U. S. DEPARTMENT OF COMMERCE
JESSE H. JONES, Secretary

COAST AND GEODETIC SURVEY
LEO OTIS COLBERT, Director

Serial No. 640

UNITED STATES COAST PILOT

ATLANTIC COAST

SECTION A

ST. CROIX RIVER TO CAPE COD

Fourth (1941) Edition

VK
981
.N3
4th ed.
(1941)

LIBRARY

N.O.A.A.
U.S. Dept. of Commerce

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1941

For sale by the Coast and Geodetic Survey and its Sales Agents - - - - - - - Price $1.00

National Oceanic and Atmospheric Administration

Climate Database Modernization Program

ERRATA NOTICE

One or more conditions of the original document may affect the quality of the image, such as:

Discolored pages
Faded or light ink
Binding intrudes into the text

This document has been imaged through the NOAA Climate Database Modernization Program. To view the original document, please contact the NOAA Central Library in Silver Spring, MD at (301) 713-2607 x124 or www.reference@nodc.noaa.gov.

LASON
Imaging Subcontractor
12200 Kiln Court
Beltsville, MD 20704-1387
March 28, 2002

BLANK PAGE

CONTENTS

Number in parenthesis immediately following any item in this Contents is number of the largest scale U. S. Coast and Geodetic Survey chart on which that feature appears.

		Page
Index map	*facing*	VIII
Preface		IX
Important	*facing*	1

Chapter 1.—GOVERNMENT SERVICES TO THE NAVIGATOR

U. S. Coast and Geodetic Survey	1
Charts	2
Tides and currents	4
Wind currents	5
Distances between ports	6
Planimetric maps	6
Army Engineers	7
Hydrographic Office	8
Weather Bureau	9
Coast Guard	9
Aids to navigation	9
Instructions to mariners in case of shipwreck	13
Customs	15
Marine Inspection and Navigation	15
Shipping Commissioners	16
Quarantine and health	16
Radio	17
Legal responsibility	17
Weather reports	18
Time signals	21
Navigational warnings	21
Ships in distress	22
Radio bearings	22
Publications	25
Protection of navigable waters	29
Some factors affecting the use of the magnetic compass	29
Distress signals used by submarines and aircraft	31

Chapter 2.—LOCAL GENERAL INFORMATION

Local services	32
Fish weirs	33
Lobster pots	33
Weather	33
Inland waterways	35

Chapter 3.—GULF OF MAINE, GENERAL DESCRIPTION

Offshore shoals and banks	37
Currents, Gulf of Maine	40
General description of coast	42
Surveys	44

Chapter 4.—ROUTES AND SAILING DIRECTIONS

Approaching or standing along the coast of Maine, eastward of Portland	47
Approaching or standing along the coast between Portland and Cape Cod	48

Page
Sailing directions 50
Table 1, Cape Cod Canal to Boston Lightship—north-bound 50
Table 1A, Boston Lightship to Cape Cod Canal—south-bound 50
Table 1B, Cape Cod to Boston Lightship 50
Table 1C, Cape Cod Canal to Cape Ann 50
Table 1D, Cape Cod to Cape Ann 51
Table 1E, Entrance Broad Sound North Channel to Cape Ann 51
Table 2, Boston Lightship to Cape Ann 51
Table 3, Cape Ann to Portland Lightship 51
Table 3A, Cape Ann to Portsmouth 51
Table 3B, Portsmouth to Portland Lightship 52
Table 3C, Cape Ann to Matinicus Rock direct 52
Table 3D, Cape Ann to Bantam Rock Lighted Whistle Buoy 52
Table 3E, Portland Lightship to Bantam Rock Lighted Whistle Buoy 52
Table 4, Portland Lightship to West Quoddy Head 53
Table 5, Portland to Cow Island 53
Table 5A, Cow Island to Cape Small 54
Table 5B, Cape Small to Fisherman Island Passage 55
Table 5C, Fisherman Island Passage to Davis Straits 55
Table 5D, Davis Straits to Owls Head via Muscle Ridge Channel 56
Table 5E, Owls Head through Fox Islands Thorofare 57
Table 5F, Through Deer Island Thorofare to Casco Passage 58
Table 5F1, Merchant Row to Casco Passage 59
Table 5F2, Owls Head to Casco Passage via Eggemoggin Reach 59
Table 5G, Through Casco Passage to Bass Harbor Bar 60
Table 5H, Bass Harbor Bar to Petit Manan via direct route 61
Table 5H1, Bass Harbor Bar to Petit Manan via Western Way 61
Table 5I, Petit Manan through Moosabec Reach 62
Table 5J, Moosabec Reach to West Quoddy Head 63

Chapter 5.—CALAIS TO WEST QUODDY HEAD

(CHART 801)

Quoddy Roads to St. Croix River (801) 65
South of Campobello Island (801) 65
North of Campobello Island (801) 69
Passamaquoddy Bay (801) 70
St. Croix River (801) 71
Cobscook Bay (801) 72
Currents, St. Croix River and approaches 73
Sailing directions 75
Table 6, West Quoddy Head to Eastport, via Lubec Channel (801) 75
Table 7, West Quoddy Head to Eastport, via Head Harbor Passage (801) 76
Table 8, Eastport to Calais (801) 76

Chapter 6.—WEST QUODDY HEAD TO PETIT MANAN

(CHART 1201)

West Quoddy Head to Moose Cove (1201) 77
Off-lying dangers in southern approaches to Grand Manan Channel (303) 77
Off-lying dangers (1201) 78
Off-lying dangers (C. and G. S. 1106; H. O. 1057) 78
Moose Cove to Englishman Bay (303) 78
Machias Bay and River (303) 80
Directions, Machias Bay and River (303) 83
Englishman Bay to Nash Island (304) 84
Englishman and Chandler Bays (304) 84
Chandler Bay to Nash Island (304) 88
Islands and channels south of Moosabec Reach (304) 90
Nash Island to Petit Manan (305) 93

Chapter 7.—PETIT MANAN TO JERICHO BAY

(CHART 1202)

Petit Manan to Schoodic Island (305) 101
Schoodic Harbor and Island (306) 105

Page
Mount Desert Rock (1202) 105
Frenchman Bay, General information (306) 106
Winter Harbor (317) 107
Frenchman Bay, East Side, Winter Harbor to Sullivan Harbor (306) 109
Sullivan Harbor (306) 111
Sullivan Harbor to Eastern Bay (306) 112
Mount Desert Narrows (307) 113
Eastern Bay to Bar Harbor (306) 114
Bar Harbor (318) 114
Bar Harbor to Otter Cove (306) 115
Directions, Frenchman Bay (306) 116
Southwest Harbor and approaches (306) 117
Directions, Southwest Harbor (306) 121
Islands off Blue Hill Bay (308) 122
Jericho Bay (308) 125
Casco Passage and York Narrows (227) 127
Blue Hill Bay (307) 127
Blue Hill Bay, East Side (307) 128
Blue Hill Bay, West Side (307) 130
Directions, Blue Hill Bay (307 and 308) 134

Chapter 8.—JERICHO BAY TO EAST PENOBSCOT BAY

(CHART 309)

Eggemoggin Reach (309) 137
Deer Island Thorofare (227) 140
Islands between Deer Island Thorofare and Merchant Row (227) 142
Merchant Row (309) 143
Isle au Haut and off-lying dangers (309) 144

Chapter 9.—PENOBSCOT BAY AND APPROACHES

(CHART 1203)

Islands and rocks southward off Penobscot Bay (225) 147
Islands and rocks southwestward off Penobscot Bay (312) 149
East Penobscot Bay to Cape Rosier (309) 151
Directions, East Penobscot Bay 154
Fox Islands Thorofare (235) 156
West Penobscot Bay, East side (310) 159
Southwest side, Vinalhaven Island (310) 159
North coast, North Haven Island (310) 162
Long Island (Islesboro) (310) 163
Long Island (Islesboro), North End (311) 165
Two Bush Channel and Muscle Ridge Channel (312) 166
West Penobscot Bay, West side (310) 168
Owls Head Bay (320) 168
Rockland Harbor (320) 168
Rockport and Camden (321) 170
Camden to Saturday Cove (310) 173
Directions, West Penobscot Bay 173
Penobscot Bay, North End (311) 175
Belfast Bay and Passagassawakeag River (319) 175
Searsport and Stockton Harbors (311) 176
Bagaduce River and Castine Harbor (311) 178
Penobscot River (311) 179
Coast from Muscle Ridge Channel to Georges Islands (312) 184
St. George River and Thomaston (312) 186
Directions, St. George River 188

Chapter 10.—MUSCONGUS BAY TO CAPE ELIZABETH

(CHART 1204)

Muscongus Bay (313) 190
West side of Muscongus Bay (313) 192
Directions, Muscongus Bay (313) 193
Johns Bay (313) 195

Page
Damariscotta River (313) 196
Directions, Damariscotta River (313) 199
Booth Bay and Linekin Bay (314) 200
Boothbay Harbor (230) 202
Directions, Boothbay Harbor 203
Inside Passage from Boothbay Harbor to Bath (230) 204
Sheepscot River (314) 206
Sheepscot River (230) 207
Sheepscot River, Northern part (314) 209
Directions, Sheepscot River 210
Kennebec River 211
Kennebec River to Bath (314) 211
Bath (230) 214
Kennebec River, Bath to Abagadasset Point (314) 215
Kennebec River, Abagadasset Point to Courthouse Point (288) 215
Kennebec River, Courthouse Point to Augusta (289) 216
Directions, Kennebec River 217
Casco Bay, Eastern part (315) 219
Casco Bay, Western part (315) 225
Directions, Casco Bay 229
Portland Harbor (325) 230
Directions, Portland Harbor 234

Chapter 11.—CAPE ELIZABETH TO PORTSMOUTH

(CHART 1205)

Saco Bay and vicinity (231) 236
Saco Bay to Cape Neddick Harbor (1205) 239
Offshore dangers in northern approach to Portsmouth (1205) 241
Cape Neddick Harbor to York River (228) 242

Chapter 12.—PORTSMOUTH TO GLOUCESTER

(CHART 1206)

Portsmouth Harbor (329) 244
Directions, Portsmouth Harbor 248
Portsmouth to Dover and Exeter (229) 249
Isles of Shoals (330) 250
Coast from Portsmouth to Newburyport Harbor (1206) 251
Merrimack River and Newburyport Harbor (331) 252
Merrimack River to Cape Ann (1206) 256
Ipswich and Essex Bays (243) 257
Annisquam River and Canal (233) 257
Cape Ann (243) 258
Gloucester Harbor (233) 261
Directions, Gloucester Harbor 264

Chapter 13.—GLOUCESTER TO PLYMOUTH

(CHART 1207)

Magnolia Harbor (243) 265
Gloucester Harbor to Lynn Harbor (240) 265
Salem, Beverly, and Marblehead Harbors (240) 266
Directions, Salem, Beverly, and Marblehead Harbors (240) 272
Directions, Salem Harbor (240) 272
Directions, Marblehead Harbor (240) 273
Directions, Beverly Harbor (240) 273
Marblehead to Boston Harbor (240) 274
Boston Lightship (1207) 276
Boston, Outer Harbor and approaches (246) 276
Boston, Inner Harbor (248) 281
Currents, Boston Harbor 287
Weather, Boston 288
Bridges, Boston and locality 288
Bridge regulations 290
General remarks on approaching Boston Harbor 292

Page
Sailing directions, Boston Harbor and vicinity 293
Table 9, Boston Lightship to Deer Island Lighthouse via Broad Sound North Channel 294
Table 9A, Boston Lightship to Deer Island Lighthouse via Broad Sound South Channel 294
Table 9B, Boston Lightship to Deer Island Lighthouse via The Narrows 295
Table 10, Deer Island Light to Bird Island Anchorage, Boston 295
Table 11, Deer Island Light to Dorchester Bay 296
Table 12, Deer Island Light to Quincy (Weymouth Fore River) 297
Table 13, Nantasket Roads to Quincy (Weymouth Fore River) via Nantasket Gut 298
Table 14, Boston Lightship to entrance Lynn Channel 298
Table 14A, Entrance Broad Sound North Channel to Lynn Channel 298
Table 15, Entrance Lynn Channel to Lynn 299
Table 16, Boston Lightship to Beverly Harbor 299
Table 17, Boston Lightship to various fishing banks and points in Nova Scotia 300
Dorchester Bay (246) 300
Quincy Bay (246) 301
Hingham Bay (246) 302
Cohasset Harbor (242) 304
Scituate Harbor (232) 305
New Inlet (1207) 306

Chapter 14.—CAPE COD BAY

(CHART 1208)

Plymouth, Kingston, and Duxbury Harbors (245) 307
Directions, Plymouth Harbor 310
Coast, Plymouth to Barnstable (1208) 312
Barnstable Harbor (339) 313
Wellfleet (581) 313
Provincetown Harbor (580) 314
Approaching Cape Cod (1208) 316

Chapter 15.—CAPE COD CANAL

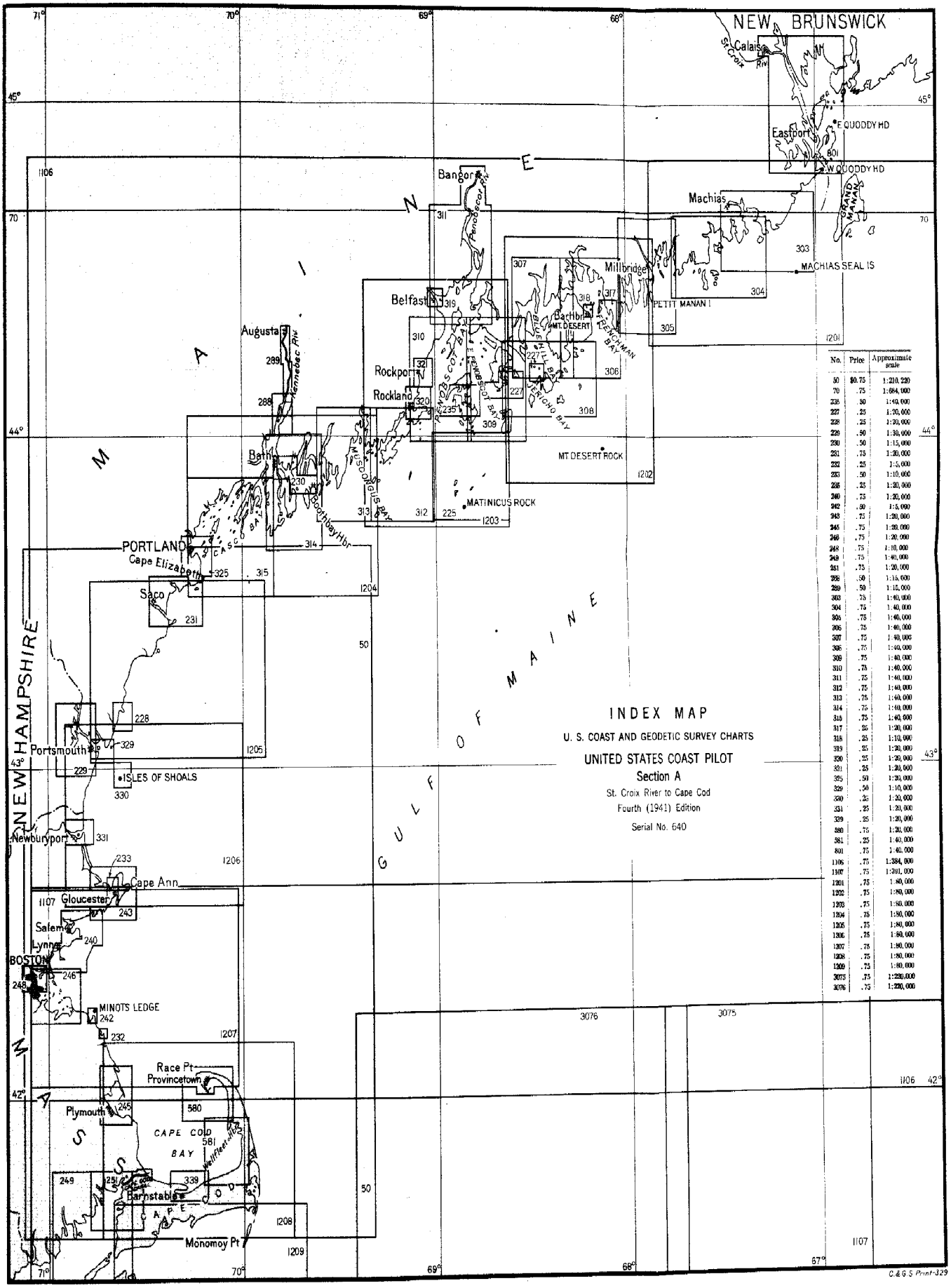
(CHART 251)

General information 318
Regulations 321

Chapter 16.—APPENDIX

Coast and Geodetic Survey 325
Coast Pilots 325
Field Stations 325
Chart agencies 325
Distance table 326
Planimetric maps 327
Variation of the compass 327
Army Engineers 327
Hydrographic Office 327
Coast Guard 328
Lifeboat stations 329
Customs ports of entry 329
Bureau of Marine Inspection and Navigation Offices 330
Immigration and Naturalization Offices 330
Shipping Commissioner Office 330
Fish and Wildlife Service Offices and Stations 330
Public Health Service 330
Harbormasters 331
Yacht clubs 331
Marine railways and drydocks 332
Weather Bureau 333

	Page
Hours of operation of fog signals on account of fog and snow	334
Conversion tables, true to magnetic courses	335
Conversion tables, feet and fathoms to meters, and vice versa	338
Meterological tables	340
Eastport, Maine	340
Portland, Maine	341
Boston, Mass	342
Nantucket, Mass	343
Index	345



No.	Price	Approximate scale
50	$0.75	1:210,220
70	.75	1:684,000
225	.50	1:40,000
227	.25	1:20,000
228	.25	1:20,000
229	.50	1:30,000
230	.50	1:15,000
231	.75	1:20,000
232	.25	1:5,000
233	.50	1:10,000
235	.25	1:20,000
240	.75	1:20,000
242	.50	1:5,000
243	.75	1:20,000
245	.75	1:20,000
246	.75	1:20,000
248	.75	1:10,000
249	.75	1:40,000
251	.75	1:20,000
288	.50	1:15,000
289	.50	1:15,000
303	.75	1:40,000
304	.75	1:40,000
305	.75	1:40,000
306	.75	1:40,000
307	.75	1:40,000
308	.75	1:40,000
309	.75	1:40,000
310	.75	1:40,000
311	.75	1:40,000
312	.75	1:40,000
313	.75	1:40,000
314	.75	1:40,000
315	.75	1:40,000
317	.25	1:20,000
318	.25	1:10,000
319	.25	1:20,000
320	.25	1:20,000
321	.25	1:20,000
325	.50	1:20,000
329	.50	1:10,000
330	.25	1:20,000
331	.25	1:20,000
329	.25	1:20,000
580	.75	1:20,000
581	.25	1:40,000
801	.75	1:40,000
1106	.75	1:384,000
1107	.75	1:391,000
1201	.75	1:80,000
1202	.75	1:80,000
1203	.75	1:80,000
1204	.75	1:80,000
1205	.75	1:80,000
1206	.75	1:80,000
1207	.75	1:80,000
1208	.75	1:80,000
1209	.75	1:80,000
3075	.75	1:220,000
3076	.75	1:220,000

C.&G.S. Print-329

PREFACE

This volume is the fourth edition of Section A of the United States Coast Pilot covering that section of the Atlantic coast of the United States which lies between Calais and Cape Cod, including offlying islands, and descriptions of the rivers and inlets to the head of navigation. It is based on the work of the United States Coast and Geodetic Survey and includes the results of a special field examination made in 1940. The following system is used in this publication.

Chapter 1 gives general information of a character adaptable to all Coast Pilots. It includes a description of the services rendered the mariner by various Government agencies, instructions in case of shipwreck, information on radio facilities and weather reports, and certain facts regarding the use of charts and the factors affecting the magnetic compass.

Chapter 2 gives information of a local character, such as pilotage, repair facilities, and prevailing weather. It also contains a brief description of the inland waterways of the eastern part of the United States, giving the addresses at which detailed information and charts of these waterways may be obtained.

Chapter 3 gives a general description of the area covered in this Pilot. Information of a general character, such as would be of value to a stranger approaching the coast, is included. Descriptions are given of offshore banks and shoals, currents, the general appearance of the coast, wrecks, and anchorages. The present condition of surveys in this area is discussed.

Chapter 4 describes the routes that are most commonly followed by vessels navigating in these waters. Sailing directions, giving courses and distances to be run, are given in tabular form. Courses and distances are also given from Boston to the various fishing banks which are located off this coast.

Chapters 5 to 15 furnish a description of the coast and detailed information of use to the mariner on each port and harbor in the area. This section of the book is linked with the United States Coast and Geodetic Survey charts in the following manner:

One chapter is devoted to the description of the area covered by each of the general coast charts, usually of the 1200 series, which are on a scale of 1:80,000. The number of the general chart described in each chapter is given at the top of each page in that chapter.

Each chapter is divided into sections according to the largest scale charts. Each section is given a title, which includes the limits of the area, and the number of the largest-scale Coast and Geodetic Survey chart on which that section is shown. The titles are printed as center headings at the beginning of the sections.

Each feature indexed is shown in bold-face type.

At frequent intervals throughout the text, at the bottom of the pages, are given the latitude and longitude of some indicated feature

named on that page, together with the numbers of all the Coast and Geodetic Survey charts on which that feature appears.

Chapter 16, or the Appendix, gives general information of a local character in tabular form. This includes the addresses of the offices maintained by different bureaus of the Government to serve the mariner and lists of Coast Guard stations, yacht clubs, drydocks, and marine railways. There are also given meteorological tables for various cities in the area, compass variations in various localities, tables for the conversion of true courses in degrees to magnetic courses in points in this area, tables for the conversion of feet and fathoms to meters, table of distances between the principal ports in this area, addresses of harbormasters, and various other local information.

The Index has been enlarged to include the number of the largest-scale Coast and Geodetic Survey chart on which each feature appears.

The aids to navigation mentioned in this Pilot are those in existence on the date shown below. Corrections to these aids, as well as to other information affecting the text in this Coast Pilot, are given in the Notice to Mariners as they occur.

Supplements to this Coast Pilot, giving the more important changes in the text, are issued from time to time as warranted by the number and importance of the corrections. Each supplement is accumulatively complete and cancels all previous issues. The date of the latest supplement is given in the List of Coast Pilots published each month in the Notice to Mariners.

When using this Coast Pilot, reference should be made to the latest supplement and also to each Notice to Mariners issued subsequently. Due regard should also be given to the possibility of the occurrence of changes since the date of the latest of these publications. The supplements may be obtained free upon application to the United States Coast and Geodetic Survey.

Navigators are requested to notify the Director, United States Coast and Geodetic Survey, of any errors or omissions in the Coast Pilots.

LEO OTIS COLBERT, *Director.*

July 1, 1941.

IMPORTANT

Use of this Coast Pilot will be much simplified by reading the preface, in which the divisions of the text and the methods of linking it with the charts are described in detail.

The courses and bearings given in degrees are true, reading clockwise from 0° at north to 359°. When a course is given such as "67° true", it is meant that that is the true course to be made good.

Distances are in nautical miles. Multiply nautical miles by 1.15 to obtain the approximate statute miles.

Currents are expressed in knots, which are nautical miles per hour.

The addresses of various offices furnishing service to the mariner, located within the area covered by this Pilot, are tabulated in the Appendix, together with other material of value.

To find Coast and Geodetic Survey chart numbers in this Coast Pilot:

A Graphic Chart Index is adjacent to this page.

In the text the names indexed are printed in boldfaced type and at the top of the page is given the number of the general coast chart on which the features appear. The number of the largest scale chart on which a feature is shown will be found in the preceding center heading.

At frequent intervals a name is marked by an asterisk (*). The approximate latitude and longitude of the point so marked, together with the numbers of all the charts on which that point is shown, are given at the bottom of that page.

In the Index the number of the largest scale chart on which each feature appears is printed in parentheses after the name.

In the Index under the listing "Chart numbers", the largest scale charts and general coast charts are listed by number with the pages on which each chart is described.

UNITED STATES COAST PILOT

ATLANTIC COAST

SECTION A

ST. CROIX RIVER TO CAPE COD

Chapter 1.—GOVERNMENT SERVICES TO THE NAVIGATOR

U. S. COAST AND GEODETIC SURVEY

This Bureau is charged with (1) the survey of the coasts of the United States and its possessions, to insure the safe navigation of coastal and intracoastal waters; (2) the determination of geographical positions and elevations in the interior of the country, to coordinate the coastal survey and provide a framework for mapping and other engineering work; (3) the study of tides and currents to furnish datum planes to engineers and tide and current tables to mariners; (4) the compilation of aeronautical charts, to meet the needs of the pilots of aircraft; (5) observations of the earth's magnetism in all parts of the country, to furnish magnetic information essential to the mariner, aviator, land surveyor, radio engineer, and others; and (6) seismological observations and investigations to supply data required in designing structures to reduce the earthquake hazard.

The results of these surveys and studies are analyzed in the Washington office and published as **nautical** and **aeronautical charts**; annual tables of **predicted tides** and **currents; coast pilots;** charts showing magnetic declination; annual lists of United States earthquakes; publications of geographic positions and elevations; and other publications.

Field stations are located at some of the principal ports as listed in the Appendix. Files of charts, coast pilots, and other publications are maintained at these Field Stations for the use of mariners, who are invited to avail themselves of the facilities afforded. Charts, coast pilots, current tables, and tide tables are kept for sale. Mariners observing any changes affecting charts or coast pilots are requested to notify the inspector in charge of the field station.

Reporting of dangers, shoals, changes in channel depths, etc.—Mariners are especially requested to immediately inform the Coast and Geodetic Survey of all important facts relating to changes in

the coast pilots and charts that may come to their attention. Reports of an urgent character should be sent by radio.

The Coast and Geodetic Survey must depend in a great measure upon outside sources of information pending a complete revision of a coast pilot volume. Mariners and others will therefore realize the importance and great desirability of cooperation in this work and are urgently requested to forward to the Director, United States Coast and Geodetic Survey, Washington, D. C., directly or through a field station, any information affecting the coast pilots or charts that may come to their notice, as well as any suggestions that they may have for increasing the value of these publications.

Agencies for the sale of the Charts, Coast Pilots, Tide Tables, and Current Tables of the Coast and Geodetic Survey are established in many ports of the United States and in some foreign ports. The charts and publications can also be purchased at the office of the Coast and Geodetic Survey, Washington, D. C., or any of the Field Stations. If ordered by mail, prepayment is obligatory. Remittances should be made by money order, express order, or check, payable to the U. S. Coast and Geodetic Survey. Postage stamps cannot be accepted. The sending of money is unsafe except by registered letter. Only the numbers of charts need be mentioned. The catalog of charts and other publications of the Survey may be obtained free of charge on application at any of the sales agencies or to the Coast and Geodetic Survey, Washington, D. C. A list of the sales agencies of the Coast and Geodetic Survey is in the catalog and is repeated quarterly in the Notice to Mariners.

The sales agents located within the area covered by this Coast Pilot are listed in the Appendix.

CHARTS

Accuracy of charts.—Each sounding represents an actual measure of depth and location at the time the survey was made. Shores and shoals where sand and mud prevail, and especially bar harbors and the entrances of bays and rivers exposed to strong tidal current and a heavy sea, are subject to continual change of a greater or less extent, and important ones may have taken place since the date of the last survey. In localities which are noted for frequent and radical changes, such as the entrance to a number of estuaries on the Atlantic, Gulf, and Pacific coasts, notes are printed on the charts calling attention to the fact.

It should also be remembered that in coral regions and where rocks and boulders abound it is always possible that a survey with lead and line, however detailed, may have failed to find every small obstruction. For these reasons, when navigating such waters, the customary sailing lines and channels should be followed and those areas avoided where the irregular and sudden changes in depth indicate conditions which are associated with pinnacle rocks, coral heads, or boulders.

