrow entrance close S of Punta Deceano Bienjo (not named on chart), is situated on the W side of Laguna de Chiriquí. The shallow cove is suitable for yachts to anchor in.

Ensenada Tapao

12.65

1 Ensenada Tapao (not named on chart) is entered between Punta Río Silico (9°05′N, 82°15′W) (not named on chart), fringed by a reef, and a point at the mouth of Río Uyama (not named on chart), 1½ miles NNW. Small craft may obtain anchorage on the S side of the bay, close within Punta Río Silico, and on the N side of the bay.

COASTAL PASSAGE — PUNTA VALIENTE TO PUNTA TIRBI

General information

Charts 2145, 55, 56

Route

12.66

1 From a position about 8 miles N of Punta Valiente (9°11′N, 81°55′W) the coastal route leads NW in deep-water, for 24 miles, to the vicinity of 9°32′N, 82°16′W, about 8 miles NE of Punta Tirbi (9°26′N, 82°21′W).

Topography

12.67

1 The main coastal features along this route are Isla Bastimentos (9°19′N, 82°09′W) (Provision Island on Chart 2145) and Isla Colón (9°24′N, 82°17′W) (Columbus Island on Chart 2145). Isla Bastimentos rises from its NE coast to a ridge of irregular hills which are 73 m high at its NW end, 6 cables SW of Cabo Toro (9°22′N, 82°12′W), its N extremity. Isla Colón is densely wooded and from 61 to 122 m high; its SE part is a low peninsula, on which stands the town of Bocas del Toro. Punta Norte (9°27′N, 82°17′W), the N extremity of the island, is low and rocky.

Current

12.68

1 The E–going Caribbean Counter-current sets on to the rocky ledges off Punta Norte, the N extremity of Isla Colón, at rates from 1 to 2 kn and will be encountered in the approach to Bocas del Toro (12.71).

Other aid to navigation

12.69

1 **Racon:**

Roca Tigre Light (9°13′·1N, 81°56′·5W).

For further details see *Admiralty List of Radio Signals Volume 2*.

Directions

(continued from 12.10 and 12.32)

12.70

1 From a position about 8 miles N of Punta Valiente (9°11′N, 81°55′W) the track leads NW, passing (with positions relative to Punta Tirbi (9°26′N, 82°21′W)):

NE of Cayos Zapatilla (20¾ miles SE) (12.47), thence:

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NE of Isla Bastimentos (10 miles SE); the seaward coast of the island is fringed in places by drying reefs and above-water rocks. Thence:

2 NE of Isla Colón (1¾ miles ESE). The seaward coast of the island in the vicinity of Punta Rocosa (5¾ miles E) is fringed with dangerous rocks; shoal water, which breaks in heavy seas, extends 1½ miles NNE from Long Bay Point, a rocky bluff 16 m high forming the E extremity of Isla Colón. Thence:

3 NE of Swan Cay (3½ miles ENE), which is precipitous and surmounted by brushwood and a few coconut palms, thence:

NE of Wreck Rock (3½ miles NE), which is the N–most danger off Isla Colón and about 2 m high.

4 The track then leads to the vicinity of 9°32′N, 82°16′W, about 8 miles NE of Punta Tirbi (Punta Terraba on Chart 56), which is fronted by a drying reef on its NW side.

(Directions continue for the NW entrance to Bahía Almirante, through Boca del Drago, at 12.80)

(Directions for the main entrance to Bahía Almirante are given at 12.77 and for the coastal route NW of Punta Tirbi in East Coasts of Central America and Gulf of Mexico Pilot)

BAHÍA ALMIRANTE AND APPROACHES

General information

Chart 56

Description

12.71

1 Bahía Almirante affords anchorage in convenient depths almost anywhere within the bay; vessels can lie safely close offshore in many places. Bocas del Toro (9°20′N, 82°15′W) (12.83), the port of entry, and the commercial port of Almirante (12.90), 9 miles WSW, are the only harbours in the bay.