Dredged channels.—These are generally shown upon the chart by two broken lines to represent the side limits of the improvement together with the depth and date. The depth is the controlling depth through the channel on the date charted and does not mean that this depth obtains over the full width of the channel, nor that the depth has not subsequently changed due to either shoaling or dredging.

Buoys.—Too much reliance should not be placed on buoys always maintaining their exact position, especially when in exposed positions. It is safer, when possible, to navigate by bearings or angles to fixed objects on shore and by the use of soundings.

Plane of reference for soundings on charts.—For the Atlantic coast of the United States and Puerto Rico the plane of reference for soundings is the mean of all low waters; for the Pacific coast of the United States and Alaska, with the one exception noted below, and for the Hawaiian and Philippine Islands, it is the mean of the lower low waters. For the Atlantic coast of the Canal Zone, Panama, the plane of reference for soundings is mean low water, and for the Pacific coast of the same it is low-water springs. For foreign charts many different planes of reference are in use, but that most frequently adopted is low-water springs.

Nautical charts bear three dates, which are important to persons using them: (1) The **edition date** (month and year) of the publication note, *printed* on most charts, centrally in the lower margin; (2) the **print date** (year, month, and day), the latest date *printed* in the lower left-hand corner below the border, which is the date of correction to the printing plate; (3) the **date of issue, stamped in the right lower margin** and just to the left of the subtitle. Charts contain all necessary corrections for aids to navigation, dredged channels, and dangers, which have been received **to the date of issue, being corrected by hand** for data received after the latest print date.

Scales of charts.—The charts are various in character, and are constructed on different scales, to adapt them to varied navigational purposes. The most important distinctions are the following:

1. Sailing charts, on scales from 1:600,000 to 1:4,500,000, which exhibit the approaches to a large extent of coast, contain the offshore soundings, and enable the navigator to fix his position as he approaches the coast from the open ocean, or when sailing between distant coast ports.
2. General charts of the coast, on scales from 1:180,000 to 1:400,000, intended especially for coastwise navigation, when a vessel's course is offshore but mostly within the sight of land or aids to navigation.
3. Coast charts, on scales from 1:80,000 to 1:100,000, intended for coastwise navigation, close to shore; and for entering and navigating the larger bays and harbors.
4. Harbor charts, on scales from 1:5,000 to 1:40,000, intended for navigation of harbors and constricted waterways.

Caution in using small-scale charts.—It is obvious that dangers to navigation cannot be shown with the same amount of detail on small-scale charts as on those of larger scale; therefore in approaching the land or dangerous banks regard should be had to the scale of the chart, and the largest scale chart available should be used. A small error in laying down a position means only yards on a large-scale chart, whereas on a small scale the same amount of displacement means large fractions of a mile. For the same reason bearings to near objects should be used in preference to objects farther off, although the latter may be more prominent, as a small error in bearing or in laying it down on the chart has a greater effect in misplacing the position the longer the line to be drawn.

Determination of Compass Error by the Use of Navigational Ranges.—The azimuths of channel ranges, which have been determined with sufficient accuracy for compass error determination, are

indicated in degrees and minutes in the Light Lists and in the Notice to Mariners. Azimuths given only in degrees should not be used for this purpose.

TIDES AND CURRENTS

Tide Tables for the Atlantic Ocean and for the Pacific Ocean (two volumes) are published in advance annually by the United States Coast and Geodetic Survey, price 25 cents each. The first volume supplies full tidal data for the east coast of North and South America, the west and north coasts of Africa, and all of Europe. The Pacific Ocean Tide Table gives data for the Pacific and Indian Oceans.

They contain tables of full daily predictions of the times and heights of high and low waters for certain reference stations along the coasts, with full explanations for the use of this table. The use of Table 2 of the Tide Tables should be known to every navigator. By means of this table the predictions given for the reference ports are extended so as to enable one to obtain the predictions for each day for a large number of other stations. Table 3 enables the height of tide at any time to be computed. Table 4 gives the time of the rising and setting of the sun. Table 6 gives the time of the rising and setting of the moon at certain places.

The effect of strong winds, in combination with the regular tidal action, may at times cause the water to fall considerably below the plane of reference of the chart. The water may also rise about the same amount above mean high water due to similar causes.

Caution.—In using the Tide Tables, slack water should not be confounded with high or low water. For ocean stations there is usually but little difference between the time of high or low water and the beginning of ebb or flood current; but for places in narrow channels, land-locked harbors, or on tidal rivers, the time of slack current may differ by several hours from the time of high- and low-water stand. The relation of the times of high and low water to the turning of the current depends upon a number of factors, so that no simple or general rule can be given. To obtain the times of slack water, reference should be made either to figures given for various places in this volume of the Coast Pilot or to the Current Tables.

Current Tables for the **Atlantic Coast** and for the **Pacific Coast** (two volumes) of the United States are published in advance annually by the United States Coast and Geodetic Survey. Each volume includes the daily predicted times of slack water and the times and velocities of strength of flood and ebb for certain reference stations and a table of current differences and constants by means of which corresponding daily predictions may be readily obtained for numerous other places. Tables for the velocity of current at any time, duration of slack, and rotary tidal currents at certain offshore locations, together with data on the Gulf Stream and wind currents are included. There are also current diagrams for a number of sounds, bays, and harbors, which show in a graphical form the velocities of the flood and ebb currents and the times of slack and strength over a considerable stretch of the channel of these waterways. These tables are for sale by the Coast and Geodetic Survey, Washington, D. C., and by authorized sales agencies.

Tidal Current Charts are published by the United States Coast and Geodetic Survey for various localities, see List of Publications. These current charts are good for any year and show the direction and velocity of the tidal current for each hour of the current. They present a comprehensive view of the tidal current movement of the area as a whole and also supply a means of readily determining the direction and velocity of the current at various localities throughout the area.

WIND CURRENTS

There are given below the results of recent investigations on the currents caused by local winds. These investigations are based on observations made on a number of the lightships along the Atlantic coast from Nantucket Shoals Lightship to Brunswick Lightship. The results, therefore, apply more directly along the route between lightships but are applicable also to the coastal sailing routes farther offshore.

Direction of current due to wind.—It is evident that a wind continuing for some time will give rise to a current, the velocity of which increases with an increase in the velocity of the wind; and the mariner has taken it for granted that this current brought about by the wind sets in the same direction as the wind. But the results of careful observations show that this is not the case. Instead of setting with the wind, the current on the Atlantic coast of North America produced by local winds sets on the average about 20° to the right of the wind.

For example, a wind blowing from north will, on the North Alantic coast, bring about a current that sets not south but about 20° to the right of south, or 200°. Smiliarly a wind from south will produce a current setting 20° to the right of north, or 20°. It is to be noted that while the current due to the wind will, on the North Atlantic coast, set 20° to the right of the wind direction, the current which a vessel experiences at any time is the resultant of the combined action of the tidal current, the wind current, and any other currents, such as the Gulf Stream or currents due to river discharge.

Velocity of current due to wind.—The velocity of the current brought about by winds of different velocities is given in the table below. It will be seen that on the Atlantic coast of the United States the velocity of the wind current is about 1½ percent of the velocity of the wind.

Table of current velocity due to wind—North Atlantic coast

Wind velocity.....miles per hour..	10	20	30	40	50	60
Current velocity.....knots..	0.2	0.3	0.4	0.6	0.8	1.0

An easily remembered working rule to get the velocity of the current due to wind along the **Atlantic coast** is to multiply the velocity of the wind (in miles per hour) by 1½ and point off two places. This will give the velocity of the current in knots. For example, to

540825°—43——2

determine the current due to a 40-mile wind we have $40 \times 1\frac{1}{2} = 60$, and pointing off two decimal places gives 0.60, or six-tenths of a knot.

Pacific Coast.—In general it may be said that along the Pacific coast of the United States at a distance of from 5 to 10 miles offshore, the wind brings about a current having a velocity about 2 percent that of the wind. The direction of this wind-driven current, however, is not with the wind. With winds from the northeast, southeast, and northwest quadrants, the current sets about 20° to the right of the wind, while with winds from the southwest quadrant the current sets about 20° to the left of the wind. It is evident, however, that these are but average values, for strong currents are sometimes experienced when the local winds are light.

Above values are approximate and may be much affected by local conditions.

DISTANCES BETWEEN PORTS

The Coast and Geodetic publication, Distances Between United States Ports, (Serial No. 444) is a compilation of numerous tables of distances giving, in a condensed and convenient form, distances between the ports of the United States and its off-lying territorities. The ports include all the important harbors and a sufficient number of minor ports so that distances can be given between points at short and fairly regular intervals along the various coasts. Each distance between two ports is along the shortest route marked by aids to navigation and affording a safe depth for the maximum draft that can enter both ports.

For ready reference and for use in combining these tables with those issued by other nations, a number of distances from United States to foreign ports are included.

This publication may be obtained from the Coast and Geodetic Survey, Washington, D. C., or from the sales agencies of the bureau at the various ports.

The table of distances given in the Appendix is typical of the tables given in the above publication; it is an abridgement of tables in the publication listing numerous additional ports. Distances in this table are given in nautical miles which may be converted approximately to statute miles by adding 15 percent to the distances given, and more precisely by multiplying the distance in nautical miles by 1.15155.

The Hydrographic Office publication No. 117, Table of Distances Between Ports, gives distances (in nautical miles) via the shortest navigable routes, between the principal world ports, including the principal United States ports. This publication may be obtained from the Hydrographic Office, Washington, D. C., or from authorized sales agencies in the various ports.

A more complete tabulation of distances between ports on the Great Lakes will be found in the bulletin Survey of the Northern and Northwestern Lakes, issued annually by the United States Lake Survey Office, Detroit, Mich.

See List of Publications.

PLANIMETRIC MAPS

Planimetric maps (without contours) compiled from air photographs covering extensive sections of the coastal areas of the United

States are published by the United States Coast and Geodetic Survey. These maps give detailed topographic features but no elevations, contours, or depths. The nautical chart gives the depths in the water areas, the shore line, important land features, and all other information essential to the navigator; the maps simply give additional detail of land-areas. The maps vary considerbly in size, being laid out to conform with the coast line as conveniently as possible. The average size is about 44 inches by 24 inches or a nearby equivalent area. The scale of the maps varies, the majority being on a scale of 1:20,000 but a 1:10,000 scale and at times a 1:5,000 scale is used. On these scales, the approximate area covered by an average sheet is 80 square miles (nautical), 20 square miles, and 5 square miles, respectively.

Index sheets showing the geographical layout of these maps may be secured from the Coast and Geodetic Survey, Washington, D. C. The maps are sold to the public at 75 cents per copy.

The areas for which these maps are available within the limits of this pilot are given in the Appendix.

ARMY ENGINEERS

The improvement of the rivers and harbors of the United States and miscellaneous civil works are under the charge of the **Corps of Engineers, United States Army.**

The miscellaneous civil works under the corps of Engineers include the administration of the Federal laws enacted for the protection and preservation of navigable waters of the United States, the establishment of regulations for the use, administration, and navigation of navigable waters, the approval of plans of bridges, the alteration of obstructive bridges, the establishment of anchorage grounds and harbor lines, the removal of sunken vessels obstructing or endangering navigation, the granting of permits for structures or operations in navigable waters, etc.

The attention of navigators is called to the various publications of the United States Engineers relative to matters of nautical interest, which are listed under "Publications" on page 27 of this volume.

Information concerning the various ports, improvements, channel depths, navigable waters, and the condition of the intracoastal waterway in the areas under their jurisdiction may be obtained direct from the District Engineer Offices.

Anchorage Areas in some places are defined and limited by the United States Engineers. They also publish **regulations** controlling the use of these anchorage areas. These are enforced by the United States Coast Guard. The areas are shown on the **large scale charts** of the Coast and Geodetic Survey. Copies of the regulations may be obtained at the offices of the United States Engineers. A list of the district offices and their locations in the area covered by this pilot is given in the Appendix.

The Port Series, publications of the United States Army, Corps of Engineers, are complete reports covering the principal seaports of the United States; they are primarily of interest to commercial and industrial concerns. The volumes of the series are wide in their scope and treat the subjects of particular interest to the shipping

world, such as the physical features of each port (includes list of piers, wharves, and docks, with data), its organization and practices, regulations regarding the movement of ships and goods, port dues and charges, water and rail connections, and character and commerce of the hinterland.

The information in all these reports is generally prepared along similar lines; the general subjects covered include the following:

Port and harbor conditions.	Port and harbor facilities.
Port customs and regulations.	Communications.
Port services and charges.	The freight-rate situation.
Fuel and supplies.	Commerce reports.

Those volumes of the Port Series concerning ports within the area covered by this Coast Pilot are listed in the Appendix.

The publication, **Port and Terminal Charges at United States Ports,** Miscellaneous Series, No. 1, also prepared by the United States Army Corps of Engineers and sold by the Superintendent of Documents, gives detailed information regarding all port services and charges (including dockage, wharfage, storage, handling charges, etc.) at practically all ports of the United States. This publication includes the more important governmental regulations affecting the movement of vessels, freight, and passengers. This information includes a digest of the more important regulations of the United States Public Health Service (quarantine and hospital services), the Customs Service and the Immigration Service; it also includes a list of Federal documents which vessels are required to have.

HYDROGRAPHIC OFFICE

The Hydrographic Office of the United States Navy exists for the improvement of the means for navigating safely the vessels of the United States Navy and of the mercantile marine by providing accurate nautical charts, light lists, and sailing directions (pilots) of foreign navigable waters, navigators, and manuals of instruction for the use of all vessels of the United States, and for the benefit and use of navigators generally.

The charts and coast pilots pertaining to the territorial waters of the United States and its possessions are published by the **United States Coast and Geodetic Survey.**

Among the publications of the Hydrographic Office are monthly pilot charts for the various oceans, a weekly notice to mariners (domestic and foreign waters), a weekly hydrographic bulletin and a daily memorandum of information of interest to navigators. These publications can be secured by mariners who cooperate with the bureau by furnishing certain desired marine data. It also publishes numerous special charts, books, manuals, and tables of interest to navigators and aviators. Navigational warnings for the Hydrographich radio broadcasts are prepared.

Branch Hydrographic Offices within the area covered by this volume are listed in the Appendix. In these offices, bulletins are posted giving information of value to mariners who can also avail themselves of publications pertaining to navigation and facilities for correcting their charts from standards. No charge is made for this service.

WEATHER BUREAU

This Bureau has charge of weather forecasting, including the issuance and display of weather forecasts, and storm, hurricane, cold-wave, frost, forest-fire, and flood warnings. It collects and transmits marine meteorological information for the benefit of commerce and navigation, records and reports rainfall and temperature conditions, etc. Meteorological tables issued by this Bureau for various ports are given in the Appendix.

For additional information regarding weather broadcasts see Radio Services.

COAST GUARD

The **United States Coast Guard,** in addition to its other duties, is charged with the establishment and maintenance of aids to navigation. This organization publishes the **Light Lists, Radiobeacon Charts,** and **Notice to Mariners,** which give the changes in lights, buoys, etc.

Light Lists.—All aids to navigation, such as radio beacons, lights, fog signals, buoys, and day marks, maintained by the United States Coast Guard are described in these publications, which are for sale by the Superintendent of Documents, Government Printing Office, Washington, D. C., or by numerous sales agencies. The various lists published are given under Publications on page 27 of this volume. Each of these publications also lists the radiobeacons operated by the United States Coast Guard and the radio direction-finder stations operated by the United States Navy.

Mariners are referred to the above publications for detailed information regarding the characteristics, power, visibility, etc., of lights, as well as a description of light structures and day marks, buoys, fog signals, etc. Such information is not given in this Coast Pilot volume.

The **Notice to Mariners** will be mailed free to mariners who apply to the Commandant, United States Coast Guard, or single copies may be obtained or consulted at the offices of the District Commanders of Coast Guard, or the Coast and Geodetic Survey field stations, or other agencies, distributing marine information.

Coast Guard stations are maintained at the places named in the Appendix. The active stations are fully manned throughout the year and are supplied with boats, wreck guns, beach apparatus, and all other appliances for affording assistance in case of shipwreck. Instructions to enable mariners to avail themselves fully of the assistance thus afforded will be found on page 13.

AIDS TO NAVIGATION

The lighthouses and lightships, radiobeacons, radio direction-finder (Navy) and distance-finding stations, and other aids to navigation are the principal guides and mark the approaches and channels to the principal ports. The buoyage is in accordance with the system adopted by the United States and is described below. The lightships and principal coast lights are described in the text of this volume. Some of the light stations are equipped with radiobeacons and distance-finding apparatus.

Private aids to navigation, such as stakes and small floats, are not supervised by the Government, and are therefore not listed or indicated on the charts. When private, aids are established similar to those maintained by the Government, they must be authorized by the United States Coast Guard.

System of buoyage, colors, shapes, and numbers.—On the *right or starboard* side of the channel for the entering vessels are placed *spar or nun buoys*, painted *red*, and with *even numbers*, and on the *left or port side*, *spar or can buoys*, painted *black*, and with *odd numbers;* the numbers for each side increase from seaward.

Obstructions, with channel ways on either side, are marked with buoys painted with *red and black horizontal bands*, which may be left on either side, with due regard as to the position of the buoy with relation to the obstruction, as shown on the chart. In general, obstruction buoys have no distinctive shape, but in the case of buoys with horizontal bands marking obstructions or bifurcations of channels, when it is desired to indicate the main channel, a can buoy with black band at the top is used when the important channel is to the right, for the entering vessel, and a nun buoy with red band at the top when the important channel is to the left.

Fairways are indicated, where necessary, by buoys painted with *black and white vertical stripes;* such buoys are placed in good water in midchannel or approaches, and may be passed close-to on either side. Midchannel buoys have no distinctive shape at present.

Offshore Buoys along the Atlantic Coast are colored and numbered from north to south, and along the Pacific coast from south to north, conforming to the order of Light Lists; this does not apply to outside buoys which have a definite approach signification, and which are colored and numbered to conform to the approach. In channels not having a definite approach character, buoys are colored and numbered from north to south or from east to west on the Atlantic coast and from south to north or west to east on the Pacific coast.

Bell buoys have a flat-topped float with skeleton superstructure supporting a bell. **Gong buoys** have a flat top with skeleton framework supporting a series of four gongs of varied tone. **Whistle buoys** are conical, with whistle at top. **Spar buoys** are long slender buoys of wood or iron. These classes of buoys, as well as lighted buoys, have not at present a shape distinction to indicate the side of channel or entrance, although a shape distinction is being introduced for wood spar buoys.

Anchorage Buoys are painted white.

Quarantine Anchorage Buoys are painted yellow.

Certain Other Special Buoys are in use locally, such as white with green top for dredging buoys.

Coast and Geodetic Survey *sono-radio buoys*, used in radio acoustic ranging, may be found anchored on the continental shelf in areas being surveyed. Some of these buoys are fitted with mechanism to show a white light upon the approach of a vessel. When within about a mile of the buoy the sound of a ship's propeller, or other ship noises, produce the audio mechanical effect resulting in a fluctuating illumination.

Station Buoys, colored the same as the regular aids, are placed alongside of lightships and important buoy stations to mark them in

case the regular aid is carried away. Lightship station buoys bear the letters "LS" above the initials of the station.

Colors of Lights for Buoys and Beacons.—*Red or white lights* are placed on the *right or starboard* side of a channel for the entering vessel, and *white or green lights* on the *left or port side.* White lights may be on either or both sides of the channel, but colored lights are only on the sides indicated respectively. The same rules apply to lights on fixed structures serving a purpose similar to that of buoys. Coast lights and lightships near channels or entrances may not conform to this system.

Lighted buoys are not at present uniformly differentiated as to shape, with respect to the side of the channel; they have bodies which contain the gas tanks or gas, and are usually surmounted by skeleton superstructures with lanterns; combination buoys have both light and bell, or light and whistle.

Significance of light characteristics

(FLASHING CHARACTERISTICS ARE USED ON LIGHTED BUOYS TO DISTINGUISH THEIR PRINCIPAL PURPOSES CORRESPONDING IN PART TO THE COLOR DISTINCTIONS THAT ARE MADE ON UNLIGHTED BUOYS)

Characteristic of flashing	Purpose indicated	Color of light	Color of buoy
1. Flashing: Less than 30 light periods per minute.	Channel sides and coasts.	White Green Red	Red or black. Black. Red.
2. Quick flashing: Not less than 60 flashes per minute.	Sudden constriction or sharp turns in channel; also wrecks when marked by solid color buoys. *A distinctly cautionary significance is indicated.*	White Green Red	Black or red. Black. Red.
3. Interrupted quick flashing (group): Quick flashing as above but interrupted by eclipse periods of 4 seconds at regular intervals about 8 times per minute.	Obstructions, middle grounds, junctions, or wrecks. *A distinctly cautionary significance is indicated.*	White Green Red	Horizontally striped buoy. Top band of buoy either red or black. Top band of buoy black only. Top band of buoy red only.
4. Short-long flashes: Groups of a short and a long flash. Groups are repeated about 8 times per minute.	Midchannels and fairways.	White	Black and white vertical stripes.

NOTE.—While a thorough understanding of the significance of these features will be of material assistance to the navigator, it is not contemplated that they shall be implicitly relied upon without reference to the charts which should always be consulted for guidance. Many conditions do not permit of proper understanding in any other way.

Caution regarding buoys.—Buoys are liable to be carried away, shifted, capsized, sunk, etc., lighted buoys may be extinguished, or whistling or bell buoys may not sound, as the result of storm, the accumulation of ice, running ice, or other natural causes, or collision,

or other accidents. Buoys marking channels subject to frequent changes are moved as may be necessary and should be used only with local knowledge. Such buoys may not be charted.

Day beacons are constructed and distinguished with special reference to each locality, and particularly with regard to the background upon which they are projected. Beacons on the sides of channels are, when practicable, colored to conform to the coloring of buoys, subject to the above conditions as to background.

Reflectors (red or white) are placed on some buoys or day beacons to enable the navigator, using a searchlight, to readily locate such aids.

Radiobeacons.—For information regarding operating schedules, transmitting range, station identification, etc., see "Light List."

Lighthouse tenders, when working on buoys in channels or other frequented waters, may display a red flag (international signal code flag B) and a black ball at the fore as a warning to other vessels to slow down in passing. Passing vessels will facilitate the work of the U. S. Coast Guard by a proper observance of the signals.

Suggestions as to aids to navigation.—Mariners are also invited to send suggestions as to improvements or changes in aids to navigation directly to the District Commander of the district concerned, or to confer with them, or address Commandant, United States Coast Guard, Washington, D. C.

Defects in aids to navigation.—Aids to navigation are protected by law, and mariners in their own interest should use every precaution to avoid collisions with them. Mariners are requested to report defects in the aids to navigation *using official designation identification in the Light Lists* direct to the District Commander, United States Coast Guard of the district concerned by commercial radio, by radio communication with lightships, or other prompt means.

Messages may be sent by telegraph collect. Radio reports should be sent using the registered address **COGUARD** with the name of the city in which the district office is located. Example, "Coguard, Boston"; "Coguard, New York."

Lightships under way, or off station, will fly the International Code signal letters "PC" (signifying "lightship is not at anchor on her station").

All lightships on station and all vessels relieving station ships will display the International Code signal of the station whenever a vessel is approaching or in the vicinity and there are indications that such vessel is in strange waters or fails to recognize the station, or when the vessel asks for the information.

Lightships, where so stated, carry riding lights for the purpose of showing in which direction the ship is riding.

Casualties and near casualties to lightships imposes upon the Coast Guard the obligation to CAUTION all shipmasters that courses should invariably be set to pass lightships with sufficient clearance to avoid possibility of collision from any cause. Errors of observation, current and wind effects, other vessels in the vicinity, and defects in steering-gear may and have been the causes of actual collisions, or imminent danger thereof, needlessly jeopardizing the safety of lightships and their crews, and that of all navigation dependent on these important aids to navigation. Experience shows

that lightships cannot be safely used as leading marks to be passed close aboard, but should invariably be left broad off the course, wherever sea-room permits.

Caution must be used in approaching radiobeacons on radio bearings, and care must be taken to set courses to pass safely clear. The risk of collision will be avoided by insuring that the radio bearing does not remain constant. This caution is applicable to those lightships and stations on submarine sites which are passed close to.

INSTRUCTIONS TO MARINERS IN CASE OF SHIPWRECK

(INSTRUCTIONS FOR USE OF GUN APPARATUS MUST BE POSTED BY LAW)

General information.—Coast Guard (lifesaving) stations and houses of refuge are located upon the Atlantic and Pacific seaboards of the United States, the Gulf of Mexico, and the Lake coasts.

The stations are manned throughout the year by crews of experienced surfmen.

All lifesaving stations, except inactive stations, are fully supplied with boats, wreck guns, beach apparatus, and restoratives.

The lifesaving stations are provided with the International Code of Signals, and other means of visual signaling, and vessels can, by opening communication, be reported; or obtain the latitude or longitude of the station, where determined; or information as to the weather probabilities in most cases; or where facilities for the transmission of messages by telephone or telegraph are available, request for a tug or Coast Guard cutter will be received and promptly forwarded.

All services are performed by the lifesaving crews without other compensation than their pay from the Government.

Destitute seafarers are provided with food and lodging at the nearest station by the Government as long as necessarily detained by the circumstances of shipwreck.

The station crews patrol the beach from 2 to 4 miles each side of their stations between sunset and sunrise, and if the weather is foggy the patrol is continued through the day. A continuous lookout is also maintained at every station night and day.

Each patrolman carries warning signals. Upon discovering a vessel standing into danger he ignites one of these, which emits a brilliant red flame of about 2 minutes' duration, to warn her off, or, should the vessel be ashore, to let her crew know that they are discovered and assistance is at hand.

If the vessel is not discovered by the patrol immediately after striking, rockets, flare-up lights, or other recognized signals of distress should be used. If the weather be foggy, some recognized sound signal should be made to attract attention, as the patrolman may be some distance away at the other end of his beat.

Masters are particularly cautioned, if they should be driven ashore anywhere in the neighborhood of the stations, to remain on board until assistance arrives and under no circumstances should they attempt to land through the surf in their own boats until the last hope of assistance from the shore has vanished. Often when comparatively smooth at sea a dangerous surf is running which is not perceptible 400 yards offshore, and the surf when viewed from a vessel never appears as dangerous as it is. Many lives have been lost unnecessarily by the crews of stranded vessels being thus deceived and attempting to land in the ship's boats.

The difficulties of rescue by operations from the shore are greatly increased in cases where the anchors are let go *after entering the breakers,* as is frequently done, and the chances of saving life correspondingly lessened.

Rescue with the lifeboat or surfboat.—The patrolman after discovering your vessel ashore and burning a warning signal, hastens to his station or the telephone for assistance. If the use of a boat is practicable, either the large lifeboat is launched from its ways in the station and proceeds to the wreck by water, or the lighter surfboat is hauled overland to a point opposite the wreck and launched, as circumstances may require.

Upon the boat reaching your vessel the directions and orders of the officer in charge (who always commands and steers the boat) should be implicitly

obeyed. Any headlong rushing and crowding should be prevented, and the captain of the vessel should remain on board, to preserve order, until every other person has left.

Women, children, helpless persons, and passengers should be passed into the boat first.

Goods or baggage will positively not be taken into the boat until all are landed. If any be passed in against the remonstrance of the officer in charge, he is fully authorized to throw the same overboard.

Rescue with the breeches buoy or life car.—Should it be inexpedient to use either the lifeboat or surfboat, recourse will be had to the wreck gun and beach apparatus for the rescue by the breeches buoy or the life car.