2 The main route into Bahía Almirante is through Bocas del Toro (9°21′N, 82°13′W), the channel between Islas Bastimentos and Isla Colón. The channel is entered NW of Cabo Toro (9°22′N, 82°12′W) and is about 7½ cables wide off Cayo Carenero, 1¾ miles SW, but the fairway is much narrowed by coral reefs and shoals on both sides.

3 Bahía Almirante may also be entered through Boca del Drago (9°25′N, 82°20′W), between Isla Colón and Punta Tirbi (Punta Terraba on Chart 56), but this channel has no navigational aids and is intricate; its turns are so sharp that vessels, other than those of light draught, are recommended not to attempt it without a pilot. The fairway is only 2¼ cables wide in the entrance between Punta Cauro and Punta Sarabeta, 1 mile W, and 1¾ miles wide in the narrowest part WSW of Punta Cauro.

Topography

12.72

1 Bahía Almirante is bounded on the E by Isla Popa (12.40) and Isla Bastimentos (12.67), on the N by Isla Colón (12.67), and on the S and W by the mainland; its irregular shores form many small bays and creeks. Isla San Cristóbal, the largest island within Bahía Almirante, divides the bay into three basins, the E of which is mostly filled with cays and reefs; the N and W basins are comparatively free from dangers.

2 Table Ridge (not named on chart) backs the SW shore of Bahía Almirante, about 2 miles inland. The ridge is 533 m (1748 ft) high at the SE end (9°10′N, 82°21′W) and rises to 614 m (2015 ft) about 10½ miles NW.

Depths

12.73

1 **Bocas del Toro.** The maximum safe draught for the buoyed channel through Bocas del Toro is 7·9 m. The local authority (12.83) should be consulted for the latest information.

Boca del Drago. There is a least charted depth of 11·6 m at the S end of the recommended route through Boca del Drago.

Pilotage

12.74

1 Pilotage is compulsory for Bocas del Toro; the pilots are stationed at the town of Bocas del Toro and also provide pilotage for Boca del Drago. The pilot boarding position is NW of Cabo Toro, but the pilots usually board near No 9 Light-beacon (9°19′·8N, 82°13′·4W), at the S end of the channel.

2 Vessels arriving for the first time must anchor off the entrance with Cabo Toro bearing between 150° and 180°, distant 8 cables, and await the pilot. The pilot boat is painted blue with a white superstructure.

For further information see *Admiralty List of Radio Signals Volume 6 (5).*

Submarine cables

12.75

1 A submarine cable is laid across Bocas del Toro from the E side of Punta Bastimentos (9°21′N, 82°13′W) to the S end of Cayo Carenero, 1¼ miles WSW. A submarine cable is also laid across Boca del Drago from Lime Point (9°25′N, 82°20′W) to the mainland shore, 1¼ miles WSW.

2 Mariners should not anchor or trawl in the vicinity of these cables. For further information see 1.42.

Flow

12.76

1 **Bocas del Toro.** Current, entering through Boca del Drago (9°25′N, 82°20′W), sets SE along the SW coast of Isla Colón and emerges through Bocas del Toro. The effect of this current in Bocas del Toro is to increase the rate of the out-going tidal stream and to decrease that of the in-going stream. A rate of 1 kn is sometimes attained.

2 **Boca del Drago.** Currents in Boca del Drago are irregular in rate and direction. When the E–going current outside is at its maximum rate, it is deflected into the channel by the ledge extending nearly 2 miles N from Isla Colón; it attains a rate of about 1 kn during the in-going tidal stream, but is inappreciable during the out-going stream. The current sometimes becomes very weak and the the tidal streams then set regularly in and out with a maximum rate of about ½ kn.

Directions for Bocas del Toro

Approaches

12.77

1 **East approach.** The first land sighted will be Península Valiente (12.27), which will appear as a bold abrupt headland; Cayos Zapatilla (9°16′N, 82°03′W) (12.47) will next be distinguished and thence Isla Bastimentos.

North-west approach. When approaching from the NW a vessel should keep well offshore and pass not less than 2 miles NE and E of Long Bay Point (9°24′N, 82°14′W), to avoid the many shoal patches extending from the point.

2 **Caution.** Muddy water in the approaches to Bocas del Toro is so opaque that the shoals are not visible, but the

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edges of the reefs off Isla Bastimentos can generally be made out. The sea never breaks across the entrance.

Entry

12.78

1 From a position about 4 miles NE of Cabo Toro (9°22′N, 82°12′W) the track leads SW for a short distance towards the entrance; an E–going current may be experienced and should be allowed for. Thence, when about 1½ miles from the entrance, the line of bearing, 232°, of Roca Norte, which is easily identifiable standing on the end of a reef extending 1 cable N from Cayo Carenero (9°21′N, 82°14′W), leads SW, passing (with positions relative to Cabo Toro):

2 NW of a shoal (1 mile ENE), with a depth of 6·6 m over it, thence:

SW of a shoal (1½ miles NNW), with a depth of 9·4 m over it; this is the E–most of the many shoals fronting Long Bay Point. Thence:

3 NW of Roca Toro and a rock which dries fronting the NE and N sides, respectively, of Cabo Toro; the cape is bold with a round prominent rock 35 m high rising from it.

The track then leads to a position between No's 1 and 2 Light-buoys (9 cables NW) marking the beginning of the channel through Bocas del Toro, which is marked by light-buoys and light-beacons (lateral) and by isolated danger buoys.

4 **Useful marks:**

Three radio masts (red obstruction lights) standing 8½ and 1·15 miles N, and 1 mile NE of Mangrove Point (9°19′·8N, 82°15′·1W).

Bocas del Toro

12.79

1 The track then continues SW through the marked channel for about 7 cables and thence S, passing (with positions relative to Hospital Point Light (9°20′N, 82°13′W)):

E of an unmarked patch (1 mile N), with a depth of 8·4 m over it, fronting the NE side of Cayo Carenero; the island is wooded, the trees being up to 46 m high at its N end. Thence:

2 W of a 9·7 m patch (9 cables N), marked by a light-buoy (port hand), and a 8·4 m patch (8 cables N), fronting Punta Bastimentos; the point is low and sandy with the village of Bastimentos standing on it. And:

E of a shoal (8¼ cables N), with a depth of 9·4 m over it, thence:

3 W of Bajo Solarte (3 cables N) lying across the entrance to Hospital Bight (12.98). There is a depth of 2·8 m over its N end 3½ cables WSW of Punta Bastimentos; Roca Solarte, which dries, lies at its S end. And:

E of a shoal (3½ cables NNW), with a depth of 7·5 m over it, marked by No 8 Light-beacon (starboard hand), thence:

4 W of Hospital Reef, extending 1¾ cables N from Hospital Point. A light (metal pedestal, 2 m in height) is exhibited from the W side of Hospital Point. Thence:

W of the shoal bank fringing the NW side of Cayo Solarte; the edge of the bank is marked by No 9 Light-beacon (port hand). Cayo Solarte is densely wooded, with trees up to 44 m high at its NW end. And:

5 Close E of a shoal (5 cables SSW), with a depth of 8·4 m over it, lying off the E side of Bajo Garcia. The SE end of Bajo Garcia, with a least depth of 5·0 m over it, is marked by No 10 Light-buoy (starboard hand).

The track then leads SW out into Bahía Almirante, to a position about 1½ miles SW of Hospital Point.

(Directions continue for Almirante at 12.82)

Directions for Boca del Drago

(continued from 12.70)

Caution

12.80

1 It has been reported that Swan Cay (9°27′N, 82°18′W), Wreck Rock and Sail Rock, lying in the outer E approach to Boca del Drago, are charted out of position by as much as 100 m. Mariners are advised to give these cays a wide berth at all times.