A shot with a small line attached will be fired across your vessel. Get hold of the line as soon as possible and haul on board until you get a tailblock with a whip or endless line rove through it. The tailblock should be hauled on board as quickly as possible to prevent the whip drifting off with the set or fouling with wreckage, etc. Therefore if you have been driven into the rigging, where but one or two men can work to advantage, cut the shot line, and run it through some available block, such as the throat or peak-halyards block, or any block which will afford a clear lead, or even between the ratlines, that as many as possible may assist in hauling.

Attached to the tailblock will be a tally board with the following directions in English on one side and French on the other:

"Make the tail of the block fast to the lower mast, well up. If the masts are gone, then to the best place you can find. *Cast off shot line, see that the rope in the block runs free*, and show signal to the shore."

As soon as your signal is seen, a 3-inch hawser will be bent onto the whip and hauled off to your ship by the lifesaving crew.

If circumstances permit, you can assist the lifesaving crew by manning that part of the whip to which the hawser is bent and hauling with them.

When the end of the hawser is got on board, a tally board will be found attached, bearing the following directions in English on one side and French on the other:

"Make this hawser fast about 2 feet above the tailblock, see all clear and that the rope in the block runs free and show signal to the shore."

Take particular care that there are no turns of the whip line around the hawser. To prevent this, take the end of the hawser up between the parts of the whip before making it fast.

When the hawser is made fast, the whip cast off from the hawser, and your signal seen by the lifesaving crew, they will haul the hawser taut and by means of the whip will haul off to your vessel a breeches buoy suspended from a traveler block, or a life car, from rings running on the hawser.

If the breeches buoy be sent, let one man immediately get into it, thrusting his legs through the breeches. If the life car, remove the hatch, place as many persons therein as it will hold (four to six) and secure the hatch on the outside by the hatch bar and hook, signal as before, and the buoy or car will be hauled ashore. This will be repeated until all are landed. On the last trip of the life car the hatch must be secured by the inside hatch bar.

In many instances two men can be landed in the breeches buoy at the same time by each putting a leg through a leg of the breeches and holding onto the lifts of the buoy.

Children when brought ashore by the buoy should be in the arms of older persons or securely lashed to the buoy. Women and children should be landed first.

In signalling as directed in the foregoing instruction, if in the daytime, let one man separate himself from the rest and swing his hat, a handkerchief, or his hand; if at night, the showing of a light and concealing it once or twice will be understood; and like signals will be made from the shore. (See also Wreck Signals, below.)

Circumstances may arise, owing to the strength of the current or set or the danger of the wreck breaking up immediately, when it would be impossible to send off the hawser. In such a case a breeches buoy or life car will be hauled off instead by the whip or sent off to you by the shot line, and you will be hauled ashore through the surf.

If your vessel is stranded during the night and discovered by the patrolman—which you will know by his burning a brilliant red light—keep a sharp lookout for signs of the arrival of the livesaving crew abreast of your vessel.

Some time may intervene between the burning of the light and their arrival, as the patrolman may have to return to his station, perhaps 3 or 4 miles distant, and the lifesaving crew draw the apparatus or surfboat through the sand or over bad roads to where your vessel is stranded.

Lights on the beach will indicate their arrival, and the sound of cannon firing from the shore may be taken as evidence that a line has been fired across your vessel. Therefore upon hearing the cannon, make strict search aloft, fore, and aft, for the shot line, for it is almost certain to be there. Though the movement of the lifesaving crew may not be perceptible to you, owing to the darkness, your vessel will be a good mark for the men experienced in the use of the wreck gun, and the first shot seldom fails.

Important.—Remain by the wreck until assistance arrives from the shore, or as long as possible. If driven aloft, the inshore mast is the safest.

If not discovered immediately by the patrol, burn rockets, flare-up, or other lights, or if the weather be foggy, fire guns or make other sound signals.

Make the shot line fast on deck or to the rigging to prevent its being washed into the sea and possibly fouling the gear.

Take particular care that there are no turns of the whip line around the hawser before making the hawser fast.

Send the women, children, helpless persons, and passengers ashore first.

Make yourself thoroughly familiar with these instructions, and remember that on your coolness and strict attention to them will greatly depend the chances of success in bringing you and your people safely to land.

Wreck signals.—The following signals have been adopted by the Coast Guard and will be used and recognized by the officers and employees as occasion may require:

"Upon the discovery of a wreck by night, the lifesaving force will burn a red pyrotechnic light or a red rocket to signify, '*You are seen; assistance will be given as soon as possible.*'

"A red flag waved on shore by day, or a red light, red rocket, or red roman candle displayed by night, will signify, '*Haul away.*'

"A white flag waved on shore by day, or a white light slowly swung back and forth, or a white rocket, or white roman candle fired by night, will signify, '*Slack away.*'

"Two flags, a white and red, waved at the same time on shore by day, or two lights, a white and a red, slowly swung at the same time, or a blue pyrotechnic light burned by night, will signify, '*Do not attempt to land in your own boats; it is impossible.*'

"A man on shore beckoning by day, or two torches burning near together by night, will signify, '*This is the best place to land.*'

"Any of these signals may be answered from the vessel as follows: In the daytime, by waving a flag, a handkerchief, a hat, or even the hand; at night, by firing a rocket, a blue light, or a gun, or by showing a light over the ship's gunwale for a short time, and then concealing it."

CUSTOMS

Collection districts and ports of entry located within the area covered by this volume are tabulated in the Appendix.

MARINE INSPECTION AND NAVIGATION

The Bureau of Marine Inspection and Navigation under the Department of Commerce is charged with general superintendence of the commercial marine and merchant seamen of the United States, except so far as supervision is lodged with other offices of the Government.

In addition to various other duties the Bureau is especially charged with the decision of all questions relating to the issuing of registers, enrollments, and licenses of vessels; investigates the operation of the laws relative to navigation; is charged with the enforcement and

investigation of violations of the navigation and marine inspection laws; and is charged with the duty of inspecting vessels, the licensing of the officers of vessels, and the administration of the laws relating to such vessels and their officers for the protection of life and property. The Bureau certificates the able seamen who form the crew of merchant vessels, and the inspectors of the Service, also certificate the lifeboat men.

The licensed officer in command of any vessel shall report in writing and in person to the board of local inspectors nearest the port of first arrival any accident to said vessel involving loss of life, or damage to property, and shall also report in like manner any casualty or loss of life from whatever cause of any person on board such vessel and any stranding or grounding, whether or not any damage has been sustained by the vessel.

For administrative purpose the Supervising Inspectors of the Service maintain 7 district offices, and Local Inspectors have offices in the more important cities having maritime interests.

Offices of local inspectors of the Bureau, within the area covered by this volume, are listed in the Appendix.

SHIPPING COMMISSIONERS

Offices of **U. S. Shipping Commissioners** are maintained in various ports. These officials administer the laws for the protection of seamen, the maintenance of discipline on shipboard, maintain an employment agency for securing seafaring personnel for all ships of American registry and promote Americanization of crews.

The offices of the Shipping Commissioners within the area covered by this Coast Pilot are listed in the Appendix.

QUARANTINE AND HEALTH

The United States Public Health Service is the governmental guardian of the public health, working to prevent the spread of human contagious and infectious diseases.

In addition to its other duties, this Bureau administers hospitalization and out-patient treatment at marine hospitals and many other relief stations to legal beneficiaries of the Government; it administers the foreign and domestic quarantine laws, supervising the medical examination of immigrants and enforcing interstate quarantine laws.

American merchant seamen are entitled to medical relief obtainable through the United States Public Health Service at its established relief stations.

An American seaman is one engaged on board in care, preservation, or navigation of any registered, enrolled, or licensed vessel of the United States, or in the service, on board, of those engaged in such care, preservation, or navigation.

Relief stations of the Public Health Service are located at the addresses given in the Appendix.

Free medical advice is furnished to seamen by radio, see page 22.

Quarantine regulations are given in the text under the names of the ports.

In general, where State quarantine is in force, the minimum requirements of quarantine are in accordance with the regulations of the United States Public Health Service. National quarantine regulations will be found at the stations of the service and at American consulates, and will be furnished to vessels upon application, either by officers of the service or by the bureau in Washington, D. C.

RADIO

LEGAL RESPONSIBILITY

Radio supervision.—The radio communications in the United States and its possessions, except the Philippine Islands and the Panama Canal Zone, are controlled by the Federal Communications Commission, Washington, D. C.

Responsibility of shipmasters.—Shipmasters have the responsibility of seeing that the general radio regulations are carried out by the radio operators.

Radio inspectors.—Inspectors of the Federal Communications Commission have authority to board ships at United States ports for the inspection of the radio station to determine whether it complies with international treaties, Federal laws, and such rules and regulations of the Federal Communications Commission which may apply. In general, these inspectors operate at the following ports where field offices of the Commission are located and where information concerning radio regulations and communications may be obtained.

Boston, Mass.	San Juan, P. R.	San Francisco, Calif.
New York, N. Y.	Tampa, Fla.	Portland, Oreg.
Philadelphia, Pa.	New Orleans, La.	Seattle, Wash.
Baltimore, Md.	Porth Arthur, Tex.	Juneau, Alaska.
Norfolk, Va.	Galveston, Tex.	Honolulu, T. H.
Savannah, Ga.	San Diego, Calif.	
Miami, Fla.	Los Angeles, Calif.	

Service documents.—The rules and regulations of the International Telecommunication Convention require that when a radiotransmitting installation is compulsory equipment on board a ship, the latter must be provided with the following service documents:

1. The radio license.
2. The operators' certificates.
3. Register (radio service log) in which shall be noted, at the time they occur, service incidents of all kinds, as well as the communications exchanged with land stations or mobile stations and relating to reports of disaster. If the regulations on board permit, the position of the ship shall be indicated once a day in the said register.
4. Alphabetical list of call letters.
5. List of coast and ship stations.
6. List of stations performing special services.
7. The general radio regulations and the additional radio regulations as well as the provisions of the convention necessary for the operations of radiocommunication service on board ships.
8. The telegraph rates of the countries for which the station (ship) most frequently accepts radio-telegrams.

The rules and regulations of the United States Federal Communications Commission require certain vessels to have additional service

documents, a complete list of which may be obtained from the Federal Communications Commission, Washington, D. C., or from its suboffices.

For further details concerning the above rules and regulations consult the following publications:

Ship Radiotelegraph Safety Rules.
The Communications Act of 1934, with amendments.
Radio Aids to Navigation, H. O. 205.

WEATHER REPORTS

1. **The major weather bulletins,** issued daily via United States Naval Radio Stations (NAA/NSS), Washington, D. C., and (NPG) San Francisco, Calif., includes observations from ships at sea; surface weather observations from selected land stations; forecasts, storm warnings, and a summary of general atmospheric pressure distribution. The information contained in these bulletins is suitable for preparing weather maps at sea.

The forecasts included in the Washington, D. C., bulletins are for coastal and contiguous ocean areas of the western North Atlantic Ocean from Eastport to the Florida Straits, the Gulf of Mexico, and the Caribbean Sea west of longtitude 75° W. A rebroadcast of parts of these bulletins is made via (NBA) Balboa (Summit), Panama Canal Zone, except that forecasts and warnings for the areas Eastport, Maine, to Jacksonville, Florida, inclusive, are omitted.

The broadcasts from **San Francisco** are for the North Pacific. Rebroadcasts of the San Francisco bulletins and of the bulletins issued by **Cavite, P. I.,** are made daily by **Oahu, T. H.,** with some omissions. Weather reports from stations in the South Pacific are included in the Oahu broadcasts.

2. **Local weather bulletins** containing forecasts, storm warnings when issued, and the weather summaries for specified areas are broadcast on schedule every day by certain Government and commercial radio stations.

During the **West Indies hurricane** season, July 1 to November 15, inclusive (NAU) San Juan, P. R., transmits daily and on schedule a weather bulletin issued for the eastern Caribbean Sea. This bulletin is rebroadcast by the United States Coast Guard vessel patrolling the waters of the United States West Indies when it is in the vicinity of Puerto Rico and the Virgin Islands.

3. **Storm warnings,** whenever they are issued by the United States Weather Bureau, are the subject of special broadcasts by various Government and commercial radio stations of the mobile service.

United States naval shore radio stations concerned with the broadcasting of weather information transmit storm warnings in accordance with the urgency. Warnings of **a very urgent nature,** such as tidal waves, hurricanes, typhoons, cyclones, etc., when the danger is so imminent as to warrant its prompt divulgence, are broadcast as follows:

1. One transmission immediately upon receiving the message from the United States Weather Bureau.

2. One transmission at the end of the first silent period which follows the preceding transmission.

3. One transmission during the first ensuing **"ON watch"** period for ships with only one radio operator in case the two previous transmissions were both made during the **"OFF watch"** period.

Storm warnings of less urgency than the above and other than those normally included in the scheduled major and the local weather bulletins are broadcast as follows:

1. One transmission at the end of the first silent period which follows the reception of the message from the United States Weather Bureau.

2. One transmission during the first ensuing "ON watch" period in case the previous transmission occurred during an "OFF watch" period.

The broadcasting of storm warnings by other than United States Naval Radio Stations is made according to varying procedures. Broadcasts from commercial stations are generally made at hourly intervals on the hour or half-hour.

During the West Indies hurricane season, July 1 to November 15 (NAU), San Juan, Puerto Rico, broadcasts storm and hurricane warnings whenever they are issued by the United States Weather Bureau and in their absence the words "weather normal over Eastern Caribbean" are transmitted. These storm warnings are also broadcast and repeated hourly generally on the hour or half-hour by (WPR) Ensenada, Puerto Rico. This last station also transmits the warnings upon request.

Storm warnings are broadcast in plain language and on the frequencies assigned to the service (maritime or aeronautical) for which they are intended.

Scheduled radiotelegraphic broadcasts of weather information affecting the coasts of the United States, Canada, and Alaska, are also made by Mexican and Canadian radio stations. Most Canadian coastal stations of the mobile service supply weather information on request only and without charge.

Radiotelephonic broadcasts of **Weather** information (United States).—Transmission by voice of weather information from the United States Weather Bureau is made through certain radio stations of the United States Coast Guard. These broadcasts are followed immediately by reports of dangers, obstructions, and changes in aids to navigation.

This service gives to yachts, fishing vessels, tugboats, and any vessel within range, equipped with an ordinary radio receiving set, having a band covering the frequency range of 2 to 3 megacycles, direct official weather information from the Weather Bureau, in plain language, and on regular schedules, such as is available to ships equipped with radiotelegraph apparatus and operator. This service should also prove of value to dock terminals, pilots, yacht clubs, etc.

These radiophone broadcasts are made twice daily at definite times and consist of the transmission of weather bulletins issued by the United States Weather Bureau. The bulletins contain forecasts

(and storm warnings whenever they are issued) for specified regions and adjacent coastal waters.

North of the United States, radiophone weather as well as navigational information, is furnished on request and on schedule, without charge, by certain Canadian radio stations.

West Indies.—Radiotelephonic broadcasts of storm and hurricane warnings are made by various stations in the West Indies.

Complete details relative to the broadcasting of weather information are published in **"Distribution of Weather Information by Radio** (Radio Circular No. 1)."

This circular, together with a card descriptive of storm warnings, may be obtained upon application to any United States Weather Bureau office. Details are also given in Radio Aids to Navigation (H. O. 206). These publications give the schedules with times and frequencies of weather broadcast, together with tables for decoding as needed.

Storm warnings are also broadcast 6 times at 2-hour intervals, whenever they are issued by the United States Weather Bureau. The first of these special broadcasts begins exactly 2 or 4 or 6 or 8 or 10 or 12 hours after the scheduled time of the regular broadcast, depending upon the time the message containing the warnings is received at the radio station. If the warnings are superseded by another message from the United States Weather Bureau before the completion of the 6 broadcasts, the later information is used and broadcast 6 times unless superseded again.

Reports from ships (Weather and Hydrographic).—The master of every ship of the United States equipped with radio transmitting apparatus, on meeting with a tropical storm, dangerous ice, derelict, or any other direct danger to navigation, is required to cause to be transmitted a report of these dangers to ships in the vicinity and to the appropriate Government agencies.

Weather reports (United States).—Weather reports should not be sent regularly except from ships with which specific arrangements have been made by the United States Weather Bureau, but masters of all ships encountering tropical or other severe storms should send special observations by radio.

These reports should be sent in the international meteorological code, preceded by the ship's name, unsigned, and checked collect.

If a copy of the international meteorological code is not on shipboard, the code will be found in Radio Aids to Navigation (H. O. 206), or a copy may be obtained on application to the United States Weather Bureau, Washington, D. C. If code is impracticable, the message may be sent in plain language.

During the West Indies hurricane season, June 1 to November 30, ships in the Gulf of Mexico, Caribbean Sea, and southern North Atlantic Ocean are urged to cooperate with the United States Weather Bureau in order that more complete information may be supplied to ships and for the purpose of warning the inhabitants of coastal areas.

Ice reports.—When in the vicinity of the Grand Banks during the whole of the ice season (generally from March to July), mariners are requested to report to the United States Coast Guard

cutter (call letters NIDK) of the International North Atlantic Ice Patrol, any field ice, icebergs, or obstructions sighted or reported sighted, giving the date, time, latitude and longitude, water temperature, set, and drift. If ice is sighted when the ice patrol is not in operation, the report should be addressed to the Hydrographic Office, United States Navy Department.

Reporting derelicts.—Reports regarding derelicts should be addressed to the Hydrographic Office, United States Navy Department, Washington, D. C., and prefixed **Hydro.**

TIME SIGNALS

The **United States system** of broadcasting time signals, as indicated in the table below, consists of the transmission of dashes (—) and the omission of dashes (0) for the seconds of the 5 minutes preceding the final time signal which is on the hour. The final time signal is the beginning of a much longer dash (——) than the others, being of about 1.3 seconds duration. The number of dashes sounded in the group immediately preceding the four omissions at the end of the first four minutes of the signal, indicates the number of minutes of the signal yet to be sent. There are nine omissions before the final time signal. In all cases, the beginning of a second is on the beginning of a corresponding dash.

Minute intervals preceding hour	Seconds of minute intervals												
	1 to 28	29	30 to 50	51	52	53	54	55	56	57	58	59	60
55 to 56	Dash (—) every second 1 to 28 incl.	0	Dash (—) every second 30 to 50 incl.	0	—	—	—	—	0	0	0	0	—
56 to 57		0		—	0	—	—	—	0	0	0	0	—
57 to 58		0		—	—	0	—	—	0	0	0	0	—
58 to 59		0		—	—	—	0	—	0	0	0	0	—
59 to hour		0		0	0	0	0	0	0	0	0	0	—

NAVIGATIONAL WARNINGS

Radiotelegraphic navigational warnings affecting the waters of the United States and possessions are compiled by the United States Hydrographic Office, Navy Department; the United States Coast Guard; and the North Atlantic International Ice Patrol (U. S. Coast Guard vessel). These warnings contain information of importance to the safety of navigation, such as the position of ice, derelicts; also defects and changes in aids to navigation, mine fields, etc., which are later published in the Notice to Mariners. Navigational warnings are also available via radiotelephone.

Radiotelephone.—Transmission by voice of radio navigational warnings is made immediately after the regular "radiotelephonic broadcast of weather information" by the same stations, following the same schedule and method of procedure.

These radiophone warnings contain the latest reports of local changes in aids to navigation such as are later published in the Notice to Mariners and the late and more important reports of obstructions to navigation in nearby waters as received from the Hydrographic Office of the United States Navy and local sources.

540825°—43——3

Complete details relative to radio telephonic or telegraphic navigational warnings are given in Radio aids to Navigation (H. O. 206).

SHIPS IN DISTRESS

Radio-equipped vessels requiring assistance may obtain the services of the Coast Guard by transmitting a request on the international distress and calling frequency 500 kilocycles to "Any Coast Guard Unit" (radio call NCU), or to any shore radio station addressed to **"Coguard."** Shore radio stations will forward to the Coast Guard all information regarding vessels requiring assistance unless such information is contained in a message specifically addressed elsewhere.

If the following information is included in the original request for assistance it will place the responsible Coast Guard officer in a position to determine immediately the types and number of vessels required to render adequate aid; thus greatly facilitating the work of the Coast Guard and avoiding any unnecessary delay in the dispatching of assistance.

1. Name, type, and nationality of vessel.
2. Position, course, and speed (including drift).
3. Nature of trouble and condition of vessel, sea, and wind.
4. Number of persons on board.
5. State whether or not Coast Guard assistance is required.

Small craft in distress.—Under the provision of the international regulations, which permit the use of any means available to a vessel or aircraft in distress to draw attention and obtain help, small commercial and private craft equipped with radiotelegraph or radiotelephone apparatus that cannot be operated on the international distress frequency of 500 kc. (600 m.) may usually obtain United States Coast Guard assistance by transmitting the distress signal or call and the message on the 2670 kc. (112 m.) frequency. Practically all Coast Guard units maintain a continuous watch on 2670 kc. (112 m.) and will answer emergency calls thereon, if heard.

Medical advice by radio.—Arrangements are made in various countries whereby mariners of all nationalities may obtain medical advice by radio. In the United States and its possessions free medical advice is obtainable through Government and commercial radio stations of its mobile service. The advice is given in language intelligible to the layman.

RADIO BEARINGS

Accuracy of radiobeacon bearings.—No exact data can be given as to the accuracy to be expected in radio bearings taken by a ship, since the accuracy depends to a large extent upon the skill of the ship's operator, the condition of the ship's equipment, and the accuracy of the ship's calibration curve. Mariners are urged to obtain this information for themselves by taking frequent radio bearings when their ship's position is accurately known, and by recording the results. United States radiobeacons are operated on hourly schedules regardless of weather conditions and at other times upon request (see special operation of radiobeacon stations given in Light

Lists), giving mariners opportunity to make such frequent observations, and often to check the results directly with visual bearings.

Skill in the operation of the radio direction-finder can be obtained only by practice and by observing the technical instructions for the set in question. For these reasons the operator should study carefully the instructions issued with the set and should practice taking bearings frequently so that when bearings are needed he can obtain them rapidly and accurately.

As the operator obtains bearings by revolving the direction-finder coil until the signal disappears or becomes a minimum, the operator can tell by the size of the arc of silence or of minimum strength approximately how accurately he has taken the bearing. For instance, if the minimum is broad and the residual signal covers about 10° with equal strength, it is doubtful if the bearing can be accurately estimated within 3° or 4°. Where direction-finder bearings are not taken by the navigating officer, it will frequently be advantageous for the mariner to have his ship's operator report the probable operator's error of the bearing taken.

Radio bearings from other vessels.—Any vessel with a radio direction-finder can give a bearing to a vessel equipped with a radio transmitter. Such service will generally be furnished when requested, particularly by Government vessels. These bearings, however, should be used only as a check, as comparatively large errors may be introduced by local conditions surrounding the radio direction-finder unless known and accounted for. Any radio station, the position of the transmitter of which is definitely known, may serve as a radiobeacon for vessels equipped with a radio direction-finder. However, mariners are cautioned that stations established especially for maritime service are not reliable and safer for use by the mariner, for numerous reasons.

Many navigators are using the ship's radio direction-finder as a help in avoiding collision in fog, detecting with it the presence and observing the direction of approaching vessels.

Caution, when taking radio bearings from a ship one should be careful to take the bearing when the vessel is on an even keel. Large errors may be introduced if the vessel is listed when the bearing is taken.

Conversion of radio bearings to Mercator bearings.—The increasing use of radio directional bearings for locations of ships' positions at sea, especially during foggy weather, has made it particularly desirable to be able to apply these radio bearings (taken on shipboard or sent out by the shore stations) directly to the nautical chart. These radio bearings are the bearings of the great circles passing through the radio stations and the ship, and, unless in the plane of the Equator or of a meridian, would be represented on a Mercator chart as curved lines. Obviously it is impracticable for a navigator to plot such lines on a Mercator chart, so it is necessary to apply a correction to a radio bearing to convert it into a Mercator bearing, that is, the bearing of a straight line on a Mercator chart laid off from the sending station and passing through the receiving station.

On page 25 a table of corrections is given for the conversion of a radio bearing into a Mercator bearing. It is sufficiently accurate for practical purposes for distances up to 1,000 miles.

The only data required are the latitudes and longitudes of the radiobeacons or radio direction-finder station receiver or transmitter, and of the ship by dead reckoning. The latter is scaled from the chart, and the former either scaled from the chart or taken from the list of radiobeacon and radio direction-finder stations found in Hydrographic Office publication No. 205.

The table is entered with the differences of longitude in degrees between the ship and station (the nearest tabulated value being used), and opposite the middle latitude between the ship and station, the correction to be applied is read.

When bearings are taken from the ship, the sign of the correction (bearings read clockwise from the north) will be as follows: In north latitude, the minus sign is used when the ship is east of the radiobeacon and the plus sign used when the ship is west of the radiobeacon. In south latitude, the plus sign is used when the ship is east of the radiobeacon, and the minus sign is used when the ship is west of the radiobeacon.

To facilitate plotting, 180 degrees should be added to the corrected bearing, and the result plotted from the radiobeacon.

Should the position by dead reckoning differ greatly from the true position of the ship as determined by plotting the corrected bearings, a retrial should be made, using the new value as the position of the ship.

When the bearing is from a radio direction-finder shore station, the sign of the correction will be reversed to that given when the bearing is taken from the ship, and the position of the radio direction-finder station receiver is used in plotting the bearing.

Example.—A ship in latitude 39°51′ N., longitude 67°35′ W., by dead reckoning, obtains a radio bearing of 299° true on the radiobeacon located in latitude 40°37′ N., and longitude 69°37′ W.

Radiobeacon station	Latitude	40°37′ N.
Dead reckoning position of ship	Latitude	39°51′
Middle latitude		40°14′
Radio station	Longitude	69°37′ W.
Dead reckoning position of ship	Longitude	67°35′
Longitude difference		2°02′

Entering the table with difference of longitude equals 2°, which is the nearest tabulated value, and opposite 40° middle latitude, the correction of 39′ is read.

The ship being east of the radiobeacon, the correction is minus. The Mercator bearing will then be 299°−0°39′=298°21′. To facilitate plotting, add 180° and plot from the position of the radiobeacon, the bearing (298°21′+180°) or 478°21′ or 118°21′ (Mercator bearing reckoned clockwise from north true).

Table of corrections, in minutes

[DIFFERENCE OF LONGITUDE IN DEGREES]

Mid. L.	½°	1°	1½°	2°	2½°	3°	3½°	4°	4½°	5°	5½°	6°	6½°	7°	7½°	8°	8½°	9°	9½°	10°
15°	4	8	12	16	19	23	27	31	35	40	43	47	50	54	58	62	66	70	74	78
16°	4	8	12	17	21	25	29	33	37	41	45	50	54	58	62	66	70	74	79	83
17°	4	9	13	18	22	26	31	35	39	44	48	53	57	61	66	70	75	79	83	88
18°	5	9	13	19	23	28	32	37	42	46	51	56	60	65	70	74	79	83	88	93
19°	5	10	15	20	24	29	34	39	44	49	54	59	63	68	73	78	83	88	93	98
20°	5	10	15	21	26	31	36	41	46	51	56	62	67	72	77	82	87	92	98	103
21°	5	11	16	21	27	32	38	43	48	54	59	64	70	75	81	86	91	97	102	108
22°	6	11	17	22	28	34	39	45	51	56	62	67	73	79	84	90	96	101	107	112
23°	6	12	18	23	29	35	41	47	53	59	64	70	76	82	88	94	100	105	111	117
24°	6	12	18	24	31	37	43	49	55	61	67	73	79	85	92	98	104	110	116	122
25°	6	13	19	25	32	38	44	51	57	63	70	76	82	89	95	101	108	114	120	127
26°	7	13	20	26	33	39	46	53	59	66	72	79	85	92	99	105	112	118	125	131
27°	7	14	20	27	34	41	48	54	61	68	75	82	89	95	102	109	116	123	129	136
28°	7	14	21	28	35	42	49	56	63	70	77	84	92	99	106	113	120	127	134	141
29°	7	15	21	29	36	44	51	58	65	73	80	87	95	102	109	116	124	131	138	145
30°	7	15	22	30	38	45	53	60	68	75	83	90	98	105	113	120	127	135	143	150
31°	8	15	23	31	39	46	54	62	70	77	85	93	100	108	116	124	131	139	147	155
32°	8	16	24	32	40	48	56	64	72	79	87	95	103	111	119	127	135	143	151	159
33°	8	16	25	33	41	49	57	65	74	82	90	98	106	114	123	131	139	147	155	163
34°	8	17	25	34	42	50	59	67	75	84	92	101	109	117	126	134	143	151	159	168
35°	9	17	26	34	43	52	60	69	77	86	95	103	112	120	129	138	146	155	163	172
36°	9	18	26	35	44	53	62	71	79	88	97	106	115	123	132	141	150	159	168	176
37°	9	18	27	36	45	54	63	72	81	90	99	108	117	126	135	144	153	163	172	181
38°	9	18	28	37	46	55	65	74	83	92	102	111	120	129	139	148	157	166	175	185
39°	9	19	28	38	47	57	66	75	85	94	104	113	123	132	142	151	160	170	179	189
40°	10	19	29	39	48	58	68	77	87	96	106	116	125	135	145	154	164	174	183	193
41°	10	20	30	39	49	59	69	79	89	98	108	118	128	138	148	157	167	177	187	197
42°	10	20	30	40	50	60	70	80	90	100	110	120	130	140	151	161	171	181	191	201
43°	10	20	31	41	51	61	72	82	92	102	113	123	133	143	153	164	174	184	194	205
44°	10	21	31	42	52	63	73	83	94	104	115	125	135	146	156	167	177	188	198	208
45°	11	21	32	42	53	64	74	85	95	106	117	127	138	149	159	170	180	191	201	212
46°	11	22	32	43	54	65	76	86	97	108	119	129	140	151	162	173	183	194	205	216
47°	11	22	33	44	55	66	77	88	99	110	121	132	143	154	165	176	186	197	208	219
48°	11	22	33	45	56	67	78	89	100	111	123	134	145	156	167	178	190	201	212	223
49°	11	23	34	45	57	68	79	91	102	113	125	136	147	158	170	181	192	204	215	226
50°	11	23	34	46	57	69	80	92	103	115	126	138	149	161	172	184	195	207	218	230
51°	12	23	35	47	58	70	82	93	105	117	128	140	152	163	175	186	198	210	221	233
52°	12	24	35	47	59	71	83	95	106	118	130	142	154	165	177	189	201	213	225	236
53°	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240
54°	12	24	36	49	61	73	85	97	109	121	133	146	158	170	182	194	206	218	231	243
55°	12	25	37	49	61	74	86	98	111	123	135	147	160	172	184	197	209	221	233	246
56°	12	25	37	50	62	75	87	100	112	124	137	149	162	174	187	199	211	224	236	249
57°	13	25	38	50	63	75	88	101	113	126	138	151	164	176	189	201	214	226	239	252
58°	13	25	38	51	64	76	89	102	115	127	140	153	165	178	191	204	216	229	242	254
59°	13	26	39	51	64	77	90	103	116	129	141	154	167	180	193	206	219	231	244	257
60°	13	26	39	52	65	78	91	104	117	130	143	156	169	182	195	208	221	234	247	260

PUBLICATIONS

The following résumé of the United States Government publications of navigational value is included for the ready reference of the mariner:

The Catalog of United States Coast and Geodetic Survey Nautical Charts, Coast Pilots, Tide Tables, Current Tables, Tidal Current Charts, and Aeronautical Charts is distributed free by the United States Coast and Geodetic Survey and its authorized agents.

The List of Publications of the Department of Commerce lists the publications of the United States Coast and Geodetic Survey and

may be secured free on application from the offices of the Department of Commerce and its field agencies, or from the Superintendent of Documents, Government Printing Office, Washington, D. C.

Certain libraries have been designated by the Congress of the United States to receive prints, as issued, of all publications printed by the Government for public distribution. These publications may be consulted by anyone during business hours.

NAUTICAL CHARTS

Coasts of the United States, Territories, and Possessions:
Issued by the United States Coast and Geodetic Survey.
For sale by the United States Coast and Geodetic Survey, Washington, D. C., field stations of the United States Coast and Geodetic Survey, and authorized sales agents in the various ports.

Mississippi River from the Head of Passes to Cairo:
Issued and for sale by the Mississippi River Commission, Vicksburg, Misisippi.

Illinois Waterway System:
Issued and for sale by the United States Engineers, Chicago, Illinois.

Ohio River:
Issued and for sale by the United States Engineers, Cincinnati, Ohio.

Great Lakes, Lake Champlain, New York State Canals, and the St. Lawrence River, St. Regis to Cornwall, Canada:
Issued and for sale by the United States Lake Survey, Detroit, Michigan.

New York State Canal System:
Issued and for sale by the Superintendent of Public Works, Albany, New York.

Foreign countries:
Issued by the Hydrographic Office, United States Navy Department.
For sale by the Hydrographic Office, Washington, D. C., and authorized sales agents in the various ports.

COAST PILOTS

Coasts of the United States, Territories, and Possessions:
Published by the United States Coast and Geodetic Survey.
For sale by the United States Coast and Geodetic Survey, Washington, D. C., field stations of the United States Coast and Geodetic Survey, and authorized sales agents in the various ports.

Foreign countries:
Published by the Hydrographic Office, United States Navy Department.
For sale by the Hydrographic Office, Washington, D. C., and authorized sales agents in the various ports.

TIDE TABLES

Atlantic Ocean, and Pacific and Indian Oceans—Two volumes:
Published by the United States Coast and Geodetic Survey.
For sale by the United States Coast and Geodetic Survey, Washington, D. C., field stations of the United States Coast and Geodetic Survey, and authorized sales agents in the various ports.

CURRENT TABLES

Atlantic Coast, North America, and Pacific Coast, North America, and Philippine Islands—Two volumes:
Published by the United States Coast and Geodetic Survey.
For sale by the United States Coast and Geodetic Survey, Washington, D. C., field stations of the United States Coast and Geodetic Survey, and authorized sales agents in the various ports.

TIDAL CURRENT CHARTS

Boston Harbor, Narragansett Bay to Nantucket Sound, Long Island and Block Island Sounds, New York Harbor, San Francisco Bay—Five volumes:
Published by the United Sttaes Coast and Geodetic Survey.

For sale by the United States Coast and Geodetic Survey, Washington, D. C., or its agents.

NOTICE TO MARINERS

Issued by the United States Coast Guard and by the Hydrographic Office, United States Navy Department.

Notices to Mariners are published weekly and may be secured free of charge from the United States Coast Guard and from the Hydrographic Office.

Notice to Mariners, Philippine Islands, is compiled quarterly by the United States Coast and Geodetic Survey and may be secured free of charge from the United States Coast and Geodetic Survey, Washington, D. C., or Manila, P. I., Pacific Coast field stations of the United States Coast and Geodetic Survey, and authorized sales agents in the various Philippine ports.

LIGHT LISTS

North Atlantic Coast, South Atlantic Coast, Intracoastal Waterway, Pacific Coast:

Published by the United States Coast Guard.

For sale by the Superintendent of Documents, Washington, D. C., and by authorized sales agents in the various ports.

Philipine Islands:

Published by the Department of Finance, Bureau of Customs, Manila, Philippine Islands.

Copies of the List of Lights, Buoys, Beacons, and Daymarks of the Philippine Islands may be secured free on application to the Insular Collector of Customs, Manila, P. I.

A limited number of Philippine Notice to Mariners and List of Lights, etc., are available for free distribution at the Coast and Geodetic Survey field stations at Seattle, Wash., San Francisco, Calif., and Honolulu, T. H.

Foreign Countries:

Published by the Hydrographic Office, United States Navy Department.

For sale by the Hydrographic Office, Washington, D. C., and authorized sales agents in the various ports.

RADIO

Charts of Radiobeacon System, Atlantic and Gulf Coasts, Pacific Coast, and Great Lakes:

Free on application to the United States Coast Guard.

Radio Circular No. 1, Distribution of Weather Information by Radio:

Free on application to the Weather Bureau, United States Department of Commerce, Washington, D. C.

Radio Aids to Navigation (H. O. Publ. No. 206):

Published by the Hydrographic Office, United States Navy Department.

For sale by the Hydrographic Office, Washington, D. C.

Radiobeacons and Radiobeacon Navigation:

Published by the United States Coast Guard.

For sale by the Superintendent of Documents, Washington, D. C.

List of radiobeacons:

See Light Lists published by the United States Coast Guard.

Hydrographic Bulletin:

Issued weekly by the U. S. Hydrographic Office.

International Code of Signals (American Edition) Vol. II (Radio):

For sale by U. S. Hydrographic Office.

International Convention for the Safety of Life at Sea, London, 1929 (affecting radio), Extracts From:

May be obtained from Federal Communications Commission, Washington, D. C.

Communications Act of 1934:

For sale by Superintendent of Documents, Washington, D. C.

Ship Radio Telegraph Safety Rules:

From the Commission or the Superintendent of Documents.

The International Bureau of Telecommunication Union, Berne, Switzerland: Publishes and sells the following:

1. List of Frequencies.
2. List of Coast Stations and Ship Stations.

3. List of Aircraft and Aeronautical Stations.
4. List of Broadcasting Stations.
5. List of Stations Performing Special Services.
6. List of Call Letters of Fixed Land and Mobile Stations.
7. List of Fixed Stations.
8. The Telegraph Rates.

Radio Service Bulletin:
Issued by U. S. Federal Communications Commission.

MISCELLANEOUS

American Practical Navigator (Bowditch):
Published by the Hydrographic Office, United States Navy Department.
For sale by the Superintendent of Documents, Washington, D. C.

Annual Report of the Chief of Engineers, United States Army:
Part 1.—Report upon river and harbor improvement work, including flood-control operations.
Part 2.—Commercial Statistics, Water-borne Commerce of the United States.
These volumes may be consulted at the libraries which are public depositories.

General Rules and Regulations Prescribed by the Board of Supervising Inspectors—four volumes:
Published by and issued free on application to the Bureau of Navigation and Steamboat Inspection, United States Department of Commerce, Washington, D. C.

Laws Governing Steamboat Inspection:
Published by and free on application to the Bureau of Navigation and Steamboat Inspection, United States Department of Commerce, Washington, D. C.

List of Bridges Over the Navigable Waters of the United States:
Published by the United States Engineers.
For sale by the Superintendent of Documents, Washington, D. C.

Navigation Laws of the United States:
Published by the Bureau of Navigation and Steamboat Inspection, United States Department of Commerce.
For sale by the Superintendent of Documents, Washington, D. C.

Pilot Rules for Certain Inland Waters of Atlantic and Pacific Coasts and Coast of Gulf of Mexico:
Published by and free on application to the Bureau of Navigation and Steamboat Inspection, United States Department of Commerce, Washington, D. C.

Pilot Rules for Rivers whose Waters Flow into the Gulf of Mexico and Their Tributaries and Red River of North:
Published by and free on application to the Bureau of Navigation and Steamboat Inspection, United States Department of Commerce, Washington, D. C.

Pilot Rules for Great Lakes and Their Connecting and Tributary Waters:
Published by and free on application to the Bureau of Navigation and Steamboat Inspection, United States Department of Commerce, Washington, D. C.

Port and Terminal Charges at United States Ports:
Prepared by the Board of Engineers for Rivers and Harbors, War Department, in cooperation with the United States Maritime Commission.
For sale by the Superintendent of Documents, Washington, D. C.

Port Series—of the United States—25 volumes:
Prepared by the Board of Engineers for Rivers and Harbors, War Department, in cooperation with the United States Maritime Commission.
For sale by the Superintendent of Documents, Washington, D. C.

Rules and Regulations; The Navigable Waters of the United States:
Prepared by the United States Engineers.

Shipping Charges at United States and Foreign Ports; Consular Services and Charges:
Prepared by the Board of Engineers for Rivers and Harbors, War Department, in cooperation with the United States Maritime Commission.
For sale by the Superintendent of Documents, Washington, D. C.

The American Ephemeris and Nautical Almanac:
Published by the United States Naval Observatory.
For sale by the Superintendent of Documents, Washington, D. C.

PROTECTION OF NAVIGABLE WATERS

Protection of Navigable Waters.—There are given below extracts from the laws of the United States for the protection and preservation of the navigable waters of the United States.

That it shall not be lawful to throw, discharge, or deposit, or cause, suffer, or procure to be thrown, discharged, or deposited either from or out of any ship, barge, or other floating craft of any kind, or from the shore, wharf, manufacturing establishment, or mill of any kind, any refuse matter of any kind or description whatever other than that flowing from streets and sewers and passing therefrom in a liquid state, into any navigable water of the United States, or into any tributary of any navigable water from which the same shall float or be washed into such navigable water; and it shall not be lawful to deposit, or cause, suffer, or procure to be deposited material of any kind in any place on the bank of any navigable water, or on the bank of any tributary of any navigable water, where the same shall be liable to be washed into such navigable water, either by ordinary or high tides, or by storms or floods, or otherwise, whereby navigation shall or may be impeded or obstructed.

That it shall not be lawful to tie up or anchor vessels or other craft in navigable channels in such a manner as to prevent or obstruct the passage of other vessels or craft; or to voluntarily or carelessly sink, or permit or cause to be sunk, vessels or other craft in navigable channels; or to float loose timber and logs, or to float what is known as sack rafts of timber and logs in streams or channels actually navigated by steamboats in such manner as to obstruct, impede, or endanger navigation. And whenever a vessel, raft, or other craft is wrecked and sunk in a navigable channel, accidentally or otherwise, it shall be the duty of the owner of such sunken craft to immediately mark it with a buoy or beacon during the day and a lighted lantern at night, and to maintain such marks until the sunken craft is removed or abandoned, and the neglect or failure of the said owner so to do shall be unlawful; and it shall be the duty of the owner of such sunken craft to commence the immediate removal of the same, and prosecute such removal diligently, and failure to do so shall be considered as an abandonment of such craft, and subject the same to removal by the United States as hereinafter provided for.

That, except in case of emergency imperiling life or property, or unavoidable accident, collision, or stranding, and except as otherwise permitted by regulations prescribed by the Secretary as hereinafter authorized, it shall be unlawful for any person to discharge, or suffer, or permit the discharge of oil by any method, means, or manner into or upon the coastal navigable waters of the United States from any vessel using oil as fuel for the generation of propulsion power, or any vessel carrying or having oil thereon in excess of that necessary for its lubricating requirements and such as may be required under the laws of the United States and the rules and regulations prescribed thereunder. The Secretary is authorized and empowered to prescribe regulations permitting the discharge of oil from vessels in such quantities, under such conditions, and at such times and places as in his opinion will not be deleterious to health or sea food, or a menace to navigation, or dangerous to persons or property engaged in commerce on such waters, and for the loading, handling, and unloading of oil.

SOME FACTORS AFFECTING THE USE OF THE MAGNETIC COMPASS

Compass, change in the variation of.—The gradual increase or decrease of the variation must not be forgotten in laying down positions by bearings on charts. The magnetic compass roses placed on the charts to facilitate plotting become in time slightly in error as a result of this change, and in some cases, such as with small-scale charts or when the lines are long, the displacement of position from neglect of this change may be of importance. The compass roses are replotted for every new edition of the chart if the error is appreciable. Means for estimating the magnitude of this error are provided by stating for each compass rose the year for which it is

constructed and the annual rate of change in the locality for that period.

From time to time there has been considerable uncertainty in the rates of change prevailing in various parts of the coastal waters of the United States and its possessions and dependencies. The sparsity of the older observations, coupled with the lack of a suitable nonmagnetic vessel and the virtual suspension of magnetic work in some regions, has introduced uncertainties in the values of variation as compared with those shown on the charts, amounting to perhaps as much as one degree for some of the outlying possessions.

The systematic differences in the magnetic variation encountered in going from place to place, i. e., the differences ascribed to the general pattern of the earth's magnetization, are quite pronounced along some parts of the coast line of the United States. Unless properly and continuously taken into account, these differences are apt to affect materially the course of a vessel. This is particularly so in New England and parts of Alaska, where the lines of equal magnetic variation are close together, denoting rapid changes in magnetic variation from place to place, as indicated by the large differences in variation given on neighboring compass roses.

On certain of the sailing and general charts the magnetic variation is shown by isogonic lines in addition to the compass roses. These lines depict the distribution of the magnetic variation over the entire navigable area of the chart.

Local magnetic disturbance.—The synonymous terms "local magnetic disturbance" and "local attraction" have reference only to the effects on the compass of magnetic masses external to the ship. They may be sufficient to cause noticeable deflections of the compass in passing over certain spots. Such disturbances are of fairly common occurrence in shallow waters; they are never encountered over oceanic depths. However, it must not be inferred from this that the source of a given disturbance noted on board ship is situated in the direction of the visible land. Rather is it to be expected that the magnetic masses responsible are distributed in the nearest solid matter, which is naturally (in most cases) the bed of the sea under the ship. In this connection it may be noted that the ordinary irregularities of the magnetic field in close proximity to the earth's crust are known to diminish rapidly with increasing distance from the disturbing matter, so that in the absence of positive evidence, it is not believed that such irregularities would noticeably affect a ship's compass where the depths are upwards of 500 fathoms.

Despite the common use of the term "magnetic attraction," the actual effect of a magnetic body may be to deflect the compass either toward or away from it, depending on how the body is magnetized and the vessel's position with respect to the body.

It is unlikely that all the areas of magnetic disturbance have been located. When such an area is discovered, the position should be fixed and the facts reported as far as they can be ascertained. It is particularly important to note the time at which the disturbance was encountered, so as to rule out the possibility that the effects were caused by a magnetic storm rather than by local irregularity.

Deviation.—The magnetic field of the earth is also modified by the presence of the ship itself. This effect combines with any instru-

mental error of the compass to cause the *deviation*, which is defined as the angle between magnetic north, as indicated by a given compass on a given heading of the ship, and the direction of magnetic north which would be observed at the same time and place with a compass free from error on a completely nonmagnetic vessel. It is denoted "easterly" or "westerly" according as the needle points east or west of the direction it would assume if the deviation were zero. The deviation varies with the heading of the ship and with the magnetic latitude. It is customary to counteract the deviation as far as is conveniently possible by soft iron and permanent magnets, suitably placed in or on the binnacle. See Special Publication No. 96 of the United States Coast and Geodetic Survey, entitled "Instructions for Compensation of the Magnetic Compass."

DISTRESS SIGNALS USED BY SUBMARINE AND AIRCRAFT

Distress signals by submarines.—The following signals are made by submarines of the United States Navy in cases of necessity.

A submarine in need of assistance releases a red smoke bomb.

A submarine compelled to surface in the vicinity of surface craft releases a yellow smoke bomb. Surface vessels should keep clear of these yellow smoke bombs.

Any person sighting red smoke bombs rising from the surface of the water should report the time and location to the nearest Naval authority or Coast Guard unit.

Distress signals by aircraft.—The attention of all navigators of surface vessels is called to the procedure which will be followed by the planes of a Naval squadron when a plane is forced down at sea, in order that assistance may be rendered as quickly as possible.

A plane will fly several times across the bow of the nearest surface vessel, opening and closing the throttle, and then will fly in the direction of the plane in distress. The signal will be repeated until the ship has acknowledged by following the plane. If possible, the plane will remain in sight of the surface vessel until the latter sights the plane in distress. All planes will resort to the use of available pryotechnics as necessary to attract the attention of surface vessels.

Chapter 2.—LOCAL GENERAL INFORMATION

LOCAL SERVICES

Pilots and Pilotage.—Pilotage is not compulsory in the State of Maine, except for the port of Portland. See "Pilots" under heading Portland Harbor. Local pilots can be had for all other localities.

Pilotage is not compulsory for enrolled or registered vessels of the United States in ports of New Hampshire, and is compulsory for other vessels only when a pilot offers his service.

Pilotage is compulsory for ports in Massachusetts, except for coastwise steam vessels not sailing under register, vessels regularly employed in the coasting trade, fishing vessels other than whalers, and vessels of less than 7 feet draft. All other vessels are obliged to pay pilotage. (See also "Pilots," under different headings.) Pilots are always available at Gloucester, Boston, and Cape Cod Canal.

Towboats are available at Stonington, Rockland, Bangor, Bath, Portland, Portsmouth, Gloucester, and Boston. At a number of other places power fishing boats and launches can be secured for handling smaller vessels, such as 2- and 3-mast schooners engaged in the coasting trade.

Harbor masters are appointed for the principal ports, and they have charge of the anchorage and berthing of vessels in their respective harbors. The anchorage regulations for the port of Boston are given on page 286. The laws prohibit the dumping of ashes or other materials in the channels.

Addresses of local Harbor Masters are listed in Appendix.

Repairs.—Boston is the only port where repairs of any magnitude to large vessels can be made. Portland is equipped for repairing vessels up to about 800 tons, while schooners, towboats, and fishing vessels can be repaired in Gloucester, Rockland, and Camden. Small motor boats and yachts can be hauled out, and ordinary repairs to machinery can be made at several other places.

The details of the largest dry docks and marine railways are given in the Appendix.

Bridge regulations.—Regulations for the operation of drawbridges are prescribed by the Secretary of War, and extracts from these regulations are given in the description of the waters affected under the heading "Bridge regulations."

Massachusetts Humane Society lifesaving stations.—All the lifesaving stations have been discontinued by the Society.

Miscellaneous.—For information of any particular kind about a definite locality refer to that locality in the text.

In the Appendix are tables giving meteorological data, etc., as well as the addresses of local offices in which the ship's master is interested.

FISH WEIRS

These are numerous along the outside coast. The stakes often become broken off and form a danger to navigation, especially at night. Regulations limiting the areas within which fish weirs may be established have been prescribed by the Secretary of War (see *Rules and Regulations relating to Navigable Waters*) and the supervision of the fishing structures is controlled by the Chief of Engineers, United States Army. Strangers should proceed with caution when crossing areas of possible fish weirs, and should avoid crossing such areas at night, whenever possible.

Regulations prescribe that fishing structures and appliances in navigable waters of the United States shall be lighted for the safety of navigations, as follows:

The lights shall be displayed between sunset and sunrise. They shall be placed at each end of the structure excepting where the inner end terminates in such situation that there is no practicable navigation between it and the high-water line of the adjacent coast, in which case no inner light shall be displayed. The outer light shall be white, and the inner light shall be red. The size, capacity, and manner of maintenance of the lights shall be such as may be specified in the War Department permit authorizing the erection of the structure or appliance.

When several structures or appliances are placed on one line with no navigable passage between them, they will be considered, for lighting purposes, as one structure.

LOBSTER POTS

The inland waters described in this Pilot, particularly those from St. Croix River to the vicinity of Portland, contain numerous lobster pots. Painted wooden buoys, secured by small lines, float on the surface. These buoys extend from the shore out to, and in many cases across the sailing routes. Small yachts and motorboats are cautioned against fouling, which is liable to result in a fouled wheel or sprung shaft or propeller.

WEATHER

Prevailing winds.—The prevailing winds are southwesterly during the summer and northerly during the winter. At all seasons the heaviest gales are generally from northeastward or eastward. (See also the meteorological tables in the appendix.)

Fogs are the dread of the navigator on this coast in summer and may occur at any season. They are liable to set in at any time, often with almost no warning. They are of frequent occurrence during June, July, and August, and the months of May and September are not free from them. Some portion of this period invariably has much thick weather, while other portions may be free from it. Fogs have been known to last 3 weeks, almost without intermission. At the heads of the bays and within the rivers it is often comparatively clear when thick outside. The fog of such interior waters usually clears throughout the middle of the day. Winds from east to southwest, by the way of south, are those which bring in fog; westerly and northerly winds clear it away.

Under this heading scarcely any rule can be made that is not subject to frequent exceptions, and those who have the most experience in the matter are the least apt to make predictions. It is usually the case, however, that a fall of the barometer below 30 inches during

a fog will be followed by the lifting of the fog. If a wisp of mist is to be seen hanging over Mount Desert or over the Camden Hills, whether otherwise clear or not, the following day is usually foggy.

Ice.—The extent to which the harbors of Maine are closed to navigation by ice varies greatly in different years. During some winters most of the harbors are open, while in others the only harbors available for anchorages are Quoddy Roads, Eastport, Little River, Machias Bay (above Avery Rock Lighthouse), Mistake Harbor (not much used), Winter Harbor, and Boothbay Harbor. Portland Harbor generally has an open channel in winter, kept so by steamers and tugs. The mouths of the rivers are generally avoided for anchorage in winter and early spring on account of running ice. In the bays and harbors the ice formation is mostly local; beginning at the head, in sheltered places along the shore, it extends outward. During a calm or light winds from northward the local formations rapidly increase, while strong winds break them up and force them as drift ice onto the lee shore. The tidal currents do not prevent the formation of ice or influence its movement in strong winds except in the larger rivers.

In severe winters some of the harbors south of Cape Ann are closed to navigation by ice, and there is more or less drift ice in all the harbors, in Cape Cod Bay, and on Monomoy and Nantucket Shoals. In the principal harbors, steamers and tugs usually keep a channel open. See "Ice" under the different headings.

Storm warnings are displayed by the United States Weather Bureau at numerous places on the coasts of the United States and the Great Lakes.

They are also displayed by the United States Coast Guard cutters and patrol boats operating in harbors and offshore areas from New London, Conn., to Cape May, N. J.

All storm warning display stations in the area covered by this coast pilot are tabulated in the Appendix.

Northeast storm warning.—A red pennant above a square flag with black center displayed by day, or two red lanterns, one above the other, displayed by night, indicate the approach of a storm of marked violence with winds beginning from the northeast.

Southeast storm warning.—A red pennant below a square red flag with black center displayed by day, or one red lantern displayed by night, indicates the approach of a storm of marked violence with winds beginning from the southeast.

Southwest storm warning.—A white pennant below a square red flag with black center displayed by day, or a white lantern below a red lantern displayed by night, indicates the approach of a storm of marked violence with winds beginning from the southwest.

Northwest storm warning.—A white pennant above a square red flag with black center displayed by day, or a white lantern above a red lantern displayed by night, indicates the approach of a storm of marked violence with winds beginning from the northwest.

Hurricane, or whole gale warning.—Two square flags, red with black centers, one above the other, displayed by day, or two red lanterns, with a white lantern between, displayed by night, indicate the approach of a tropical hurricane, or one of the extremely severe and dangerous storms which occasionally move across the Great Lakes and Atlantic coast.

Small-craft warning.—A red pennant indicates that moderately strong winds that will interfere with the safe operation of small craft

are expected. Small-craft warnings are flown at night (as well as during the day) to insure a visual display at dawn.

INLAND WATERWAYS

The **Intracoastal Waterway** affords a protected route, with the exception of various sections, for vessels between Boston, Mass., and the Rio Grande, a distance of approximately 3,100 miles. No toll is charged for passage as the waterway is under Federal jurisdiction. Navigation is restricted, however, by the limiting depths, and horizontal and vertical clearances in the various sections of the waterway.

Boston to New York Harbor.—Information regarding the waterways between the Cape Cod Canal and New York Harbor is given in detail in the text of volume B, Coast Pilot, Cape Cod to Sandy Hook.

New York Harbor to Delaware Bay.—An outside run between New York Bay and Delaware Bay is now necessary. Vessels whose draft permits use of the New Jersey Inland Waterway may shorten the run outside.

The Intracoastal Waterway formerly extended from New York Bay through the Raritan River, the Delaware and Raritan Canal, and the Delaware River to Delaware Bay. This route is discontinued due to the permanent closing of the Delaware and Raritan Canal.

Inside Route Pilot.—The Intracoastal Waterway from New York to Key West is described in the Inside Route Pilot published by the United States Coast and Geodetic Survey.