Track

12.81

1 From the vicinity of 9°32′N, 82°16′W, about 8 miles NE of Punta Tirbi (Punta Terraba on Chart 56), the track leads SW, passing (with positions relative to Lime Point (9°25′N, 82°20′W)):

NW of Wreck Rock (3½ miles NNE); between Wreck Rock and Swan Cay, 4½ cables SSE, there are several dangerous and above-water rocks. Thence:

2 NW of Sail Rock (3¾ miles NNE), lying at the outer end of the rocky ridge extending 1¾ miles NW from Punta Norte. Sail Rock is steep-to on its N and W sides.

Thence from a position about 1¼ miles W of Sail Rock the line of bearing 178½° of Lime Point leads S, passing (with positions relative to Lime Point):

3 E of Five Fathom Bank (1¾ miles N), fronting the NE side of Punta Sarabeta; between this point and Punta Tirbi, 6½ cables WNW, the coast of the mainland forms the N side of a small wooded peninsula, fringed by a reef on which the sea breaks heavily. Thence:

4 E of Mandeville Rock (1 mile N) lying on the E edge of the bank extending 6 cables E of Punta Sarabeta; the sea seldom breaks on this rock and there is usually no indication of its position. Thence:

W of the bank extending 3 cables WNW from Punta Cauro (9 cables NNE).

5 Thence the track leads WSW on the line of bearing, 071° astern, of Punta Norte (9°27′N, 82°17′W) just open NNW of Punta Cauro, avoiding the bank extending 6½ cables NW from Lime Point; there is a least charted depth of 5·0 m on this bank's outer edge. When a position is reached about 2 cables from the W shore, with Punta Sarabeta bearing 340°, the track leads generally S, passing:

6 E of Punta Anton (8 cables NW); on this side of the channel the reef fringing the shore is steep-to. Thence:

W of the bank extending 4½ cables W from Lime Point; the point is low and sandy with a small settlement standing on it.

7 Then when a position is reached about 1 mile S of Punta Anton the track leads SSE out into Bahía Almirante, passing ENE of Punta Donato. Care needs to be taken to avoid the bank, with depths of less than 6·0 m over it, extending 1¾ miles SE and S from Punta Donato.

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For vessels bound for Almirante the track continues SSE, for about 4 miles, to a position about 1¼ miles NW of Punta Juan Light (9°18′N, 82°18′W) (12.82), where it joins the route leading from Bocas del Toro to Almirante.

Directions from Bocas del Toro to Almirante

(continued from 12.79)

12.82

1 From a position about 1½ miles SW of Hospital Point (9°20′N, 82°13′W) the track leads W, passing (with positions relative to Punta Juan Light (9°18′N, 82°18′W)):

S of Mangrove Point (3 miles NE), the S extremity of Isla Colón, thence:

2 N of a shoal (1¼ miles ENE), with a depth of 1·0 m over it, lying at the extremity of a spit extending 1 mile NW from Punta Coco, the NE extremity of Isla San Cristóbal, thence:

N of Punta Juan Light (green tower), exhibited from a position on the N end of a reef extending NW from Punta Juan.

3 The track then rounds Punta Juan and leads S, passing (with positions relative to Punta Juan Light):

W of a shoal (3½ cables W), with a depth of 10·0 m over it, thence:

E of Pondsock Reef (2 miles WSW), which partly dries, and on which lie two stranded wrecks. The reef lies on a bank, with depths of less than 5·0 m over it, which extends 1½ miles ESE from Punta Pondsock. A light (black tower, red bands) is exhibited from the SE end of the reef. And:

4 W of a shoal (9 cables SW), reported in 1984 to have a depth of 12·8 m over it; its charted position is approximate.

Thence the track leads SSW for 2½ miles until the S extremity of Cayos Sister (3¾ miles SW) bears 297°. The track then leads WNW, passing (with positions relative to Punta Maya Light (9°15′N, 82°21′W)):

5 NNE of Isla Pastores, from the NW end of which Punta Maya Light (metal windmill tower, 15 m in height) is exhibited. Isla Pastores rises to Middle Channel Hill, standing 3½ cables WSW of Vergayo Point, the NE extremity of the island. Thence:

6 SSW of Cayos Sister (1½ miles N), two cays fringed by reefs, and:

NNE of Punta de Gallinazo (7 cables WNW), the S entrance point of Ensenada Ambrosio and N entrance point of Ensenada Shepherd (12.101).

When the SE extremity of Cayo Gerchow (2¼ miles NW) bears 027°, the track leads NW directly to the quay at Almirante, passing a small detached reef, lying 3 cables SE of Quarys Point.

7 **Useful marks:**

Lone tree (9°14′·2N, 82°19′·8W), standing on the E side of Isla Pastores.

Light (post) (9°17′·2N, 82°23′·3W) exhibited from the head of the wharf at Almirante (12.90).

Port of Bocas del Toro

General information

12.83

1 **Position and function.** The town of Bocas del Toro (9°20′N, 82°15′W) stands on the E part of the low peninsula close W of Punta Carenero, the SW end of Cayo Carenero. It is a port of entry and clearance for many vessels trading in bananas, and is the capital of the province of Bocas del Toro.

2 **Traffic.** Approximately 17 000 tonnes of general, bulk and vehicular cargo is handled annually.

Port Authority. Autoridad Portuaria Nacional, Apdo 8062, Panama 7, Panama.

Limiting conditions

12.84

1 **Tidal levels.** Mean maximum range about 0·3 m; mean minimum range 0·1 m. For further information see the *Admiralty Tide Tables.*

Arrival information

12.85

1 **Port radio.** There is a port radio station at Bocas del Toro. For details see *Admiralty List of Radio Signals Volume 6 (5).*

Directions for entering harbour

12.86

1 There are no specific directions for the port of Bocas del Toro, as local knowledge is necessary for approaching the inner anchorages and Bocas del Toro Pier (9°20′·1N, 82°14′·4W). However attention is drawn to the following dangers lying in the S approach to the harbour (with positions relative to Bocas del Toro Pier):

2 Pallas Shoal (2½ cables S); the S end of the shoal is marked by a light-buoy.

An isolated shoal (1¾ cables SSW), with a depth of 3·4 m over it.

A shoal (1½ cables WSW), with a depth of 1·9 m over it.

3 A shoal (1 cable SSE), with a depth of 2·8 m over it, lying on the bank extending 2½ cables SE of the pier.

Useful marks:

Light (white pedestal, 6 m in height), exhibited from the NE corner of Bocas del Toro Pier.

Light exhibited from the SW corner of the pier.

Berths

12.87

1 **Outer anchorage.** There is an outer berth for ocean-going vessels SW of Bajo Garcia. Vessels can anchor, as convenient, in depths from 22 to 24 m over a bottom of mud, 8 cables S of Punta Carenero (9°20′·4N, 82°14′·3W).

Inner anchorage. A good berth may be found inside the shoals, in depths from 13 to 15 m, from 1 to 1½ cables SW of Punta Carenero.

2 **Alongside berths.** The main berthing area consists of Bocas del Toro Pier (9°20′·1N, 82°14′·4W); length 53 m, with a depth of 6·4 m alongside. The pier is used by barges handling cargo from ocean-going vessels in the outer anchorage, and by small coastal vessels. There are also several smaller piers in the vicinity of Bocas del Toro Pier.

Port services

12.88

1 **Facility.** There is a small hospital in the town.

Supplies: fuel and fresh water available; provisions obtainable in small quantities.