Intracoastal Waterways.—For the benefit of commercial navigation, yachting interests and others, an annual pamphlet giving prevailing conditions in the Intracoastal Waterways from Boston, Mass., to the Rio Grande, Tex., is published by the Chief of Engineers, War Department, Washington, D. C.

Monthly bulletins giving existing conditions in the Cape Cod Canal, Chesapeake and Delaware Canal, the various sections of the Intracoastal Waterway southward of Norfolk, Okeechobee Cross-Florida Waterway, and sections of the Intracoastal Waterway along the Gulf coast, are published by the various District Engineers having the supervision and charge of maintenance and improvement of these waterways. These bulletins may be had upon application, from the United States District Engineer offices located at Boston, Philadelphia, Norfolk, Wilmington (N. C.), Charleston, Savannah, Jacksonville, Mobile, New Orleans, and Galveston.

New York State Canal System.—The New York State Barge Canal, known as the Erie Canal, affords an all-water route from the Hudson River on the east to Lake Erie. The canal is free for the use of both commercial and pleasure vessels. The canal was constructed for a depth of 12 feet throughout. Barges loaded to about 11 feet use the canal with safety.

There are 35 locks, the usable dimensions being 300 feet in length, 44½ feet in width, and 12 feet over the sills. The controlling clearance under fixed bridges is about 14½ feet.

If bound to Lake Ontario, the Erie Canal is followed to Three Rivers Point where the canalized Oswego River is entered and fol-

lowed to Oswego on Lake Ontario. There are seven locks in the Oswego Canal, which is 24 miles in length. The locks are the same dimensions as those in the Erie Canal.

Troy to St. Lawrence River.—The Champlain Canal, Lake Champlain, and the Richelieu River afford an all-water route from Troy to the St. Lawrence River. The size of vessels using this route is limited by the locks in the Chambly Canal (Canadian), which have usable dimensions of 118 feet in length, 22 feet in width, and 6½ feet of water over the sills. The locks of the Champlain Canal are the same design as those in the Erie Canal. The distance from Albany to Montreal via this route is 309 statute miles. The Canadian Government requires permits or let-passes from pleasure boats entering Canadian waterways, which may be obtained at their canal statistical offices at St. Johns and Prescot. American vessels when leaving Canada should report at the customs office.

Charts of the Erie Canal, Champlain Canal, Lake Champlain, and Great Lakes are published by the United States Lake Survey Office, Detroit, Mich., and sections of the New York State canals by the Superintendent of Public Works, Albany, N. Y.

Ice.—Navigation in the upper Hudson River and the New York State Canal System is usually obstructed by ice from the middle of December to the latter part of March.

The Lakes to Gulf Waterway by way of the Illinois Waterway System and the Mississippi River affords passage for vessels from Chicago on Lake Michigan to the Gulf of Mexico, a distance of 1,630 statute miles.

Charts of the Mississippi River may be obtained from the office of the Mississippi River Commission, Box 665, Vicksburg, Miss.

Ice.—Navigation of the Illinois Waterway System is stopped by ice from about December 1 to March 1, and in the section of the Mississippi River between Grafton and Cairo usually between December 15 and February 15.

Chapter 3.—GULF OF MAINE, GENERAL DESCRIPTION

OFFSHORE SHOALS AND BANKS

(CHARTS 70, 1000, 1106)

The great indentation of the coast between the British Province of Nova Scotia on the northeast and Massachusetts on the southwest, which includes the Bay of Fundy and Massachusetts Bay as subsidiary features, has received the general designation "Gulf of Maine." It is shown on charts 70, 1000, 1106, and 1107.

On account of its changeable weather, frequent fogs, and strong tidal currents, this locality has a bad reputation among mariners. (For offshore current observations see page 40 and charts 70, 1107, 3075, and 3076.)

The bottom in the Gulf of Maine is irregular, and the depths are so variable that it is quite impossible to determine a vessel's position by soundings alone, but the navigator will find a frequent use of the lead of the greatest assistance in approaching both Georges and Brown Banks from southward and eastward, the bottom slope on that side being well defined.

The principal offshore dangers are Nantucket Shoals, Georges and Cultivator Shoals, both a part of Georges Bank; and Ammen Rock, a part of Cashes Ledge.

Nantucket Shoals (chart No. 1107) is the general name of the numerous different broken shoals which lie southeastward of Nantucket Island and make this one of the most dangerous parts of the coast of the United States for the navigator. These shoals extend 23 miles eastward and 39 miles southeastward from Nantucket Island, are shifting in their nature, and the depths vary from 3 and 4 feet on some to 4 and 5 fathoms on others, while sloughs with depths of 10 fathoms or more lead between those farthest offshore. The easterly edge of the shoals has depths of 4 and 4½ fathoms in places, and trends 166° true from latitude 41°18′ N., longitude 69°29′ W., to latitude 40°57′ N., longitude 69°22′ W. **Asia Rip,** the southeasternmost danger, has a least depth of 6 fathoms in latitude 40°48′ N., longitude 69°22′ W. Deep-draft vessels should pass southward and eastward of Asia Rip, and eastward of the easterly edge of the shoals as defined above. For a distance of 15 miles eastward and southeastward and 17 miles southward from Nantucket Island, the shoals have depths less than 16 feet, and this area should be avoided by all vessels. The tidal currents are strong, and variable in direction, forming extensive rips and broken water over the shoals.

Nantucket Shoals Lightship, the leading mark for vessels passing southward of Nantucket Shoals, is moored in 30 fathoms off the southern end of the shoals. The light is 65 feet above the water and visible 14 miles. The fog signal is an air oscillator. There is a submarine oscillator. A radiobeacon is operated at the lightship. The radiobea-

con and the submarine oscillator are synchronized for distance finding purposes. For details, see the Atlantic Light List.

The station receives and transmits radio messages call letters WPS. Weather signals are flown during daytime.

Georges Bank (Chart 1107) (also shown on special charts for fishing industry, Nos. 3075 and 3076) is an extensive bank with depths of less than 50 fathoms, extending for over 150 miles northeastward from the offshore end of Nantucket Shoals.

In heavy weather the **danger area** may be considered to be the oval-shaped top of the bank which is about 80 miles long in a northeast and southwest direction and which has a maximum width of about 50 miles. The bottom within this area is extremely broken and irregular, with a great number of ridges and shoal spots with depths of less than 10 fathoms. Between these shoals are channels of varying widths in which depths of about 20 fathoms may be found. All of this area lies within the 30-fathom curve and so much of it has depths of less than 20 fathoms that it may practically all be considered to lie within a generalized 20-fathom curve.

On the southeast side of the bank, outside the 20-fathom curve, the water deepens gradually and with such regularity that soundings would be of considerable value in approaching the bank. On the northwest side the water deepens more rapidly.

The bottom is generally of sand, sometimes with shell, and in places pebbles. Bottom samples as obtained during surveys are described in a great many places on Charts 3075 and 3076. Fewer are shown on Chart 1107.

The two **principal dangers** on the bank are Georges Shoal and Cultivator Shoal, which are located near the center of the area referred to above. **Cultivator Shoal** is a ridge nearly 15 miles long, on which depths of from 3 to 10 fathoms are found. The 3-fathom spot is near the north end of the shoal and is marked by a black whistle buoy located in approximate latitude 41°40′ and longitude 68°12′. About 20 miles east of Cultivator Shoal is **Georges Shoal,** which is another ridge about 13 miles long and on which there are several shoal soundings of 2¼ fathoms and 3 fathoms. In the locality of these shoals the sea in heavy weather breaks in 10 fathoms and the locality should be avoided by deep draft vessels.

The entire area within the 20-fathom curve has an extremely broken bottom. There are numerous ridges and shoal spots on which depths dangerous to navigation, particularly in heavy weather, may be found. These shoal spots generally have steep sides and very little or no indication is given by soundings. **Tide rips** and **swirls,** as well as **overfalls,** are common in the locality of these spots. These tidal swirls, etc., are not always visible. They show best with a smooth sea and with the current flowing in certain directions. These disturbances are not usually over the shoalest depths but are commonly alongside them. Small, detached overfalls may be seen in 20 fathoms of water.

Caution.—A navigator must bear in mind while navigating in an area of this character that it is impossible for the surveyor, without a vast expenditure of time, to determine and locate all of the shoalest spots on the many dangerous shoals found. Sudden shoaling on a

bank of this character must be considered an indication of possibly dangerous water. This bank has not been wire-dragged.

Special charts for the fishing industry, Nos. 3075 and 3076, show Georges Bank on a considerably larger scale and in much more detail than it is shown on Chart No. 1107. Current diagrams are given on all three charts. The fishing charts do not include any land areas. Courses and distances are shown on them from different parts of the Bank to Peaked Hill Bar Lighted Whistle Buoy. These charts also show, in their margins, the true bearings from five radio direction finder stations that are available for use in this locality.

Offshore canyons (Chart 1107).—The navigator who has available for use some means of echo sounding should have in mind the various canyons found in the edge of the continental shelf in this locality. To the eastward of Georges Bank are **Corsair Canyon** and **Atlantis Canyon.** To the south and southwestward of the bank there are the **Lydonia Canyon, Gilbert Canyon, Oceanographer Canyon, Welker Canyon,** and **Hydrographer Canyon.** These canyons are indentations in the edge of the continental shelf which indent the 100-fathom curve. The soundings in crossing them are very characteristic in each case and such soundings may be used to determine the vessel's position with considerable accuracy.

Brown Bank (Chart 1000) lies between the northeast end of Georges Bank and Cape Sable. The bank is about 50 miles long in a northwest direction and its greatest width is nearly 30 miles. Depths on it vary from 14 to 50 fathoms, the 14-fathom spot lying near its western end.

German Bank (Chart 1106), lying about 30 miles westward of Cape Sable, has depths of from 25 to 30 fathoms.

Cape Sable (Chart 1000) is well lighted, and the principal dangers off it, **Brazil Rock** and **Blonde Rock,** are marked by lighted buoys. There is a light on the southern Seal Island to the westward of the cape.

Lurcher Shoal (Chart 1106), marked by a lightship, lies about 15 miles west of **Yarmouth** and has a least found depth of 1½ fathoms. It is the most westerly danger off the coast of Nova Scotia in the approach to the Bay of Fundy.

Grand Manan Bank (Chart 1106), lying off the entrance to the Bay of Fundy and midway between the coast of Nova Scotia and the coast of Maine, has depths of from 16 to 36 fathoms. Shoaler depths have been reported. A good check on the position of a vessel may be obtained by soundings on this bank and the bank just south of it.

Grand Manan Channel.—This channel leads along the coast of Maine, between it and Grand Manan Island, and is an approach from westward to Quoddy Roads and Passamaquoddy Bay, and the most direct passage for vessels bound up the Bay of Fundy from along the coast of Maine. The channel varies in width from 5½ miles abreast Campobello Island to 10 miles abreast Southwest Head, the southwestern point of Grand Manan Island. Its western approach is marked by Machias Seal Island Lighthouse, which also marks the westernmost of the rocks and ledges which lie southwestward of Grand Manan Island. With the exception of the dangers between

Machias Seal Island and Grand Manan Island, the channel is free and has a good depth of water. The tidal currents have a velocity of 2½ to 3 knots and follow the general direction of the channel. Off West Quoddy Head the currents set in and out of the roads, forming strong rips. Sailing vessels should not approach West Quoddy Head too closely with a light wind.

It is reported that the **fogs** often hang close in to the Maine coast between Machias Bay and West Quoddy Head, extending about one third the way across Grand Manan Channel, while the rest of the passage may be entirely clear of fog.

Cashes Ledge, with depths less than 30 fathoms, is about 6 miles long. **Ammen Rock,** with 4¼ fathoms over it, is near the middle of the ledge in latitude 42°53′ N., longitude 68°55′ W. There is a whistling buoy on the east side. The sea breaks over this rock in heavy weather.

Fippennies Ledge, with a least known depth of 39 fathoms, lies about 16 miles west of Ammen Rock.

Jeffreys Bank has a least found depth of 46 fathoms, and lies about 26 miles southward of Matinicus Rock Lighthouse. Less depths have been reported by fishermen.

Platts Bank has a least found depth of 29 fathoms.

Banks with depths of 45 to 50 fathoms have been reported by fishermen about 10 miles northwestward, 10 miles northeastward, and 15 miles eastward of the shoalest part of Platts Bank.

Jeffreys Ledge makes northeastward from Cape Ann, and has general depths on it of from 18 to 30 fathoms and more. The northeastern point of the ledge is 22 miles eastward of Boon Island Lighthouse. There is a red whistling buoy located on the ledge about 32 miles east-northeastward of Cape Ann.

Stellwagen Bank lies northward of Cape Cod and off the entrance to Massachusetts Bay; the least found depths over it are from 9 to 20 fathoms, but fishermen have reported a depth of 7 fathoms at the north end.

CURRENTS, GULF OF MAINE

Offshore.—The current over the region extending westward and northward of a line from Georges Bank to Lurcher Shoal is very nearly simultaneous.

The current movement is generally rotary in character, the direction of flow changing continuously in a clockwise direction with no period of slack water.

The maximum flood sets northward about 3 hours after the time of low water at Boston. The maximum ebb sets southward about 3 hours after the time of high water at Boston. The minimum current before flood sets westward about the time of low water at Boston, and the minimum current before ebb sets eastward about the time of high water at Boston.

Over Georges Bank the velocity at strength varies from about 1 knot to 2 knots. The velocity of the minimum current which occurs midway between the times of strength is usually about one-half the velocity at strength. The hourly velocities and directions of the tidal current for a number of locations in the vicinity of Georges Bank are given in the Atlantic Coast Current Tables and are also

shown by means of current roses on Coast and Geodetic Survey Charts Nos. 70, 1107, 3075, and 3076. The hourly velocities and directions given in the current tables and indicated by the current roses are referred to the times of maximum flood at Pollock Rip Channel, daily predictions for which are included in the Atlantic Coast Current Tables.

Between Georges Bank and Brown Bank the velocity at strength is about 1½ knots, with a like velocity between Brown Bank and Cape Sable Bank.

Off Nova Scotia, outside the 50-fathom curve, the velocity at the time of strength is about 1½ knots; inside the 50-fathom curve the velocity is between 1½ and 2½ knots.

At the entrance of the Bay of Fundy, 5 miles southeastward of Gannet Rock, the strength of the flood current occurs about 3 hours before high water at St. John, New Brunswick, has an average velocity of about 2½ knots, and sets 40° true.

The strength of ebb occurs about 3 hours before low water at St. John, has an average velocity of about 4 knots, and sets 230° true.

Slack water before the flood occurs about ½ hour after low water at St. John. Slack water before the ebb occurs about the time of high water at St. John.

In Grand Manan Channel the average velocity at strength is about 2½ knots, the flood setting northeastward and ebb southwestward, approximately parallel to the channel. Slack water before the flood occurs at about the time of low water at St. John, and slack water before the ebb about ½ hour after high water at St. John. The predicted times of slack water and times and velocities of strength of flood and ebb for every day in the year are given in the Atlantic Coast Current Tables.

In the Bay of Fundy slack water before the flood occurs about ¾ hour after low water at St. John. Slack water before the ebb occurs about ¾ hour after high water at St. John. The velocity at strength is between 1½ to 2 knots, the flood setting northeastward and the ebb southwestward.

Eastward of Mount Desert the currents have a greater velocity than farther west, but are more regular in their ebb and flow, conforming more exactly to the rise and fall of the tides. **Along the coast between Mount Desert and Portland** the effect of the westerly (ebb) set is more marked as compared with the flood than is the case farther east.

With easterly or southeasterly winds the currents have more of a tendency on shore than at other times, but they are not affected much by northerly, westerly, or southerly winds.

No systematic current observations have been made along the coast of Maine, except at Portland Lightship.

Portland Lightship.—The tidal current is weak, being on the average less than ¼ knot at time of strength, setting 335° true on the flood and 140° true on the ebb. Since the tidal current is weak, currents of 1 knot or more occur only with strong winds.

Boston Lightship.—The tidal current is weak, averaging less than ¼ knot. Because of the weak character of the tidal currents the

winds greatly influence the direction of the current. The greatest velocity observed during summer and autumn was less than 1 knot.

The currents along the eastern side of Cape Cod and across Monomoy and Nantucket Shoals are described in Atlantic Coast Pilot, Section B.

Over Stellwagen Bank, and in the channel between it and Cape Cod, the flood currents sets westward and the ebb northeastward to eastward. The velocity at strength increases from about ¼ knot at the northern end of the bank to over 1 knot at the southern end.

Alongshore.—On the coast of Maine eastward of Portland the flood sets eastward and has greater velocity than the ebb, which sets westward. In passing from one headland to another it is always necessary to make allowance for the current setting into or out of the bays or rivers, according to the stage of the tide; such allowance frequently amounts to as much as ½ point.

GENERAL DESCRIPTION OF COAST

The coast from West Quoddy Head to Penobscot Bay is generally rocky and indented by numerous large bays and many excellent harbors. Numerous islands lie along the shore, among which are passages that are much used by vessels, usually of less than 12 feet draft, as they afford anchorage in a head wind, or in thick weather. The many boulders, rocks, and ledges which lie along and off this coast require the closest attention of the navigator, as in many cases they rise abruptly from deep water and the lead does not generally give indication of their proximity until too late to avoid them. The navigator should also remember that the average rise of spring tide at Rockland is 11 feet, at Millbridge 13 feet, and at Eastport 21 feet, and that a vessel may sometimes pass over places at high water on which she would bring up at low water.

Between Penobscot Bay and Cape Elizabeth the coast is rocky and very much broken by numerous bays and rivers, many of which are excellent harbors. In Muscongus and Casco Bays good channels lead between the islands, affording inside passages that are much used by the smaller class of vessels passing along the coast. Great caution is necessary when standing along this stretch of the coast in thick weather, on account of the numerous dangers which in some cases lie nearly 10 miles off shore.

Between Cape Elizabeth and Portsmouth there are fewer harbors and marked indentations. The shore is more thickly settled than farther eastward, several of the beaches being popular summer resorts. The outlying dangers are well marked and fewer in number.

Southward of Portsmouth the coast is low and generally a sandy beach, with a few outcropping ledges and outlying dangers, but the northern shore of Cape Ann is high and rocky.

Between Cape Ann and Plymouth entrance the coast is rocky, generally bold, with numerous islands, dry rocks, boulders, and sunken ledges lying near the shore, with deep channels between. The shores of **Cape Cod Bay** are generally sandy, with extensive sand shoals extending out well from the shore in many places. Boulders also occur in places in Cape Cod Bay.

Appearance of coast.—The coast between West Quoddy Head and Little River presents no special features; westward of Little River

the shore is broken by bays and islands, and continues to be so to Whitehead. Grand Manan Island has nearly perpendicular, dark, rocky faces about 200 feet high on its western side. Pigeon Hill on the western side of Pigeon Hill Bay, near the head, is 307 feet high. Schoodic Head, near the south end of Schoodic Peninsula, the eastern point at entrance to Frenchman Bay, is 437 feet high.

Cadillac Mountain, the highest on Mount Desert Island, is 1,532 feet high and the most prominent landmark on this part of the coast; there are other mountains nearly as high near it. Isle au Haut is 556 feet high near its northern end and is on the eastern side of the entrance to East Penobscot Bay. The Camden Hills (Mount Megunticook), 1,380 feet are on the western side of Penobscot Bay, above the town of Camden. Monhegan Island, lying 9¼ miles from the mainland, is 160 feet high and a mark for all vessels bound into Penobscot Bay from westward. Seguin Island lies about 2¼ miles from the mainland off the mouth of the Kennebec River; the island is about 145 feet high and a mark for vessels bound into the river or standing along the coast.

Cape Elizabeth, the southern point at the entrance to Portland Harbor, is about 90 feet high and marked by a lighthouse and an unused light tower. A tall elevated water tank near the mouth of the Saco River, is the most prominent landmark between Portland and Portsmouth. Agamenticus Mountain is 673 feet high and the most prominent land feature between Portland and Cape Ann. It is about 4½ miles inland and 9 miles northeastward of Portsmouth. The Isles of Shoals, lying about 5½ miles from the coast and southeastward of Portsmouth Harbor entrance, can be seen a long distance, the large hotels being conspicuous marks. Boon Island Lighthouse is about 9 miles northeastward of the Isles of Shoals and about 6½ miles offshore. Cape Ann, at its northern end, is high, but its eastern end is comparatively low. The two light towers on Thacher Island are the most conspicuous marks seen when approaching the cape

The land southward of Cape Ann is comparatively low, well settled, and has numerous artificial marks. The prominent objects visible in approaching Cape Cod are described on page 315.

In the approaches to Boston Harbor the most prominent landmarks are: two radio towers Nantasket Beach, tower Nantasket Hill, standpipe Winthrop Head, Boston Customhouse tower, and gas tanks at Chelsea and Dorchester.

Wrecks.—An examination of the record of wrecks occurring on the coast of Maine **eastward of Portland** shows that wrecks have occurred on practically all of the offlying islands and rocks between Portland and Machias Bay, most of them in thick weather, either fog or snow. Many of the wrecks could have been prevented if frequent soundings had been taken.

During thick weather great caution is necessary when approaching the coast, especially eastward of Petit Manan, where the tidal currents have considerable velocity. If one of the offshore lighthouses has not been made and the position accurately determined before the fog shuts in, it is advisable to keep well outside until it clears. East of Seguin Island, except southward and eastward of Grand Manan Island, in clear weather the land will always be made before any of the outlying dangers are encountered, and by keeping 3 miles

outside of the headlands and outlying islands vessels will clear all unmarked dangers.

South of Portland the wrecks have occurred most frequently on the prominent headlands or the shoals off them, viz, Cape Elizabeth, Cape Ann, and the north side of Cape Cod, with less frequent wrecks on the less prominent headlands. Numerous wrecks have also occurred on the dangers in the approaches to Boston Harbor, more frequently on the south side, from Scituate to Point Allerton. Most of the wrecks have occurred during thick weather.

Between Portland and Boston the most dangerous points for coasting vessels are the dangers off Cape Elizabeth, Boon Island, Isles of Shoals, Cape Ann, and the dangers in the entrance of Boston Harbor. Vessels must depend upon making the fog signals or the whistling and bell buoys, and when approaching them should proceed slowly, using the lead, and if necessary stop until the looked-for aid is found and recognized before continuing for the next aid. The soundings in the vicinity of Cape Ann are very irregular and cannot be depended upon to locate even approximately the vessel's position.

The numerous strandings on the north end of **Cape Cod,** between Cape Cod Lighthouse and Race Point Lighthouse, have usually occurred to vessels approaching Massachusetts Bay or Cape Cod Bay from southward or eastward in thick weather. Keeping in a greater depth than 20 fathoms will insure giving the eastern side of Cape Cod a berth of 2½ miles, and if this depth is followed will lead to Peaked Hill Bar lighted whistle buoy, northeastward of the end of the cape.

Anchorages.—Between West Quoddy Head and Portland, anchorages are numerous, those most frequently used by coasting vessels being Little River, Starboard Cove, Englishman Bay, Narraguagus Bay, Winter Harbor, Southwest Harbor, Rockland Harbor, Port Clyde, Boothbay Harbor, and Portland Harbor. Southward of Portland the only anchorages available for large vessels are in the harbors of Portsmouth, Gloucester, Salem, Boston, Plymouth, and Provincetown. There are other harbors available for small vessels and motorboats, as mentioned under the description.

SURVEYS

Character of the bottom.—The entire area within the limits of this volume is a region of ledges and boulders. The ledges rise abruptly from deep water and the boulders ordinarily lie singly or in clusters on an otherwise flat bottom, so that the navigator cannot depend on the lead to avoid them. *As a measure of safety, vessels should avoid broken ground where abrupt changes in depth are indicated by the chart to depths less than 10 or 12 fathoms; and in places dangers have been found where least depth of as much as 20 fathoms were the only indications found by the lead line survey. It is always safest, therefore, to select a sailing line from the chart which leads in the deepest water and well clear of broken ground.* There is little natural change in the shore or shoals, except in places in Cape Cod Bay, where the shores are generally sandy and sand shoals extend off from them in places. Boulders also occur in places, however, in Cape Cod Bay.

Wire-drag surveys.—In all areas mentioneed above as rocky or regions of boulders the ordinary survey with the lead line cannot be relied upon to locate all dangers. In such areas a wire-drag survey, in which a horizontal wire is suspended at a known depth below the surface and dragged across the area, is the only means of locating all dangers.

At the end of 1940 the areas examined by means of a wire drag were as follows:

Friar Roads to Shackford Head, Head Harbor Passage to sea, Western Passage and area to Navy Island, and all of Passamaquoddy Bay.

The sea approaches from West Quoddy Head to the entrance of Head Harbor Passage.

Winter Harbor and the main part of Frenchman Bay from just southward of Egg Rock Lighthouse to the entrance of the tributaries at the head.

Parts of Blue Hill Bay and Jericho Bays.

The main channels through Eggemoggin Reach, Deer Island Thorofare, and Merchant Row.

An irregular area southward of Great Wass and Head Harbor Islands and extending from off Libby Islands to within 5 miles of Southeast Rock.

Penobscot Bay from southward of Matinicus Island to the entrance of Penobscot River, including the main channels through Fox Islands Thorofare.

Muscle Ridge and two Bush Channels and the channel westward from them to Mosquito and Metinic Islands.

Portland Harbor and approaches from Fort Gorges out to the general 18-fathom curve, the eastern limit being 3 miles eastward of Halfway Rock.

The main channel of Portsmouth Harbor and the broken ground off the entrance.

A section along the coast extending from about 5 miles south of Isles of Shoals to Cape Elizabeth and a short distance eastward of Isles of Shoals and Boon Island Ledge.

Broken ground along the coast from Cape Ann to the entrance of the Cape Cod Canal, out to a distance varying from 4½ to 7 miles offshore and including the approaches to the harbor of Beverly and Salem.

A part of the approaches to Boston Harbor.

The wire drags used by the Coast and Geodetic Survey in sweeping for dangers to navigation 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 towline approaches the surface of the water. Steamers passing over the drag are requested to change 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.

No attempt should be made to pass between the wire drag launches while the wire is being set out or taken in, unless it would endanger a vessel to do otherwise. In setting out or taking up the wire drag, the tension on the bottom wire is released and the floats at each 100-foot section may cause the wire to be held near the surface. At the time the launches are usually headed either directly toward or away from each other and the operation of taking up or setting out may usually be clearly seen.

Special signals for surveying vessels.—The following signals have been prescribed for vessels of the United States engaged in hydrographic surveying:

By day a surveying vessel of the Coast and Geodetic Survey, under way and employed in hydrographic surveying, may carry in a vertical line, one over the other not less than 6 feet apart where they can best be seen, three shapes not less than 2 feet in diameter of which the highest and lowest shall be globular in shape and green in color and the middle one diamond in shape and white.

Vessels of the Coast and Geodetic Survey shall carry the above described marks while actually engaged in hydrographic surveying and under way, including drag work. Launches and other boats shall carry the prescribed marks when necessary.

By night a surveying vessel of the Coast and Geodetic Survey, under way and employed in hydrographic surveying, shall carry the regular lights prescribed by *The Rules of the Road.*

A vessel of the Coast and Geodetic Survey, when at anchor in a fairway on surveying operations, shall display from the mast during the daytime two black balls in a vertical line and 6 feet apart. At night two red lights shall be displayed in the same manner. In the case of a small vessel the distance between the balls and between the lights may be reduced to 3 feet if necessary.

Such vessels, when at anchor in a fairway on surveying operations, shall have at hand and show if necessary in order to attract attention a flare-up light in addition to the lights which are, by this regulation, required to be carried.

In addition to the signals described, vessels of the U. S. Coast and Geodetic Survey when engaged in survey work often hoist one of the following International Code signals:

"HD" signifying "I am engaged in submarine work, you should keep clear of me."

"HF" signifying "I have a sweep out, you should keep clear of it."

"ONA" having the same meaning as the two letter hoist "HD."