Small craft

12.89

1 Small craft may obtain sheltered anchorage, W of Punta Carenero (9°20′·4N, 82°14′·3W), where the channel has charted depths from 3·1 to 4·1 m. There are also several boat landings on the SE side of the town.

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Almirante

General information
12.90

1 **Position.** The port of Almirante (9°17′N, 82°23′W) is situated on the SW side of Bahía Almirante, in Ensenada Ambrosio, about 12 miles WSW of Bocas del Toro.

Function. Almirante is a banana loading port which also exports abaca fibre; it is used principally by vessels trading with Europe. The port was built, and is rented, by the United Brands Company.

2 **Traffic.** In 1997 the port was used by 129 vessels with a total of 1 566 933 dwt.

Port Authority. Autoridad Portuaria Nacional, Apdo 8062, Panama 7, Panama.

Limiting conditions
12.91

1 **Controlling depth.** For Almirante the controlling depth is the least depth in the channel through Bocas del Toro; the maximum safe draught in this channel is 7·9 m.

Density of water is 1·022 g/cm^3.

Arrival information
12.92

1 **Port radio.** There is a port radio station at Almirante. For details see *Admiralty List of Radio Signals Volume 6 (5)*.

Pilotage is compulsory. For further information see 12.74 and *Admiralty List of Radio Signals Volume 6 (5)*.

2 **Tugs.** None available.

Harbour
12.93

1 **General layout.** The harbour situated at the head of Ensenada Ambrosio consists of a single quay.

Development. It has been reported that the light-buoys in Bocas del Toro are to be repositioned so as to obtain a minimum depth of 9·7 m along the main access channel to Almirante.

Directions for entering harbour
12.94

1 For directions from seaward to Almirante see 12.77 to 12.82. Vessels berth starboard side to at the quay; the morning is reported to be the best time for berthing as the wind generally blows off the quay later in the day. Attention is drawn to a shoal, with a depth of 8·2 m over it, which lies 55 m S of the E end of the quay.

Berths
12.95

1 **Anchorage.** Good anchorage may be obtained off the quay at Almirante in depths from 13 to 14 m, over a bottom of mud, or farther out in the bay in depths up to 22 m.

2 **Alongside.** At Almirante there is one quay, with two berths for loading bananas. The berths are 107 and 199 m in length; depths alongside range from 7·31 to 10·36 m. There is also one small general purpose berth.

Port services
12.96

1 **Repairs.** There are no facilities.

Other facility. There is a small hospital in the town.

Supplies: fuel not available; fresh water is obtainable, except from November to April; provisions may be bought in the local market.

2 **Communications.** There is a small airport at Changuinola, about 21 km distant. A railway connects the quay at Almirante with Changuinola and the banana plantations.

Anchorage

Boca del Drago
12.97

1 Good anchorage can be obtained S and W of Lime Point (9°25′N, 82°20′W), in Boca del Drago. There are depths from 9 to 13 m in the anchorage over a bottom of mud.

Small craft

Hospital Bight
12.98

1 Hospital Bight (9°20′N, 82°12′W), situated between Isla Bastimentos and Cayo Solarte, is entered between Punta Bastimentos and Hospital Point, 8 cables SSW. The bight is encumbered with shoals and shallow banks and should not be entered without local knowledge.

Basin east of Isla San Cristóbal
12.99

1 **Description.** This basin is entered between Hospital Point (9°20′N, 82°13′W), the NW end of Cayo Solarte, and Punta Coco, 3 miles SW; it extends SE for about 10 miles to Split Hill Island (9°09′N, 82°10′W) (12.40), but is mostly very foul. Local knowledge is necessary.

Many reefs and shoals lie up to 1 mile off the SW side of Cayo Solarte and from 5 cables to 1 mile off the E side of Isla San Cristóbal. An isolated drying reef lies 2¾ miles ESE of Punta Coco.