Chapter 4.—ROUTES AND SAILING DIRECTIONS

APPROACHING OR STANDING ALONG THE COAST OF MAINE, EASTWARD OF PORTLAND

This section of the coast is a dangerous one for navigators on account of the strong tidal currents, frequent fog, and numerous off-lying dangers. For information concerning currents see page 40, and for information concerning fog see page 33 and the meteorological tables in the appendix. The lead is of little assistance to locate the position, but should be in constant use to prevent too close an approach to dangers. See a discussion of the character of the bottom on page 44.

Coming from the vicinity of Cape Sable.—Vessels bound to Machias or ports eastward of it should make Machias Seal Island Lighthouse and pass westward of it. If bound to Eastport or Calais, the route through Grand Manan Channel is preferable to passing eastward of Grand Manan, as in case of bad weather coming on an anchorage may be made either at Little River or in Machias Bay.

It is not advisable for a stranger to pass eastward of the Machias Seal Island or between it and Grand Manan, where there are a number of ledges on which the sea breaks in heavy weather, including **Bull Rock,** an unmarked danger with 2 feet over it.

If bound to ports in Penobscot Bay, vessels should steer so as to make either Mount Desert Lighthouse or Matinicus Rock Lighthouse. In the former case, on a clear day, Cadillac Mountain, the highest part of Mount Desert Island, may be sighted before the lighthouse. When steering for Matinicus Rock Lighthouse, Isle au Haut, 556 feet high, on a clear day may be sighted about the same time as the rock.

Coming from the vicinity of Cape Cod or Cape Ann.—Vessels, both steamers and large tows, bound into Penobscot Bay, including those coming from Boston and Cape Cod Canal, and also those passing eastward of Cape Cod, usually make the lighted whistling buoy off Cape Ann and then shape the course for Manana Island lighted whistling buoy and enter through Two Bush or Muscle Ridge Channels. In the winter and in bad weather the smaller class of vessels follow the coast, sighting the principal lighthouses, and making an anchorage on approach of bad weather. Vessels bound from Cape Cod or Cape Ann to points eastward of Penobscot Bay usually shape the course from Cape Ann to either Monhegan Island or Matinicus Rock Lighthouses.

On all the banks in or near the Gulf of Maine a number of fishing vessels may be found at anchor. They are sometimes very numerous on the Georges Bank, and Jeffreys Ledge. In the summer a large fleet of mackerel fishermen will often be met near the coast between Mount Desert Rock and Cape Ann.

Boston to Yarmouth.—Vessels of the Eastern Steamship Co. plying between Boston and Yarmouth make a practice of passing southward of Cashes Ledge on the outward trip and northward of Cashes Ledge on the homeward or southward trip.

Standing along the coast.—In clear weather, vessels stand along the coast close enough to make the lighthouses and to recognize the principal landmarks on shore. In thick weather they aim to make the fog signals or the whistling or bell buoys; these buoys are placed close enough to one another and to the fog signals to be readily followed up by vessels if not set too much off their course by the tidal currents. When running in thick weather a vessel should verify her position as often as possible by the aids, and when approaching a fog signal or buoy should proceed slowly, using the lead, and if necessary stop until the looked-for aid is found and recognized before she continues for the next aid. There are three good harbors for which a stranger standing along the coast in their vicinity can make in thick weather and enter with ordinary precaution—Machias Bay, Winter Harbor, and Boothbay Harbor.

Vessels equipped with radio should make free use of the radiobeacons and direction finder stations. In addition, the Canadian Government maintains radiobeacon stations at Seal Island Light and Lurcher Lightship, and a radio direction finder station at Yarmouth, call letters VAU.

APPROACHING OR STANDING ALONG THE COAST BETWEEN PORTLAND AND CAPE COD

Approaching Massachusetts Bay from sea.—The approach to the coast of Massachusetts north of Cape Cod is through the Gulf of Maine, the body of water lying westward of a line drawn from Cape Cod to Cape Sable. Between these points, and forming the southeastern limit of the Gulf, lie Nantucket Shoals, Georges Bank, and Brown Bank, areas over which there is a depth of less than 50 fathoms. Nantucket Shoals and Georges Bank, on account of their many shoal spots and the strong tidal currents setting over them, are a menace to navigators approaching the coast or standing from Canadian ports to New York.

As far as the navigator is concerned, Brown Bank need not be avoided; it may even assist, from soundings, to approximately locate a vessel's position.

The part of Georges Bank lying between latitude 41°05′ N., and 42°00′ N., and longitude 67°17′ W. and 68°35′ W. should be avoided; in heavy weather the sea breaks on the spots with 10 fathoms or less, and strong tide rips are encountered, the latter, however, not always indicating shoal water. For current information see page 40.

Vessels passing south of the dangerous part of Georges Bank should not shoal the water to less than 25 fathoms. Approaching this part of the bank from eastward or southward, the water shoals gradually. Approaching from westward, the depths are irregular and the water shoals abruptly in places of 20 fathoms or less. On the north side of Georges Bank, between longitude 66°00′ W. and 68°00′ W., the 100-fathom and 50-fathom curves are but a few miles apart, and when approaching the dangerous part of the bank from

northward 50 fathoms may be taken as a good depth to avoid the shoals.

During the recent survey of Georges Bank, numerous large steamers were observed on tracks which lead dangerously close to the shoals on the bank.

Vessels equipped with echo sounding and following the 100-fathom curve along the south side of Georges Bank, can frequently verify their position when crossing the several submarine gorges which were discovered and charted during the recent survey of the Banks.

The only known outlying danger in the Gulf of Maine to be avoided by vessels bound to ports in Massachusetts is **Ammen Rock,** with 4¼ fathoms, in latitude 42°53′ N. and longitude 68°55′ W. It is a part of Cashes Ledge, which is about 6.5 miles long in a north-northeast direction, with depths less than 30 fathoms.

Vessels from ports in northern Europe or the British Provinces and bound to ports in the United States north of Cape Cod approach the coast passing between Cape Sable and Georges Bank, between latitude 42°00′ N. and 43°10′ N. If bound to Boston, they cross Brown Bank and shape the course for Boston Lightship.

Vessels approaching the Gulf of Maine from southward sometimes endeavor to make the 50-fathom curve on the southern edge of Georges Bank, in latitude 40°20′ N. and longitude 68°50′ W., then stand 0° true on soundings of over 30 and less than 50 fathoms for about 50 miles, and then shape a 323° true course, taking care to keep in a greater depth than 20 fathoms until the course is laid to sight Cape Cod Lighthouse. This lighthouse, Nauset Beach Lighthouse, the skeleton radio towers, and the Pilgrim Monument at Provincetown are the most prominent marks on Cape Cod.

The passage across Georges Bank between the easternmost of the Nantucket Shoals and the westernmost shoal spots of Georges Bank, about 30 miles wide, and has been called **Great South Channel.**

Vessels coming from Cape Hatteras, Chesapeake Bay, Delaware Bay, or New York make Nantucket Shoals Lightship.

A great many vessels use the Cape Cod Canal, see page 318.

Vessels of less than 24 feet draft may, when coming from southward or alongshore, enter the Gulf of Maine through Vineyard and Nantucket Sounds. This route avoids Nantucket Shoals, and is the one followed by vessels in the coasting trade.

Directions for all of the various routes from southward to the north end of Cape Cod are given in Atlantic Coast Pilot, Section B, Cape Cod to Sandy Hook.

Standing along the coast between Portland and Cape Cod.—The lighthouses and other aids to navigation are sufficiently numerous to enable a stranger to run either at night or the daytime in clear weather. There are numerous anchorages where a vessel with good ground tackle can ride out any gale. Of these, Provincetown Harbor is the harbor of refuge most frequently used by vessels approaching Massachusetts Bay from seaward. The navigator, when crossing the banks and when approaching the coast, should not neglect to take soundings at frequent intervals, and vessels equipped with radio and radio direction finders should make use of the several radiobeacons and the radio direction finder stations along the coast.

Sailing Directions

Table 1.—CAPE COD CANAL TO BOSTON LIGHTSHIP—NORTH-BOUND

(This table gives recommended route for north-bound vessels. Another route is recommended for south-bound vessels. See next table.)

CHARTS 1208 AND 1207

Position *Reverse directions in italics*—read upward	True course	Distance
	Degrees	*Nautical miles*
1. Just eastward of the bell buoy off the canal breakwater:		
Course	28	2.4
2. 0.2 mile eastward of lighted bell buoy:		
Course	359	12.8
3. 0.5 mile eastward of vertical striped buoy:		
Course	347	8.5
4. 0.5 mile eastward of Humarock Outer Lighted Bell Buoy: Note.—Change to Chart 1207.		
Course	315	15.0
5. 0.5 mile eastward of Boston Lightship. (If bound to Boston Harbor, see Directions, page 294 to page 295.)		

Table 1A.—BOSTON LIGHTSHIP TO CAPE COD CANAL—SOUTH-BOUND

CHARTS 1207 AND 1208

1. 0.5 mile southwestward of Boston Lightship:		
Course	138	14.6
2. 0.5 mile eastward of Humarock Lighted Whistle Buoy: NOTE.—Change to Chart 1208.		
Course	168	14.2
3. 0.5 mile eastward of lighted gong buoy off Manomet Point:		
Course	174	6.5
4. 0.2 mile westward of lighted bell buoy off canal entrance:		
Course	199	2.2
5. To entrance range of canal at bell buoy off jetties.		

Table 1B.—CAPE COD TO BOSTON LIGHTSHIP

CHART 1207

1. 0.5 mile northward of Peaked Hill Bar Lighted Whistle Buoy:		
Course	295	32.0
Reverse	*115*	*32.0*
2. 0.5 mile northward of Boston Lightship or from Position 1, this table:		
Course	293	31.8
Reverse	*113*	*31.8*
3. 0.5 mile southward of Boston Lightship.		

Table 1C.—CAPE COD CANAL TO CAPE ANN

CHARTS 1208 AND 1207

1. Just eastward of buoy on range at canal entrance:		
Direct	28	2.4
Reverse	*208*	*2.4*
2. 0.2 mile eastward of lighted bell buoy off canal entrance:		
Direct	357	49.0
Reverse	*177*	*49.0*
3. 0.5 mile eastward of lighted whistle buoy off Cape Ann.		

Table 1D.—CAPE COD TO CAPE ANN

CHART 1207

Position *Reverse directions in italics*—read upward	True course	Distance
	Degrees	*Nautical miles*
1. 0.5 mile northward of Peaked Hill Bar lighted whistle buoy:		
Direct	329	35. 8
Reverse	*149*	*35. 8*
2. 0.5 mile eastward of lighted whistle buoy off Cape Ann.		

Table 1E.—ENTRANCE BROAD SOUND NORTH CHANNEL TO CAPE ANN

CHART 1207

1. 0.2 mile eastward of Finns Ledge Lighted Bell Buoy at northern entrance to North Channel:		
Direct	49	24. 0
Reverse	*229*	*24. 0*
2. 0.5 mile eastward of Cape Ann Lighted Whistle Buoy		

Table 2.—BOSTON LIGHTSHIP TO CAPE ANN

CHART 1207

1. One mile east true of Boston Lightship:		
Direct	30	20. 2
Reverse	*210*	*20. 2*
2. 0.5 mile eastward of Cape Ann lighted whistle buoy		

Table 3.—CAPE ANN TO PORTLAND LIGHTSHIP

CHARTS 1206 AND 1205 OR CHART 50

1. 0.5 mile eastward of Cape Ann Light Whistle Buoy:		
Direct	20	56. 8
Reverse	*200*	*56. 8*
2. One mile true east of Portland Lightship, and about 0.2 mile east of the lightship buoy. (If bound to Portland see Directions page 234.)		

Table 3A.—CAPE ANN TO PORTSMOUTH

CHART 1206

1. 0.5 mile east of Cape Ann Lighted Whistle Buoy:		
Direct	341	26. 9
Reverse	*161*	*26. 9*
2. 0.3 mile west of Whaleback Light. (For directions into Portsmouth Harbor, see page 248.)		

Table 3B.—PORTSMOUTH TO PORTLAND LIGHTSHIP

CHART 1205

Position *Reverse directions in italics*—read upward	True course	Distance
	Degrees	*Nautical miles*
1. York Ledge Lighted Whistle Buoy bearing west true, distant 0.3 mile:		
Direct	15	3.9
Reverse	*195*	*3.9*
2. Boon Island Light abeam bearing 105° true, distant 3.1 miles:		
Direct	42	31.3
Reverse	*222*	*31.3*
3. One mile east true of Portland Lightship and just eastward of lightship buoy.		

Table 3C.—CAPE ANN TO MATINICUS ROCK DIRECT

CHART 1106

1. Cape Ann Lighted Whistle Buoy bearing west true, distant 0.5 miles:		
Direct	47	99.3
Reverse	*227*	*99.3*
2. Matinicus Rock light abeam bearing 317° true, distant 2.2 miles.		

Table 3D.—CAPE ANN TO BANTAM ROCK LIGHTED WHISTLE BUOY

CHART 1106

1. Cape Ann Lighted Whistle Buoy bearing west true, distant 0.5 mile:		
Direct	31	74.8
Reverse	*211*	*74.8*
2. Bantam Rock Lighted Whistle Buoy bearing west true, distant 0.5 mile.		

Table 3E.—PORTLAND LIGHTSHIP TO BANTAM ROCK LIGHTED WHISTLE BUOY

CHART 1204

1. Portland Lightship bearing west true, distant 1 mile:		
Direct	62	22.2
Reverse	*242*	*22.2*
2. Bantam Rock Lighted Whistle Buoy bearing west true, distant 0.5 mile. (If bound to Penobscot Bay, see directions on page 174.)		

Table 4.—PORTLAND LIGHTSHIP TO WEST QUODDY HEAD

CHARTS 1106 AND 1201

Position *Reverse directions in italics*—read upward	True course	Distance
	Degrees	*Nautical miles*
1. Portland Lightship bearing west true, distant 1 mile:		
Direct	76	55.0
Reverse	*256*	*55.0*
2. Matinicus Rock Light abeam bearing 346° true, distant 2.5 miles (whistle buoy close aboard on port side nearly in range with light):		
Direct	54	*56.0*
Reverse	*234*	*56.0*
3. Petit Manan Light abeam bearing 326° true, distant 5.8 miles (S. E. Rock Lighted Whistle Buoy nearly on range with light):		
(Change to Chart 1201.)		
Direct	54	33.3
Reverse	*234*	*33.3*
4. Little River Light abeam bearing 324° true, distant 2.6 miles, with lighted whistle buoy 0.6 mile on port beam in range with light:		
Direct	41	14.9
Reverse	*221*	*14.9*
5. West Quoddy Head Light abeam bearing 311° true, distant 1.1 miles with whistle buoy in range with light. (For courses to Eastport, East Quoddy Head, Calais, etc., see Sailing Directions, page 76.)		

Table 5.—PORTLAND TO COW ISLAND*

CHART 325 OR 315

1. 200 yards west of Diamond Island Ledge Light:		
Direct	29	1.15
Reverse	*209*	*1.15*
2. Buoy No. 4 on starboard beam, distant 100 yards:		
Direct	40	0.85
Reverse	*220*	*0.85*
3. Buoy No. 6 on starboard beam, distant 100 yards:		
Direct	57	0.8
Reverse	*237*	*0.8*
4. Northern extremity of Cow Island on starboard beam, bearing 147° true, distant 500 yards		

*Tables 5 to 5J give directions via the Inside Passages from Portland to West Quoddy Head.

540825°—43——5

Table 5A.—COW ISLAND TO CAPE SMALL*

CHART 315

Position *Reverse directions in italics*—read upward	True course	Distance
	Degrees	*Nautical miles*
1. Northern extremity of Cow Island on starboard beam, bearing 147° true, distant 500 yards:		
Direct	79	1.6
Reverse	*259*	*1.6*
2. 100 yards southeast of Channel Rocks Buoy:		
Direct	40	0.5
Reverse	*220*	*0.5*
3. 200 yards north of Buoy No. 9:		
Direct	86	0.3
Reverse	*266*	*0.3*
4. 100 yards north of Buoy No. 7, then steer various courses through Southeast Entrance to Chandler Cove, passing around, i. e., south and east, of the buoy marking the 4-foot spot off Deer Point; round that buoy at a distance of about 150 yards to a position 150 yards east of the buoy:		
Direct	Various	0.5
Reverse	*Various*	*0.5*
5. 150 yards east of buoy marking 4-foot spot off Deer Point:		
Direct	52	1.4
Reverse	*232*	*1.4*
6. 100 yards north of buoy marking the north end of the spit extending northward from Sand Island:		
Direct	73	1.1
Reverse	*253*	*1.1*
7. 100 yards north of the buoy marking the end of Stave Island Ledge:		
Direct	111	1.8
Reverse	*291*	*1.8*
8. 100 yards north of the buoy located just northeastward of Haddock Rock. Steer various courses through the Pass between Haddock Rock and Haskell Island, taking care to avoid the reef southwestward from Haskell Island:		
Direct	Various	0.3
Reverse	*Various*	*0.3*
9. 100 yards south of buoy marking south end of reef off Haskell Island:		
Direct	92	0.25
Reverse	*272*	*0.25*
10. 250 yards north of Little Mark Island Monument Light:		
Direct	99	1.4
Reverse	*279*	*1.4*
11. 250 yards north of the bell buoy located about 0.5 mile southeast of the end of Jaquish Island: (If bound to New Meadows, see directions page 221.)		
Direct	93	6.4
Reverse	*273*	*6.4*
12. 300 yards north of Bald Head Ledge Beacon.		

*Tables 5 to 5J give directions via the Inside Passages from Portland to West Quoddy Head.

Table 5B.—CAPE SMALL TO FISHERMAN ISLAND PASSAGE*

CHART 314

Position *Reverse directions in italics*—read upward	True course	Distance
	Degrees	*Nautical miles*
1. Bald Head Ledge Beacon, bearing south true, distant 300 yards:		
Direct	100	0.9
Reverse	*280*	*0.9*
2. Fuller Rock Light, bearing south true, distant 300 yards:		
Direct	61	4.3
Reverse	*241*	*4.3*
3. White Ledge Lighted Bell Buoy, bearing south, distant 100 yards:		
(For directions for Kennebec River, see page 217.)		
Direct	56	1.3
Reverse	*236*	*1.3*
4. The Sisters Beacon, bearing south true, distant 500 yards:		
(For directions for Sheepscot River, see page 210.)		
Direct	63	3.5
Reverse	*243*	*3.5*
5. Cuckholds Bell Buoy, bearing north, distant 150 yards:		
(If bound to Boothbay Harbor, see directions on page 203.)		
Direct	46	3.0
Reverse	*226*	*3.0*
6. Ram Island Light, bearing south true, distant 400 yards.		

*Tables 5 to 5J give directions via the Inside Passages from Portland to West Quoddy Head.

Table 5C.—FISHERMAN ISLAND PASSAGE TO DAVIS STRAITS*

CHART 313

1. Ram Island Light, bearing south true, distant 400 yards:		
(For directions Damariscotta River, see page 199.)		
Direct	81	2.1
Reverse	*261*	*2.1*
2. Southern extremity Thrumcap Island, bearing north true, distant 450 yards:		
Direct	67	8.0
Reverse	*247*	*8.0*
3. Egg Rock North Ledge Buoy, on port beam, distant about 50 yards:		
Direct	64	3.6
Reverse	*244*	*3.6*
4. Griffin Ledge Buoy, bearing northwest, distant about 20 yards.		

*Tables 5 to 5J give directions via the Inside Passages from Portland to West Quoddy Head.

Table 5D.—DAVIS STRAITS TO OWLS HEAD VIA MUSCLE RIDGE CHANNEL*

CHART 312

Position *Reverse directions in italics*—read upward	True course	Distance
	Degrees	*Nautical miles*
1. Griffin Ledge Buoy, bearing northwest, distant about 20 yards:		
Direct	49	2.2
Reverse	*229*	*2.2*
2. Allen Ledge Buoy, bearing south, distant about 50 yards:		
Direct	90	0.5
Reverse	*270*	*0.5*
3. Marshall Ledge Buoy, bearing north, distant about 100 yards:		
Direct	78	0.7
Reverse	*258*	*0.7*
4. Mosquito Ledge Buoy, bearing north, distant 200 yards:		
Direct	109	1.1
Reverse	*289*	*1.1*
5. Mosquito Island Bell Buoy, bearing north, distant 150 yards:		
Direct	48	5.4
Reverse	*228*	*5.4*
6. South Breaker Bell Buoy, on starboard beam, distant about 50 yards:		
Direct	28	1.1
Reverse	*208*	*1.1*
7. Lower Gangway Ledge Buoy, bearing east, distant 100 yards:		
Direct	36	3.3
Reverse	*216*	*3.3*
8. Upper Gangway Ledge horizontally striped buoy, bearing east, distant 200 yards:		
Direct	30	0.5
Reverse	*210*	*0.5*
9. Ash Island Beacon, bearing west, distant 150 yards:		
Direct	11	1.75
Reverse	*191*	*1.75*
10. Sheep Island Bar Buoy, bearing east, distant about 50 yards:		
Direct	29	1.2
Reverse	*209*	*1.2*
11. Dodge Point Beacon, on port beam, distant about 200 yards:		
Direct	43	0.3
Reverse	*223*	*0.3*
12. Owls Head Light, on port beam, bearing 317° true, distant 0.3 mile; and north true from the north end of Monroe Island 0.2 mile.		
(If bound to eastward via Eggemoggin Reach, see Directions page 59.		
If bound to Penobscot Bay, see Directions page 174.)		

*Tables 5 to 5J give directions via the Inside Passages from Portland to West Quoddy Head.

Table 5E.—OWLS HEAD THROUGH FOX ISLANDS THOROFARE*

CHARTS 310, 235 AND 309

Position *Reverse directions in italics*—read upward	True course	Distance
1. Owls Head Light, bearing 317°, distant 0.3 mile; and the north end of Monroe Island, bearing south true, distant 0.2 mile:	*Degrees*	*Nautical miles*
Direct	83	4.3
Reverse	*263*	*4.3*
2. Fiddler Ledge Beacon, on port beam, distant 500 yards:		
NOTE.—Change to Chart 235.		
Direct	50	1.5
Reverse	*230*	*1.5*
3. Browns Head Light abeam, distant 300 yards:		
Direct	36	0.8
Reverse	*216*	*0.8*
4. Young Point Beacon, bearing 103° true, distant 200 yards:		
Direct	74	0.65
Reverse	*254*	*0.65*
5. Calf Point Buoy, bearing south, distant about 30 yards:		
Direct	112	0.6
Reverse	*292*	*0.6*
6. Postoffice Ledge Buoy, bearing north, distant about 80 yards:		
Direct	99	0.55
Reverse	*279*	*0.55*
7. Grindstone Ledge Buoy, bearing 35° true, distant 250 yards:		
Direct	51	0.35
Reverse	*231*	*0.35*
8. Dobbin Rock Buoy, on port beam close to:		
Direct	43	0.6
Reverse	*223*	*0.6*
9. Fish Point Ledge Buoy, bearing north, distance 100 yards:		
NOTE—The following course leads over a 16-foot spot.		
Direct	87	0.6
Reverse	*267*	*0.6*
10. Goose Rocks Light, bearing north by east, distant 150 yards:		
Direct	109	1.0
Reverse	*289*	*1.0*
11. Channel Rock Beacon, bearing north true, distant 230 yards:		
NOTE—Change to Chart 309.		
Direct	84	4.5
Reverse	*264*	*4.5*
12. Deer Island Thorofare Light (located on Mark Island), bearing south true, distant 300 yards.		

* Tables 5 to 5J give directions via the Inside Passages from Portland to West Quoddy Head.

Table 5F.—THROUGH DEER ISLAND THOROFARE TO CASCO PASSAGE*

CHARTS 227 AND 308

Position *Reverse directions in italics*—read upward	True course	Distance
1. Deer Island Thorofare Light (on Mark Island), bearing south true, distant 300 yards:		
NOTE.—This course passes over several spots on which the least depth found is 15 feet.	*Degrees*	*Nautical miles*
Direct	61	1.6
Reverse	*241*	*1.6*
2. About 50 yards north of Thurlow Knob Buoy:		
Direct	75	0.5
Reverse	*255*	*0.5*
3. 75 yards south of the buoy marking the 2-foot spot off Staple Point:		
NOTE.—The next course leads over a 16-foot spot and very close to a 14-foot spot. These spots may be easily avoided if you so desire. See the chart.		
Direct	80	1.0
Reverse	*260*	*1.0*
4. Western extremity of Camp Island abeam, bearing 170° true:		
Direct	59	0.9
Reverse	*239*	*0.9*
5. Buoy marking northwest corner of Bold Island Ledges, on starboard beam, distant 50 yards:		
Direct	75	0.95
Reverse	*255*	*0.95*
6. Buoy marking 1-foot spot, 0.4 mile south of Sheep Island, on port beam, bearing 345° true, distant 250 yards.		
NOTE.— On this course run about 200 yards on Course 52° beyond the buoy marking East Mark Island Ledge to arrive at Position 7.		
Direct	52	0.9
Reverse	*232*	*0.9*
7. Boat Rock Buoy, on port beam, bearing 320°, distant about 700 yards:		
Direct	85	1.55
Reverse	*265*	*1.55*
8. Long Ledge Beacon, bearing north, distant 300 yards (about 50 yards south of bell buoy):		
NOTE.—Change to Chart 308.		
Direct	77	1.6
Reverse	*257*	*1.6*
9. Egg Rock Beacon, bearing north true, distant 180 yards:		
NOTE.—Change to Chart 227.		
Direct	58	1.3
Reverse	*238*	*1.3*
10. Buoy No. 7 marking northwest end of Long Ledge, bearing south true, distant 200 yards.		

*Tables 5 to 5J give directions via the Inside Passages from Portland to West Quoddy Head.

Table 5F1.—MERCHANT ROW TO CASCO PASSAGE*

CHARTS 309 AND 308

Position *Reverse directions in italics*—read upward	True course	Distance
	Degrees	*Nautical miles*
1. Deer Island Thorofare Light (on Mark Island), bearing northeast, distant 500 yards:		
Direct	132	1.0
Reverse	*312*	*1.0*
2. On line between eastern end of Farrell Island and eastern end of Sparrow Island, and about midway between the two:		
Direct	96	2.3
Reverse	*276*	*2.3*
3. Barter Island Ledges, bearing north, distant 400 yards:		
Direct	84	2.4
Reverse	*264*	*2.4*
4. Southern end of Southern Mark Island, bearing east true, distant 0.3 mile:		
NOTE.—Change to Chart 308.		
Direct	42	6.1
Reverse	*222*	*6.1*
5. Buoy No. 7 marking northwest end of Long Ledge, bearing south true, distant 200 yards.		

*Tables 5 to 5J give directions via the Inside Passages from Portland to West Quoddy Head.

Table 5F2.—OWLS HEAD TO CASCO PASSAGE VIA EGGEMOGGIN REACH*

CHARTS 310, 309, 308, 227

1. Monroe Island, north end bearing south, distant 400 yards:		
Direct	42	5.2
Reverse	*222*	*5.2*
2. McIntosh Ledge Buoy, on port beam, distant 400 yards:		
Direct	30	7.5
Reverse	*210*	*7.5*
3. High point, Resolution Island, starboard beam, distant 0.4 mile:		
Direct	36	3.1
Reverse	*216*	*3.1*
4. Cape Rosier, bearing north, distant 0.5 mile:		
NOTE.—Change to Chart 309.		
Direct	96	2.3
Reverse	*276*	*2.3*
5. Fairway Bell Buoy, close aboard, on port beam:		
Direct	48	1.3
Reverse	*228*	*1.3*
6. Pumpkin Island Ledge Buoy, bearing south true, distant 400 yards:		
Direct	78	0.8
Reverse	*258*	*0.8*
7. The Triangles Northeast Buoy, bearing southwest, distant 400 yards:		
Direct	126	2.5
Reverse	*306*	*2.5*
8. Southeast extremity of Byard Point, on port beam, distant 500 yards:		
Direct	111	1.4
Reverse	*291*	*1.4*

*Tables 5 to 5J give directions via the Inside Passages from Portland to West Quoddy Head.

Table 5F2.—OWLS HEAD TO CASCO PASSAGE VIA EGGEMOGGIN REACH—Continued

Position *Reverse directions in italics*—read upward	True course	Distance
	Degrees	*Nautical miles*
9. Buoy northeast of Tinker Ledges, bearing south, distant 400 yards:		
Direct	134	3. 3
Reverse	*314*	*3. 3*
10. Torry Castle Beacon, bearing north true, distant 500 yards, with buoy nearly on range with beacon:		
Direct	118	0. 9
Reverse	*298*	*0. 9*
11. Conary Ledge Buoy, on starboard beam, distant 300 yards:		
Direct	131	2. 0
Reverse	*311*	*2. 0*
12. Devils Head, bearing northeast, distant 300 yards:		
NOTE.—Change to Chart 308.		
Direct	125	2. 8
Reverse	*305*	*2. 8*
13. Red Buoy, about 0.4 mile southwest of Johns Island, bearing north, distant 50 yards:		
Direct	76	0. 4
Reverse	*256*	*0. 4*
14. Buoy No. 7 marking northwest end of Long Ledge, bearing south true, distant 200 yards.		
NOTE.—For directions through Casco Passage, see Table 5G.		

Table 5G.—THROUGH CASCO PASSAGE TO BASS HARBOR BAR*

CHARTS 227 AND 308

1. Buoy No. 7 marking west end of Long Ledge, bearing south true, distant 175 yards:		
Direct	92	0. 5
Reverse	*272*	*0. 5*
2. Red Buoy abeam, on port side, close to:		
Direct	84	1. 15
Reverse	*264*	*1. 15*
3. Fairway Bell Buoy at eastern entrance of Casco Passage, on port beam, close to:		
NOTE.—Change to Chart 308.		
Direct	74	4. 9
Reverse	*254*	*4. 9*
4. Bass Harbor Bar Fairway Buoy, close aboard, bearing north.		

* Tables 5 to 5J give directions via the Inside Passages from Portland to West Quoddy Head.

Table 5H.—BASS HARBOR BAR TO PETIT MANAN VIA DIRECT ROUTE*

CHARTS 306 AND 305

Position *Reverse directions in italics*—read upward	True course	Distance
	Degrees	*Nautical miles*
1. Bass Harbor Bar Fairway Buoy, close aboard, bearing north:		
Direct	88	1.8
Reverse	*268*	*1.8*
2. Long Ledge, lighted gong buoy, bearing north, distant 50 yards:		
Direct	86	5.0
Reverse	*266*	*5.0*
3. Baker Island, whistle buoy, bearing north, distant 100 yards:		
Direct	49	8.4
Reverse	*229*	*8.4*
4. Schoodic Island Whistle Buoy abeam, bearing north-northwest, distant 200 yards. Chart 305:		
Direct	76	7.8
Reverse	*256*	*7.8*
5. Petit Manan, fairway bell buoy, bearing north, distant 300 yards.		

*Tables 5 to 5J give directions via the Inside Passages from Portland to West Quoddy Head.

Table 5H1.—BASS HARBOR BAR TO PETIT MANAN VIA WESTERN WAY*

CHARTS 306 AND 305

1. Bass Harbor Bar, fairway buoy, bearing north, close aboard:		
Direct	88	1.8
Reverse	*268*	*1.8*
2. Long Ledge, lighted gong buoy, bearing north, distant 50 yards:		
Direct	26	1.3
Reverse	*206*	*1.3*
3. Flynns Ledge Buoy, bearing northwest, distant about 50 yards:		
Direct	356	1.1
Reverse	*176*	*1.1*
4. Fairway buoy, off Spurling Point, close aboard, on starboard side. Bear Island light ahead:		
Direct	24	1.3
Reverse	*204*	*1.3*
5. Southeast point of Greening Island, bearing 259° true, distant 0.8 mile:		
NOTE.—To arrive at this position, continue 24° course for 200 yards after the northwest corner of Sutton Island is abeam. (On the next course keep the southeast point of Greening Island astern, on the bearing of 259° true.)		
For directions Frenchman Bay, see page 116.		
Direct	79	2.1
Reverse	*259*	*2.1*

For note see p. 62.

Table 5H1.—BASS HARBOR BAR TO PETIT MANAN VIA WESTERN WAY—Continued

Position *Reverse directions in italics*—read upward	True course	Distance
	Degrees	*Nautical miles*
6. Lewis Rock Buoy, on starboard beam, distant 200 yards:		
Direct	77	8.4
Reverse	*257*	*8.4*
7. Schoodic Island, whistle buoy, bearing north-northwest, distant 200 yards: Chart 305:		
Direct	76	7.8
Reverse	*256*	*7.8*
8. Petit Manan, fairway bell buoy, bearing north, distant 300 yards.		

*Tables 5 to 5J give directions via the Inside Passages from Portland to West Quoddy Head.

Table 5I.—PETIT MANAN THROUGH MOOSABEC REACH*

CHARTS 305 AND 304

1. Petit Manan, fairway bell buoy, bearing north, distant 300 yards:		
Direct	33	8.8
Reverse	*213*	*8.8*
2. Nash Island Light, bearing south true, distant 0.4 mile. Chart 304:		
Direct	53	1.9
Reverse	*233*	*1.9*
3. Green Island, on starboard beam, distant 500 yards:		
Direct	40	1.7
Reverse	*220*	*1.7*
4. Shabbit Island Ledge Buoy, bearing 75° true, distant 900 yards:		
NOTE.—Following course passes over a 13-foot spot, which can be avoided by passing close to Fessenden Ledge Buoy.		
Direct	72	1.8
Reverse	*252*	*1.8*
5. North end Pomp Island abeam, distant 400 yards:		
Direct	80	2.6
Reverse	*260*	*2.6*
6. Horse Ledge Buoy, on starboard beam, close to:		
NOTE.—Proceed through Narrows, following aids to navigation, on approximately the following course:		
Direct	85	1.0
Reverse	*265*	*1.0*
7. Buoy No. 6, located about 300 yards southeast of Kelley Point, on port beam, close to:		
Direct	74	1.1
Reverse	*254*	*1.1*
8. Northwest end of Mark Island, on starboard beam, distant 300 yards.		
(If bound to Englishman Bay, see directions page 88.)		

*Tables 5 to 5J give directions via the Inside Passages from Portland to West Quoddy Head.

Table 5J.—MOOSABEC REACH TO WEST QUODDY HEAD*

CHARTS 304, 303 AND 1201

Position *Reverse directions in italics*—read upward	True course	Distance
	Degrees	*Nautical miles*
1. Northwest end of Mark Island, bearing south, distant 300 yards. Northwest tangent of Green Island ahead:		
Direct	67	3.2
Reverse	*247*	*3.2*
2. Pulpit Rock, on starboard beam, distant 200 yards:		
Direct	77	1.7
Reverse	*257*	*1.7*
3. Bell buoy, eastern end Brothers Passage, starboard beam, distant 100 yards:		
Direct	91	2.7
Reverse	*271*	*2.7*
4. Libby Island light abeam, distant 0.5 mile:		
Direct	64	5.2
Reverse	*244*	*5.2*
5. High point of the southern one of the Double Shot Islands abeam, distant 0.5 mile. Chart 303:		
Direct	54	4.0
Reverse	*234*	*4.0*
6. High point of small island at Western Head abeam, distant 0.6 mile. Chart 1201:		
Direct	46	14.7
Reverse	*226*	*14.7*
7. West Quoddy Head Light, distant 0.9 mile, on range with Sail Rock Whistle Buoy, distant about 0.2 mile. For directions to Eastport and Calais, see page 76.		

*Tables 5 to 5J give directions via the Inside Passages from Portland to West Quoddy Head.

Chapter 5.—CALAIS TO WEST QUODDY HEAD

(CHART 801)

The waters comprising the approaches to the St. Croix River are Quoddy Roads, Lubec Channel, Friar Roads, Head Harbor Passage, Western Passage, and Passamaquoddy Bay. The principal entrance is around the northern end of Campobello Island through Head Harbor Passage, and is deep and generally clear. The channel through Lubec Narrows is also frequently used, especially at high water. The tidal currents are strong, and sailing vessels can make no headway beating against them.

Quoddy Roads lies between the southwestern end of Campobello Island and West Quoddy Head; it is the usual anchorage for vessels seeking shelter against northerly and westerly winds or waiting for a favorable tide to pass through Lubec Narrows. The entrance between Liberty Point Ledge (Black Rock) and West Quoddy Head is about ¾ mile wide, with a least depth of 28 feet near the middle of the entrance. The anchorage affords shelter against all but east and southerly winds in 12 to 25 feet. The northern and western parts of the roads between West Quoddy Head and Lubec are full of shoals, partly bare at low water.

West Quoddy Head, on the western side of the entrance of Quoddy Roads, is high and wooded. **West Quoddy Head Lighthouse,*** a red and white horizontally banded tower at the eastern end, is the most prominent mark. The light is 83 feet above the water, and visible 15 miles. The fog signal is a diaphone. The lookout tower of the Coast Guard, located on the highest part of the ridge, is prominent. A radiobeacon, synchronized for distance finding, is operated at the light. A radio tower 91 feet high is located 142 yards northwestward from the light.

Boundary marks.—From West Quoddy Head northward to Calais, there are numerous range marks consisting of small white pyramidal shaped concrete beacons so placed as to mark the International Boundary Line between the United States and Canada. The mariner should not mistake these marks for aids to navigation.

Sail Rock and **Little Sail Rock** are two bare rocks of a group of ledges which lie 0.2 mile southeastward of West Quoddy Head Lighthouse. A reef extends over 100 yds. east of Sail Rocks. Swirls form just southward and eastward of Sail Rock during the strength of the tidal current, and it should be given a good berth. A black whistling buoy is moored 0.4 mile south-southeastward of Sail Rock, in line with it and West Quoddy Head Lighthouse.

*Lat. 44°48′.9, Long. 66°57′.1. Charts 801, 1201, 70, 1106.

QUODDY ROADS TO ST. CROIX RIVER

SOUTH OF CAMPOBELLO ISLAND

(CHART 801)

Round Rock and **Liberty Point Ledge** lie 0.4 mile southwestward of **Liberty Point,** the eastern point at the entrance of Quoddy Roads. These rocks show above water, and vessels should pass at least 300 yards southward of the southernmost rock.

Middle Ground, with a least depth of 4 feet, is a shoal in the middle of Quoddy Roads, 0.7 mile northward of West Quoddy Head. It is marked on its southwestern side by a red buoy.

Wormell Ledges, partly bare at low water, lie along the southern shore of Quoddy Roads westward of West Quoddy Head.

Above Middle Ground and Wormell Ledges, Quoddy Roads is full of shoals, largely bare at low water, through which is the buoyed channel to Lubec Narrows.

Lubec Channel has been dredged to a width of 500 feet and a depth of 12 feet at mean low water, but low spring tides may fall 4 or 5 feet below this level. The average draft of vessels passing through this channel is 12 feet. It is necessary for sailing vessels to have a fair wind to pass through the dredged channel and the Narrows, the most favorable time being about 2 hours before high water.

Lubec Channel Lighthouse (white tower on black pier) marks the western edge of the channel. The fog signal is a bell.

Lubec Narrows is a narrow strait between Mullholland Point and the town of Lubec. The channel has been dredged 250 to 400 feet wide and 12 feet deep and has strong tidal currents and eddies; for current information see page 73. The narrowest part of the channel is at the northern end.

There are shoals, bare at low water, on both sides of Lubec Narrows. Making off from the northeastern point of Lubec, opposite Mulholland Point Lighthouse, is a dangerous ledge, on the shore end of which is a breakwater which shows out of water; the northern end of this ledge is marked by a black buoy, which also marks the western side of the northern end of the dredged channel. The breakwater is reported to be covered by two feet of water at extreme high storm tides. There is a white pyramidal shaped Boundary Monument on the outer end of the breakwater which shows above extreme high water.

Lubec is a small town on the western side of the Narrows. There are several fish factories with wharves most of which go dry at low water. The steamboat wharf on the north side of the town has a depth alongside of 18 feet and is equipped with a large transit shed. Other wharves have depths alongside of from 6 to 12 feet. There is a customs office. Lubec is connected with Eastport by passenger ferry and has good highway connection to the interior. A standpipe 1 mile west of the town is prominent as well as a church spire and a stack on the water front.

Drinking water and some supplies may be obtained in limited quantities. Minor machinery repairs can be made. Small boats are beached for repairs.

Johnson Bay,* on the northwest side of Lubec, is a well-sheltered anchorage for vessels of any draft, and is frequently used. It is approached from southward through Quoddy Roads and Lubec Narrows and from northward through Friar Roads. The southwestern part of Johnson Bay is shoal for a distance of ½ mile from its head, and a shoal with 17 feet over it lies on the west side, near the middle. The shores of the bay should be given a berth of about 300 yards. The best anchorage for deep-draft vessels is just southward of a line from Mulholland Point Lighthouse to Rodgers Island, in 7 to 9 fathoms.

A channel, formerly navigable by launches at high water, between Johnson Bay and South Bay is now closed.

There are two fish factories on the northwest side of Johnson Bay, the wharves of both of which bare at low water.

Popes Folly is a thinly wooded islet ¼ mile northward of the northern entrance of Lubec Narrows. The bar connecting it with the shore southeastward has a depth of 18 feet in the channel, and is crossed by vessels bound to Lubec or through Lubec Narrows. A ledge extending northeastward from the island is marked at its end by a black buoy.

Dudley Island, ½ mile northward of the northern entrance to Lubec Narrows, is high and mostly grass covered. An earth dam has been constructed connecting Dudley Island with Treat Island.

Treat Island, the larger of the islands between Lubec Narrows and Eastport, is high and grass covered on the south end and wooded on the north end. Three hundred yards northwestward of Treat Island is **Burial Islet,** small and grass covered; and 400 yards westward of Treat Island is **Gull Rock,** bare at all times. The government wharf on the west side of Treat Island near its north end has 16 feet alongside at M. L. W.

Broad Cove, in the south shore of **Moose Island** and west of Eastport, is a good anchorage for vessels of any draft; vessels anchored off Eastport get under way and anchor here or in Johnson Bay to ride out a gale. The head of the cove is shoal for a distance of ¼ mile. Rocks bare at low water extend 400 yards southeastward and southward from Shackford Head, on the western side of the entrance, and are marked at their southwest end by a red buoy. A wrecked barge with the stern awash at low water and extending into deep water, lies on the point eastward from Shackford Head.

Deep Cove is the first cove to the northward of Broad Cove. There is a wharf in Deep Cove with a depth of 26 feet alongside at M. L. W. Coal and water suitable for drinking may be obtained here. There is a prominent brick stack at the head of the cove.

To the southeastward of Treat Island and northeastward of Popes Folly is **Snug Cove,** which is of no importance except to fishing and small craft, but between which and Dudley Island is located a **rock** on which the least depth of 17 feet was found. Vessels entering Friar Roads from the southward sometimes pass on either side of this rock.

To the north of Snug Cove is **Friar Head,** which is the southern point at the entrance to **Friar Bay.** This bay is used as an anchorage, and on its northern side is located the village of **Welchpool.** At this

*Lat. 44°51′.5, Long. 67°00′.0: Chart 801.

fishing village is a good wharf, at which the local steamer calls, and behind which small craft find good protection in westerly weather. There is a black buoy located off the point west of Welchpool.

For a little over 1 mile the west shore of Campobello Island runs northward to a point known as **Bald Head,** just south of which is a prominent circular 101-foot hill. From Bald Head the coast tends to the northeast to **Man-of-War Head,** which forms the southern entrance point to **Hbr de Loutre.** In the bight just west of Man-of-War Head a wharf is located with a depth of 12 feet at M. L. W.

Hbr de Loutre is used as an anchorage by small vessels, but those without local knowledge should not enter the inner harbor beyond the 9-foot spot in the center of the harbor, which is known as **Racer Rock.** The harbor above **Conroys Cove,** which is true east of Man-of-War Head, is obstructed by fish weirs. The northern side of Hbr de Loutre is indented by four coves which are of little importance except to the fishing industry. Just west of them is **Windmill Point,** which is the northern point of the entrance to Hbr de Loutre.

Friar Roads (Eastport Harbor).—This harbor is on the western side of Campobello Island, north of Johnson Bay and east of Moose Island (Eastport). It is approached from northward around East Quoddy Head and from southward through Quoddy Roads and Lubec Narrows, and is the principal approach to Passamaquoddy Bay and St. Croix River. Vessels anchor off Eastport in Friar Roads but use Broad Cove or Johnson Bay in unfavorable weather.

Eastport, on the southeastern end of Moose Island, has a population of 4,500, and has some commerce, its principal business being fish, coal, and general merchandise. It is a port of entry and marine documents are issued. There is an immigration and naturalization office. Quarantine is arranged through the collector of customs. A U. S. Weather Bureau station is located in the customhouse on the waterfront. Weather displays are made from the tower on the hill near the standpipe. There is a public float landing. There is a chart agency of the U. S. Coast and Geodetic Survey located here.

The possible **dangers** are **Page Rock,** with 16 feet over it, and **Margie Rock,** with 14 feet over it, both of which lie east of the town and close in to the shore. **Clark Ledge,** lying about 225 yards from the wharves, off the northern part of Eastport, is covered at high water and is marked by a spindle. **Dog Island,*** about ¼ mile northward of Clark Ledge, has a grassy top and is marked by a light 32 feet high which is shown from a white pyramidal skeleton tower. A shelving ledge extends about 100 yards off the high water line of the island.

Between Dog Island and **Deer Point** there are whirlpools and eddies, which at times are dangerous for small boats. They are reported to be worst about one-half flood tide.

Anchorages.—Vessels anchor at will in Friar Roads, just off Eastport. The best anchorage is reported to be off the customhouse. The bottom is uneven and the currents have considerable velocity. In unfavorable weather ships anchor in Broad Cove or Johnson Bay.

Pilotage.—Pilotage is not compulsory. There is a licensed pilot residing at West Quoddy Head and vessels desiring his services should

*Lat. 44°55′.2, Long. 66°59′.4 : Chart 801.

signal the Coast Guard station. Pilots for local inside waters can be obtained from the boatmen at Lubec or Eastport.

The Canadian pilot lives at Lords Cove, Deer Island. If notified in advance he will come to Wilsons Beach. If not notified in advance the signal for pilot off East Quoddy Head Light will be telephoned to Wilsons Beach and a boat sent from there for the pilot. Vessels anchor off Wilsons Beach while awaiting pilot.

Tides and Currents.—The mean tidal range is about 18 feet. For currents, see page 73.

Directions are given on page 76.

Port services.—Vessels discharging and loading usually lie at the wharves, some of which are dry at low water; others have from 5 to 15 feet at their ends. The steamer wharf has about 20 feet and the MacNichols Wharf has about 18 feet alongside and has a large storage warehouse on the wharf. The steamer and railroad wharves have rail sidings and transit sheds. There are no loading facilities. Good water is piped to the steamship wharf.

Vessels carrying coal usually discharge at a wharf in Deep Cove on the west side of Moose Island.

Towboats.—No towboats are available at Eastport but small launches can be hired for light tows.

Supplies.—Diesel oil may be obtained in any quantities. No heavy fuel oil is available. Provisions, gasoline, and ship chandler stores may be had. There is a large coal pile at Deep Cove.

Repairs.—Light repairs to hulls and machinery of small vessels can be made at Eastport, vessels being hauled out on the beach. There are no facilities for dry-docking vessels.

Storm-warning displays, day and night, are made at Eastport from a steel tower on the hill near the standpipe.

Communications.—There is no regular coastwise steamer service. A local Canadian steamer plies between Grand Manan and St. Stephen, calling at Eastport, Cummings Cove (on Deer Island), Welchpool, Wilsons Beach, and North Head. There is a regular passenger and freight ferry service with Lubec. Eastport has railway connections and a good highway parallels the St. Croix River to Calais.

Western Passage connects Friar Roads to Passamaquoddy Bay. It lies south of **Deer Island,** and north of **Moose** and **Carlow Islands** and the mainland. The shallow passages on both sides of Carlow Island are closed by earth dams.

On the northeast side of Moose Island and on the south side of Western Passage are **Harris** and **Johnson Coves** and **Kendall Head.** At the north end of Western Passage, **Frost Island** and **Frost Ledge** lie between Pleasant Point and **Gleason Cove.** Frost Ledge extends nearly 800 yards offshore and is marked by a bell buoy. The south shore from Carlow Island to Frost Island is foul in places for about 400 yards offshore.

At **Quoddy Village,** near the north end of Moose Island, is located a prominent elevated tank. Another elevated tank is located near the center of the island just south of Johnson Cove.

Pleasant Point, marked by a prominent brick building and numerous houses, is an Indian reservation on the point of that name, 3½ miles northward of Eastport. There is no wharf.

The northern shore of Western Passage is clear and is indented by **Cummings Cove** and **Clam Cove.** For currents, see page 73.

Sailing Directions.—See page 76.

NORTH OF CAMPOBELLO ISLAND

(CHART 801)

The **main route** into **Passamaquoddy Bay** and the **St Croix River** leads north of **Campobello Island** through **Head Harbor Passage, Friar Roads,** and **Western Passage.**

The east coast of Campobello Island is generally clear and may be approached to within a reasonable distance without danger. **Local magnetic attraction** has been reported in this locality.

Herring Bay affords good temporary anchorage for vessels of any size. **Schooner Cove** and **Mill Cove** are suitable for temporary anchorages for small vessels. A 3-fathom spot, marked by a horizontally banded buoy located in the center of the entrance to Mill Cove, should be avoided.

The northernmost point of Campobello Island is known as **East Quoddy Head*** and is marked by a light located on the outermost rock.

The light known as **Head Harbor Light** is shown from an octagonal tower 64 feet high painted white with a red cross and a red lantern. The fog signal is a diaphone sounded from a small building just north of the lighthouse.

Head Harbor is located just south of the Head and between it and **Head Harbor Island.** It affords good anchorage for small vessels.

Wilsons Beach is located on the northwest side of Campobello Island about 2 miles southwest of East Quoddy Head and just above Windmill Point. There is a good wharf with a light on its southwest corner, and with 30 feet alongside at M. L. W., located about 600 yards northeast of **Windmill Point.**

Pilots.—For pilotage see page 67.

Head Harbor Passage is a deep and clear fairway, about 4 miles long, which leads along the western side of Campobello Island from the sea to Friar Roads, opposite Eastport. Here it is joined by the Western Passage, which extends northwestward 4 miles along the southwestern side of Deer Island to Passamaquoddy Bay. This is the route generally followed by vessels going to Passamaquoddy Bay and St. Croix River.

White Horse Island is a bare, rocky islet, of whitish appearance, 68 feet high. It lies about 2.3 miles northeastward of Head Harbor Lighthouse, is easily identified, and forms a good mark for the approach to Head Harbor Passage.

East Rock, with only 1 foot of water, lies about 300 yards northeastward of the northeastern end of White Horse Island. A rock with a depth of less than 6 feet is located 200 yards north of East Rock.

North Rock, with 1 foot of water and steep-to, lies 0.5 mile northwestward of White Horse Island.

White Island lies about 1.5 miles northward of East Quoddy Head. Shoals extend 400 yards southward and 300 yards northward from the island. A group of **islets,** of which the principal are **Nubbles, Spectacles,** and **Hospital,** and several shoals lie 0.5 mile northwestward of White Island.

*Lat. 44°57'.5, Long. 66°54'.0 : Charts 801, 70, 1106.

Spruce Island lies 0.8 mile north of East Quoddy Head. Its eastern side is steep-to. Islets and shoals extend 0.8 mile westward of Spruce Island. The southernmost of these dangers is marked by a red spindle beacon, located about 500 yards westward of the southwestern end of Spruce Island. The westernmost of these dangers, **Tinker Island Ledge,** is marked by a spindle beacon, surmounted by a cage, painted red. The northwesternmost danger is a drying ledge, marked by a spindle beacon, surmounted by a cage, painted black.

Black Rock, a small rock above water, lies about 0.8 mile northwestward of East Quoddy Head.

Casco Island, 85 feet high, lies 0.5 mile southwestward of Black Rock and 0.5 mile from the nearest part of Campobello Island. Its eastern side is fairly steep-to, but ledges extend 300 yards off its northern end. Several shoals and ledges lie within 0.3 mile of the southwestern end of Casco Island.

Green Islet lies nearly 0.5 mile southwestward of the southwestern end of Casco Island. A 27-foot shoal lies about 600 yards southeastward of Green Islet and nearly 0.5 mile from the shore of Campobello Island. **Sandy Ledge,** marked by a black spindle beacon, surmounted by a cage, 13 feet high, lies 400 yards westward of Green Islet.

Pope Islet is 0.5 mile southwestward of Green Islet. Shoals extend 300 yards southeastward of Pope Islet, and a 28-foot spot lies 700 yards southeastward of the islet. About 0.4 mile westward of Pope is **Chocolate Shoal,** with a depth of 1½ fathoms.

Indian Island, which has a maximum height of 90 feet near its northern end, lies about 600 yards eastward of the southern end of Deer Island, with a deep channel between. A shallow bank, on which are three islets, extends about 500 yards off the southeastern part of Indian Island. **Cherry Islet,** at the southeastern end of this bank, has on it a white square wooden building, 47 feet high, from which a fog signal is sounded.

For Eastport to Passamaquoddy Bay, see Western Passage, page 68.

PASSAMAQUODDY BAY

(CHART 801)

This is a large bay indenting the shore of New Brunswick east of the mouth of the St. Croix River. The principal entrance to the bay is via Western Passage which has deep water and is comparatively free from dangers. The bay has been swept with the wire drag and all dangers are charted.

St. Andrews is a Canadian town and port near the eastern point at the entrance to the St. Croix River. It is a railroad terminus and has some commerce. The anchorage is between the town and Navy Island, and is available for light-draft vessels only.

A dredge channel with a depth of about 14 feet and marked by buoys, leads to the town from the southeastward. The channel to the northwestward of the town is marked by buoys, a large stone beacon and a spindle. In 1940 this channel had a depth of about 6 feet at mean low water. Depths are given in this paragraph as reported by local pilots.

The railroad wharf has a depth of about 6 feet alongside, and the Government wharf (crib) has a depth of about 12 feet at its face. Gasoline and some supplies may be had. A large hotel with a red roof and tower is prominent at St. Andrews.

Letite Passage, the most northerly entrance to Passamaquoddy Bay, is the channel between **Macmaster Island** and the mainland. The channel has deep water but is rendered difficult by unmarked dangers and by strong tidal currents. It should not be attempted without local knowledge.

ST. CROIX RIVER

(CHART 801)

The river has a deep and comparatively clear channel for 8 miles above its mouth at **Navy Island** to **Devils Head.** Above this point it has a narrow winding natural channel with a controlling depth of about 12 feet for about 3 miles to **Hills Point.** Beyond this a channel was dredged some years ago to **Calais.** In 1940 it was reported by local authorities that the controlling depth in the dredged channel was 7 feet from Hills Point to the former steamer landing about 1 mile below Calais, and thence 6 feet to Calais and **St. Stephen.** These dredged channels have filled to such an extent that these depths can only be carried in the centers.

The channels are marked by buoys and lights, but for any draft greater than 4 or 5 feet advantage should be taken of the tide or a pilot should be employed.

Anchorage.—Small craft up to about 40 feet in length anchor off **The Ledge** or off **Bluff Head.** Larger vessels should anchor below **Oak Point.**

Pilotage.—Pilots for the St. Croix River may be obtained at West Quoddy Head and at East Quoddy Head. (See Pilotage, Eastport.)