2 Cays, reefs and shoals almost fill the area SE of a line joining the E extremity of Isla San Cristóbal (9°15′N, 82°14′W) to the S end of Cayo Solarte. These dangers obstruct the approaches to Canal Crawl Cay (9°14′N, 82°08′W) (12.51) and the narrow channels (12.52) connecting with Laguna de Chiriquí on either side of Split Hill Island. Only small craft can enter this area.

3 **Laguna Porras.** This lagoon, between the mainland in the vicinity of Gomez Point (9°13′N, 82°14′W) and the SE side of Isla San Cristóbal, is almost landlocked by a chain of islets and cays on its NE side. The two deepest channels through the chain are at its S end, about 1 mile NNE of Gomez Point; a patch, with a charted depth of 5·0 m over it, lies in the middle of the SE channel.

North side of Isla San Cristóbal
12.100

1 Small craft can anchor at the head of a bay (9°17′·5N, 82°16′·8W), on the N side of Isla San Cristobal, entered between Punta Coco and Punta Juan; local knowledge is required.

Basin south-west of Isla San Cristóbal
12.101

1 **Laguna Palos.** The basin SW of Isla San Cristóbal is formed by Ensenada Grande and Ensenada Shepherd; Laguna Palos, which can only be entered by small craft, extends SE from the E side of Ensenada Grande. Punta

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Bella Vista (9°13′·6N, 82°17′·4W) is the SW point of the channel, with a least width of 1½ cables, which leads into Laguna Palos from Ensenada Grande; this entrance is obstructed by rocks, with depths of 3·7 m or less over them, and by drying reefs, making local knowledge a necessity. A channel at the NE end of Laguna Palos connects with Laguna Porras (12.99) and is about ¾ cable wide with a least depth of 11·0 m.

2 **Ensenada Shepherd.** This bay lies between Punta de Gallinazo (9°14′·8N, 82°21′·7W) and Punta de Pargo, 3¾ miles SE; it is well sheltered by Isla Pastores (12.82) and cays SE of the island, lying across the entrance. The passage NW of Isla Pastores is narrowed by a coral spit extending 2½ cables ESE from Punta de Gallinazo. The SE passage is 6 cables wide between the S point of Cayo Roldán and a drying coral reef extending 1½ cables NW from Punta de Pargo.

3 Anchorage can be obtained anywhere in Ensenada Shepherd as convenient to within 5 cables of the mainland and 2½ cables of the S side of Isla Pastores, in general depths from 20 to 24 m.

APPENDIX

Distance table - South America Pilot Vol IV

Note: For further information and notes on distances, see *Admiralty Distance Tables Atlantic Ocean Volume I.*

Dégrad des Cannes	Paramaribo	New Amsterdam	Georgetown	Entrance to Río Orinoco	Port of Spain	Puerto La Cruz	Puerto La Guaira	Puerto Cabello	Willemstad	Maracaibo	Puerto Bolivar	Santa Marta	Puerto Barranquilla	Cartagena	Turbo	Panama Canal	Almirante
230																	
360	155																
405	202	74															
546	350	234	201														
724	533	425	279	205													
926	735	627	481	407	255												
1004	813	705	559	485	333	141											
1070	879	771	625	551	399	207	66										
1128	937	829	683	609	457	281	148	109									
1342	932	824	678	604	518	494	358	319	214								
1309	1121	1013	863	793	489	465	329	290	187	177							
1469	1277	1169	1023	949	645	629	485	446	343	333	160						
1499	1307	1199	1053	979	675	651	515	476	373	363	178	42					
1588	1396	1288	1142	1068	764	740	604	565	462	452	251	131	99				
1730	1538	1430	1284	1210	906	882	746	707	604	594	425	273	241	159			
1815	1623	1515	1369	1295	991	967	831	792	689	679	506	360	328	272	241		
1952	1760	1652	1506	1432	1128	1104	968	929	826	816	643	497	465	251	378	146	

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