Robbinston is a village on the west side of St. Croix River, near its mouth, and just above **Liberty Point.** There is a prominent brick chimney and a fish factory with a wharf having a depth of about 6 feet at M. L. W. at its end.

South Robbinston is located at the mouth of the river on **Mill Cove,** which is of no commercial importance.

The **Schoodic Yacht Club** (of Calais) is located at **Red Beach.**

Dochet Island,* in mid-channel off Red Beach, is marked by St. Croix River Lighthouse, a white dwelling. Scattered shoals, sunken and awash, surround the island and lie in mid-channel for about 1.2 miles southward of it. The deeper and broader channel leads eastward of these shoals, and is marked by a single black buoy on the edge of the shoals extending eastward from Dochet Island. The channel leading westward of the shoals, between them and **Little Dochet Island,** a wooded islet midway between the southern end of the shoals and the western shore, is marked by several buoys and is generally used by local vessels, but should be used with caution by strangers.

Calais, a city of 6,000 people, is on the south bank of the St. Croix River, about 14 miles above its mouth and 23 miles above Eastport.

*Lat. 45°07'.7, Long. 67°08'.0: Chart 801.

It is the terminus of a railroad running through Maine. It is the head of navigation for the St. Croix River. All wharves are dry at low water.

There is but little trade by water. Coal, which was formerly brought to Calais in schooners drawing up to 21 feet, now comes in by rail. About 1 mile below Calais are 2 oil docks which bare at low water. Small tankers load or unload at high tide.

The St. Croix River at Calais is crossed by a fixed highway bridge at the head of navigation. Custom and immigration officers are stationed at each end of the bridge. There is a Public Health Service Third Class Relief Station.

St. Stephen is a city on the Canadian side of the river, opposite Calais. There is a local steamer service with St. Andrews, Eastport, Cummings Cove, Welchpool, Wilsons Beach, and Grand Manan Island. It is a railroad terminus.

Ice.—During January, February, and March St. Croix River is usually obstructed by ice and not navigable above Robbinston, but the channel is sometimes kept open by steamers. Quoddy Roads and Eastport Harbor are never closed by ice.

Freshets.—Spring freshets sometimes cause the water to rise above the level of the wharves at Calais and are accompanied by strong currents. They are seldom noticeable outside of the river.

Tides.—The mean rise and fall of tides is about 18 feet at Eastport, 19 feet at Robbinston, and 20 feet at Calais; under special conditions the extreme limits may be as much as 5 feet above mean high water or below mean low water.

COBSCOOK BAY

(CHART 801)

This bay, making in westward of Moose Island, is a large irregular bay with several arms. It is approached through the channel leading between Moose Island on the north and Seward Neck on the south. The arms of the bay are full of rocks and have dangerous currents, which require local knowledge to keep the vessel in the channel. Strangers seldom enter Cobscook Bay, and then only with a pilot, generally taken from Eastport. The deepest draft using it is 12 feet. Good anchorage is found in many of the arms and coves, but everywhere in the channel the currents are too strong and the bottom too rocky for anchorage. Ice obstructs navigation during the winter near Whiting and Dennysville, and during severe winters elsewhere in the bay.

Pennamaquan River, making northwestward from Cobscook Bay 2 miles inside the entrance, has ample depth for about 1.7 miles above the entrance, and the principal dangers are marked by buoys. It is bare at low water for 0.8 mile below **Pembroke,** a town on the railroad 3 miles above the entrance of the river, and the channel is usually marked by perches in summer. There is a fish factory at **West Pembroke** and it is reported that a draft of about 12 feet can be carried to its wharf at high water. The deepest draft using the river is about 12 feet at high water, and the usual draft is not over 6 feet.

Dennysville is a village at the head of **Dennys Bay,** the northwestern branch of Cobscook Bay. 8.5 miles above the entrance of the bay.

The river is bare for 0.5 mile below the town at low water, and the deepest draft that can be taken to the town is about 12 feet at high water and with local knowledge. The channel is unmarked and difficult.

Whiting is a village at the head of **Whiting Bay,** the southern branch of Cobscook Bay, 9.5 miles above the entrance of the bay. The river is bare for 1 mile below the town at low water, and 12 feet is the deepest draft that can be taken to it at high water and with local knowledge. The channel is unmarked and difficult.

Bar Harbor, northwest of Moose Island, can no longer be used as a shortcut between Cobscook Bay and Western Passage because both eastern entrances (North and South of Carlow Island) have been closed by earth dams. There is a fixed highway bridge over the western entrance with a vertical clearance of about 5 feet at high water.

CURRENTS, ST. CROIX RIVER AND APPROACHES

In Grand Manan Channel the flood sets in a general northeast direction and at strength attains a velocity of about 2¾ knots. The ebb sets in a southwesterly direction with a velocity at strength of about 2¼ knots. Predicted times of slack water and times and velocities of strength of flood and ebb for every day in the year are given in the Atlantic Coast Current Tables.

Approaching the entrance to Quoddy Roads, if less than 2 miles from the northern shore, the set of the flood is more northward, and about 1 mile southeastward of West Quoddy Head the flood sets directly into the Roads. For a distance of ½ mile southeastward of West Quoddy Head the currents are dangerous on account of swirls and eddies, which are apt to draw a vessel, in a light breeze, onto Sail Rock.

Along the eastern side of Campobello Island the flood sets in a northeasterly direction following the trend of the shore, the ebb setting in the opposite direction.

Along the northwestern side of Campobello Island, 1 mile north of East Quoddy Head, the flood sets strongly westward on the islands lying in the passage northward of Campobello Island. The direction of the flood then changes more southward, follwing the general directin of the passage until nearly to Eastport, where the set is more westerly, toward the passage between Deer and Moose Islands and toward the entrance to Cobscook Bay. The ebb generally sets in a reverse direction.

Through Lubec Narrows the flood sets northward, following the general direction of the dredged channel; southward of the Narrows it has a velocity of about 4 knots at strength, but in the Narrows it attains a velocity of about 6 knots during spring tides. The ebb sets southward, following the general direction of the channel, and in the Narrows has a velocity of about 8 knots during spring tides. Below the Narrows its velocity is about 4 knots and the set is in the general direction of the channel. The currents at strength form dangerous eddies on both sides of the channel in the Narrows; these are avoided by keeping in mid-channel. It is slack water in the Narrows about 1 hour before high and 1½ hours before low water; the duration of slack is short, from 5 to 15 minutes. With a strong fair wind small

sailing vessels can pass through the Narrows with an adverse current at any time after the current has been running 3 hours.

Northward of Lubec Narrows the first of the flood current sets along the west shore of Campobello Island eastward of Popes Folly; it afterwards sets more westward, south of Popes Folly, and across th entrance of Johnson Bay, meeting the flood from Friar Roads westward of Treat Island, and both setting into Cobscook Bay.

Western Passage of St. Croix River.—The flood sets northward into the passage, and off Deer Point, abreast Dog Island, it forms whirlpools and eddies, which are dangerous to open boats. The whirlpools and eddies are strongest 2 to 3 hours before high water and during spring tides; the flood then attains a velocity of about 6 to 7 knots. The least disturbance is usually about 300 yards northward of Dog Island, where there is a comparatively narrow direct current which can be readily followed between the whirlpools and eddies on the Deer Island side and the eddies on the Eastport side of the passage. The ebb sets southward, but does not attain the velocity of the flood.

Above Deer Point* the flood sets northward with decreasing velocity and follows the general direction of the channel with strong countercurrents and eddies close to the shore, where the configuration of the land is favorable; it continues about 1 hour after the time of high water. The ebb sets southward with reduced velocity and disturbance off Deer Point, and the inshore reverse currents are less marked than on the flood; it continues 1 to 1½ hours after the time of low water.

St. Croix River.—The flood sets northward with countercurrents inshore on both sides where the conformation of the land is favorable for them. The ebb sets southward with less marked countercurrents.

Cobscook Bay and tributaries.—The tidal currents follow the general direction of the channels, but in the coves there are strong reverse eddy currents, and heavy overfalls are formed over the submerged rocks and ledges. The velocity is estimated at 5 to 8 knots, and some of the buoys are towed under when the currents are at strength.

*Lat. 44°55′.6, Long. 66°59′.1: Chart 801.

Sailing Directions

Table 6.—WEST QUODDY HEAD TO EASTPORT, VIA LUBEC CHANNEL

CHART 801

Position *Reverse directions in italics*—read upward	True course	Distance
Caution: Local knowledge is necessary for navigating this channel with anything except small craft. Controlling depth at mean low water is 12 feet. Follow aids and channel as shown on chart.		
1. Sail Rock bearing 270° distant 600 yards:	*Degrees*	*Nautical miles*
Direct	331	0. 7
Reverse	*151*	*0. 7*
2. West Quoddy Head Black Bell Buoy abaft port beam:		
Direct	290	0. 75
Reverse	*110*	*0. 75*
3. Middle Ground red buoy on starboard beam:		
Direct	330	1. 05
Reverse	*150*	*1. 05*
4. Lubec Channel Light port beam close to:		
Direct	11	0. 55
Reverse	*191*	*0. 55*
5. Midway between channel buoys:		
Direct	328	0. 5
Reverse	*148*	*0. 5*
6. Charley Point abeam:		
Direct	352	0. 4
Reverse	*172*	*0. 4*
7. One hundred yards northeast of black buoy at northern entrance of Lubec Narrows and south of Popes Folly		
Swing to westward and then northward to pass South and West of Popes Folly, giving it a berth of about 200 yards to	Various	0. 3
8. North end Popes Folly bearing 90° distant 300 yards:		
Direct	22	0. 7
Reverse	*202*	*0. 7*
9. North Tangent of Treat Island abeam:		
Direct	5	1. 4
Reverse	*185*	*1. 4*
10. Off wharves at Eastport, 400 yards east of brick stack		

Table 7.—WEST QUODDY HEAD TO EASTPORT, VIA HEAD HARBOR PASSAGE

CHART 801

Position *Reverse directions in italics*—read upward	True course	Distance
See page 73 for currents.	*Degrees*	*Nautical miles*
1. Sail Rock Whistle Buoy bearing 310°, distant 0.5 mile with West Quoddy Light in range, distant 1.1 miles:		
Direct	32	1.9
Reverse	*212*	*1.9*
2. Owen Head abeam, distant 0.75 mile:		
Direct	17	5.1
Reverse	*197*	*5.1*
3. Scott Head abeam, distant 0.8 mile:		
Direct	346	3.5
Reverse	*166*	*3.5*
4. Head Harbor Light, bearing 210° true, distant 0.7 mile:		
Direct	236	1.6
Reverse	*56*	*1.6*
5. Northeast end Casco Island abeam:		
Direct	218	3.8
Reverse	*38*	*3.8*
6. Off wharves at Eastport, 400 yards east of brick stack.		

Table 8.—EASTPORT TO CALAIS

CHART 801

1. Mid-channel between Dog Island Light and Deer Point:		
Direct	328	2.8
Reverse	*148*	*2.8*
2. Clam Cove beacon abeam, distant 550 yards:		
Direct	335	7.2
Reverse	*155*	*7.2*
3. Liberty Point abeam, distant 0.5 mile:		
Direct	341	2.8
Reverse	*161*	*2.8*
4. Red Buoy abeam, distant 0.3 mile:		
Direct	333	1.2
Reverse	*153*	*1.2*
5. Dochet Island light and black buoy abeam, former distant 0.3 mile:		
Direct	312	0.6
Reverse	*132*	*0.6*
6. Abeam point on east bank:		
Direct	324	2.05
Reverse	*144*	*2.05*
7. Oak Point red buoy, abeam:		
Direct	276	0.9
Reverse	*96*	*0.9*
8. Spruce Point Light abeam, distant 200 yards. Follow aids up channel as shown on Chart 801 to Calais and St. Stephen		*4.8*

Chapter 6.—WEST QUODDY HEAD TO PETIT MANAN

(CHART 1201)

WEST QUODDY HEAD TO MOOSE COVE

(CHART 1201)

From West Quoddy Head to **Moose Cove** the coast is generally rocky, wooded, and steep-to. It is indented by a number of coves of slight importance.

Carryingplace Cove has a fish wharf and a few buildings at its head. **Wallace Cove** and **Hamilton Cove** have no distinguishing features, but about halfway between the two and 500 yards offshore is **Morton Ledge** with 6 feet of water over it. It is marked by a red buoy. **Boot Cove** has a few small fishermen's houses at its head.

Baileys Mistake appears from offshore to be a good anchorage, but the holding ground is poor and it is not a good harbor. The village of **South Trescott** is located at its head. **Bailey Ledge** obstructs the western half of the entrance and bares at low water. **Jims Head,** on the northern entrance point, is 160 feet high and prominent.

The head of **Haycock Harbor,** locally known as **The Pool,** is sometimes entered at high tide by small craft. There is reported to be a depth of 7 feet inside at M. L. W. **Sandy Cove** is an open bight just south of Haycock Harbor.

OFF-LYING DANGERS IN SOUTHERN APPROACH TO GRAND MANAN CHANNEL

(CHART 303)

Machias Seal Island,* 10 miles southwestward of **Southwest Head,** the southern extremity of **Grand Manan Island,** is about 500 yards long and 28 feet high. It is steep-to on its western side. A drying reef, on the outer end of which is an islet, extends 0.4 mile northeastward. A shoal with general depths of 5 to 8 fathoms and a least depth of 2 fathoms, on which there is a tide rip, extends over 1 mile eastward and northeastward of the island.

Southeast Shoal, 1.2 miles southeastward of the island, has only 1¼ fathoms of water; it breaks in heavy weather and shows a rip during the strength of the tide. The tidal current in this vicinity reaches a velocity of 3 knots.

Machias Seal Island Light is shown from a white octagonal concrete tower, 82 feet high, on the summit of the island. The fog signal is a diaphone. (See Light List.)

North Rock, 2 miles northward of Machias Seal Island, is about 4 feet high and is surrounded by shoal water to a distance of 400 yards.

*Lat. 44°30'.1, Long. 67°06'.1: Charts 303, 1201, 1106, 70, 1000.

North Shoal, 1.5 miles northward of the island, has a depth of 1¼ fathoms. It shows a tide rip, and breaks in heavy weather. Rocks with depths of 7 and 8 fathoms lie, respectively, ⅓ mile northward and over ½ mile northward of North Shoal; both these rocks show tide rips.

Middle Shoal, 5 miles northeastward of the lighthouse, has 3 fathoms over it, with deep water close-to. It shows a tide rip, and breaks in heavy weather.

OFF-LYING DANGERS

(CHARTS 1201 AND 1106)

Bull Rock has a depth of 2 feet, with deep water around it, and generally breaks. It lies 7 miles eastward of Machias Seal Island. There is a rocky patch with a depth of 7 fathoms, on which there is a tide rip, about midway between Bull Rock and Machias Seal Island. **Magnetic disturbance** has been experienced in the areas northeastward of Bull Rock.

Southeast Ledge lies nearly 6 miles southeastward of Machias Seal Island. It has a depth of 5 fathoms, shows a tide rip, and breaks in heavy weather. A 6-fathom patch, marked by tide rips, lies 1.3 miles northwestward of the ledge.

Wallace Ledge, the northernmost of the **Murr Ledges,** lies 4½ miles westward of Gannet Rock. It dries 8 feet.

The locality of these ledges should be avoided. It is not adequately surveyed and fishermen report numerous shoals. There are unconfirmed reports of 4- and 5-fathom spots about 3 miles northwest of Machias Seal Island Light.

OFF-LYING DANGERS

(C. AND G. S. CHART 1106, H. O. CHART 1057)

Eastward of this area are numerous reefs and ledges which are shown on Coast and Geodetic Survey Chart 1106 and **Hydrographic Office Chart 1057.** They are beyond the limits of chart 1201 and are described in **H. O. 99, "Sailing Directions for Nova Scotia."** Some of these are **Murr Ledges, Half Tide Rock, St. Mary Ledge, Yellow Ledge, Cross Jack Ledge, Long Ledge, West Ledge,** and **Gannet Rock.**

Gannet Rock, in latitude 44°31′ N., longitude 66°47′ W., is about 15 feet high and is marked **Gannet Rock Light,** 90 feet high, shown from an octagonal tower with black and white stripes surmounted by a red lantern. The fog signal is a diaphone.

MOOSE COVE TO ENGLISHMAN BAY

(CHART 303)

Eastern Head, with a 200-foot hill behind it, is the eastern extremity of the north shore of **Moose Cove.** Inside it, a distance of 0.5 mile, are **Mink Island** and **Eastern Head Ledges,** bare at low water, which extend over 400 yards offshore. There is a small wharf on the south side of **Moose River** at its narrowest point. On the

north side of the river a rocky spit makes out to form a natural shelter for small boats.

The coast for the next 6 miles to the locality of Little River has no features of any importance. There are a number of open shallow coves of no commercial importance, known as **Bog Brook, Holmes, Black Point,** and **Long Point Coves.** Just north of Little River there is **Hughes Beach,** and **Money Cove,** sometimes called **Schooner Brook Cove.**

Little River.—This harbor is 14 miles westward of West Quoddy Head and about 9½ miles eastward of Libby Islands; the entrance is marked by **Little River Lighthouse*** on **Little River Island** and a bell buoy. It is a small but excellent harbor of refuge, sheltered from all winds, has 12 to 30 feet of water with good holding ground, and is easy of access. The channel leads northward of the lighthouse and has a depth of about 28 feet. The anchorage is about ½ mile long and ¼ mile wide, just inside of Little River Island. The harbor is never obstructed by ice so as to prevent vessels from entering.

Little River Lighthouse, on the southeast end of **Little River Island** (wooded, with rocky shores), is a white conical tower. The light is shown at an elevation of 57 feet above the water, and the fog signal is a bell. The northern entrance point of Little River is known as **Eastern Knubble** and just south of it, lying 100 yards offshore, is **Little River Ledge (Eastern Head Ledge),** which bares at low water and is marked by a red buoy. A ledge extends 100 yards from the south shore, just eastward of a prominent point, 0.5 mile above Little River Island. With these exceptions there are no dangers in the harbor if the shores be given a berth of 100 yards.

A lighted whistle buoy is located about 1.7 miles southeastward of **Western Head,** the southern entrance point to Little River.

Cutler is a village on the north side of Little River. It has communication by telephone, and by highway with the railroad at **East Machias.** It is the headquarters of many small fishing boats. There are several small wharves where gasoline can be obtained and there is a customs office at the town.

Directions, Little River.—Pass northward of Little River Island, giving it a berth of 100 to 200 yards, and pass southward of the red buoy just inside the island. Anchorage can be selected anywhere in midchannel inside the island. Small local craft anchor off the wharves in 6 to 18 feet. The passage southward of Little River Island has a rocky bar across it with a least found depth of 10 feet in midchannel, but has not been closely examined, and should not be used by strangers.

Between Little River and Little Machias Bay, a distance of about 2½ miles, are no features of importance. **House Cove** is a small, open bight extending somewhat behind **Great Head,** and **Deer Island** is a small island lying close inshore. In this locality, about 0.3 mile offshore, are a series of rocky ledges, on which depths as shoal as 13 feet may be found.

Little Machias Bay is not used for an anchorage, as it is exposed to southerly and southeasterly winds, and is close to **Little River** and **Machias Bay, both excellent anchorages.** The bay is ⅝ mile wide

*Lat. 44°39'.1, Long. 67°11'.6: Charts 303, 1201, 70, 1106.

at the entrance, wider inside, and about 2 miles long. **Long Ledge,** in the middle of the bay 1 mile inside the entrance, is covered at high water. Above this ledge the bay is much obstructed by ledges and shoals, two of which are known as **Upper Ledge** and **Widows Ledge.** There are some houses on the shores of the bay, but no wharves except for small craft at high water. The settlement on the north shore of the bay is known as **North Cutler.** There are numerous fishing weirs in the bay.

Old Man, a small but prominent rocky island, grassy on top, lying 1 mile off the entrance of Little Machias Bay, is a good mark and may be safely approached as close as 400 yards.

Black Ledges are bare islets in the middle of the entrance of Little Machias Bay; there is deep water close-to on both sides.

At the western entrance to Little Machias Bay is **Cape Wash,** with **Cape Wash Islands** lying off it. Reefs extend about 400 yards south of these islands. Just westward of Cape Wash are **Holly Cove** and **Bobs Cove,** known locally as **Little Holly Cove.** These bights are of importance only to small craft.

MACHIAS BAY AND RIVER

(CHART 303)

Machias Bay and River is the approach to the towns of Machiasport and Machias. It is easily entered either day or night and affords well-sheltered anchorage for the largest vessels. It is about 6 miles long, and the main entrance between Cross Island on the east and Stone Island on the west is about 2 miles wide. The principal guide to the entrance is Libby Islands Lighthouse, which lies 9 miles westward of Little River Lighthouse and 9 miles eastward of Moose Peak Lighthouse. Avery Rock Lighthouse, in the middle of the bay, 4 miles from the entrance, is the guide for vessels bound up the bay. The best anchorages for vessels are Starboard Cove and the head of the bay above Avery Rock Lighthouse.

Cross Island, the large island on the east side of the entrance to Machias Bay, is wooded and has a few unpainted shacks on Quaker Head, the most prominent marks in approaching Cross Island Narrows from westward. Cross Island Coast Guard Station is located in a small cove south of Mink Island. From the outside a skeleton tower on a hill at the eastern end of the island is the most prominent mark. Storm signals are displayed from this tower during daylight.

Cross Island Narrows is a channel leading into Machias Bay east of Cross Island. This passage is much obstructed by rocks, sunken or awash at various stages of the tide, and should not be used by vessels without local knowledge. Small craft can go through the narrows by the following:

Directions.—Pass on either side of Old Man at a distance of 300 to 500 yards, and then bring it astern in a 274° true course, heading just south of Thornton Point Ledge spindle. Pass 75 yards southward of the spindle and steer 280° true to clear a black buoy and pass close northward of it. Give the point on the northeast side a berth of 200 yards and steer 313° true for the middle of Chance Island (wooded on north part), with the summit of Mink Island (thickly wooded) astern, and pass 100 yards northeastward of the black buoy off Quaker

Head (low and flat). **Dogfish Rocks,** between Quaker Head and the buoy, are bare at low water only.

Cross Island Narrows are seldom obstructed by ice in the winter, and for that reason the cove southwestward of Mink Island is much used as a winter anchorage by small fishing boats.

Northwest Harbor, a bight in the north shore of Cross Island near its western end, has from 4 to 9 fathoms of water, but is little used as an anchorage.

Libby Islands, in the middle of the entrance of Machias Bay, consists of two flat grassy islands connected by a bare ledge. The lighthouse and buildings on the southwest end are the most prominent marks. Several vessels have been lost on the eastern side of the islands in thick weather. Sunken ledges extend about 300 yards off the southern end of the southern island. The east shores of both islands have ledges extending off about that distance.

Libby Islands Lighthouse* is a white conical granite tower. The light is 91 feet above the water, and visible 15 miles. It is obscured when bearing about east-northeast (mag.). The fog signal is an air diaphone.

Scabby Islands are described on page 84.

Foster Channel is a narrow passage, marked by two buoys, between Foster Island and Ram Island, and leads from Englishman Bay to the western entrance of Machias Bay. It has a depth of about 18 feet. A red buoy at the eastern end of the passage lies 1¼ miles northwestward of Libby Islands Lighthouse. To go through the passage from eastward pass 100 yards southward of the red buoy steer 279° true and pass 25 yards northward of the black buoy.

Starboard Island Ledge is located 0.5 mile eastward of the eastern entrance to Foster Channel. It has a least found depth of 7 feet on it and is marked by a black buoy.

Ram and **Foster Islands** are grass covered and surrounded by ledges. Foster Island has a shanty at each end.

Stone Island is wooded and has a bare rocky face at the south end.

Stone Island Ledge, on the east side, is bare at low water and marked by a spindle.

Starboard Island is grassy at the southwest end and sparsely wooded at the northeast end.

Starboard Cove, on the western side of the bay 2½ miles northward of Libby Islands Lighthouse, is formed on the south by Starboard Island and a bar, bare at half tide, connecting it with the shore. It is an excellent anchorage, except in easterly weather, with 15 to 24 feet of water, and is much frequented by coasting vessels making an anchorage for the night if bound through Moosabec Reach. A good berth is in the middle of the cove, with the north end of Starboard Island in line with the south end of Stone Island, in 18 to 21 feet. Small vessels can anchor closer to the bar, taking care, however, not to shut out the north end of Stone Island by the north end of Starboard Island.

Starboard Cove is entered eastward of Starboard Island, passing on either side of Stone Island. Approaching from westward, bring

*Lat. 44°34'.1, Long. 67°22'.1 : Charts 303, 304, 1201, 70, 1106.

Libby Islands Lighthouse astern on a 344° true course, and pass 250 yards westward of Stone Island and the same distance eastward of Starboard Island.

Starboard post office is a small settlement on the western side of Starboard Cove. There are no wharves.

Howard Bay, northward of Starboard Cove, is exposed to southeast winds, the holding ground is poor, and it is not a good anchorage. There are no wharves. Broken ground, including a rock bare at low water, extends 0.3 mile southward and 0.7 mile eastward from Howard Point. The eastern extremity of this broken ground is known as **Seashore Ledge,** depth 4 feet, and is marked by a black buoy.

Bucks Harbor is a shallow cove in the west shore of the bay inside of Bar Island and 4 miles northward of Libby Islands Lighthouse; a small fishing village of the same name is located on the shore of this harbor. Small vessels can anchor 200 yards off the southern side of **Bar Island** in 8 to 15 feet. There is a footbridge connecting **Bucks Neck (Smalls Point)** with the settlement of Bucks Harbor. On the south side of Bucks Harbor, opposite Bucks Neck, is a small, private wharf which bares at low water. West of Bar Island, and just south of **Mountain Head,** is a wreck which bares at lower water.

Local fishermen report the existence of a sunken rock about 200 yards (NW. ¾ W. mag.) from Bucks Head. Vessels should keep a midchannel course in entering.

All of the islands in Machias Bay above the entrance are high and wooded, with rocky shores.

Colbeth Rock, lying 0.7 mile 111° true from the north tangent of Bucks Head, has a depth of 31 feet and breaks in heavy weather.

Avery Rock, in the middle of Machias Bay, 4 miles above the entrance, is marked by **Avery Rock Lighthouse,*** a white tower on a dwelling, 54 feet high and visible 13 miles. There is a bell buoy just southwest of the light.

Larrabee Cove, largely dry at low water, and **Indian Cove** are small coves in the west shore of the bay, northwest of Avery Rock Lighthouse; these coves are of no importance, but good anchorage for vessels of 8 feet draft will be found on the flats between Salt Island and Bare Island, near their entrances. There is a fish house and small wharf, nearly bare at low water, in Indian Cove. A rock in the middle, bare at low water, is the principal danger. **Larrabee** is a village and post office at the head of Larrabee Cove.

Yellow Island, about 0.7 mile southwest of Avery Rock, is known locally as **Yellow Head.** It is high, yellow in color, and a good landmark.

Holmes Bay, a large bight in the northeastern part of Machias Bay and northeast of **Hog Island,** is shallow with extensive reefs. There is a fish factory and wharf in the northeast part of Holmes Bay. The bay is seldom used except by small fishing boats.

Machias River empties into the northwestern part of the bay; it has a narrow, winding channel, leading through flats which are mostly bare at low water. The least depth in the channel up to the town of Machiasport is about 19 feet.

Between Machiasport and Machias, the river shoals to probably 2 feet at a point ½ mile below Machias.

---

*Lat. 44°39′.3, Long. 67°20′.7 : Charts 303, 304, 1201.

A highway drawbridge, with a clearance when closed of 4 feet at high water, crosses the river at a point about 2 miles below Machias. The horizontal clearance in the northern opening is 44 feet and in the southern opening 45 feet. The bridge will be opened during daylight hours to a signal of three blasts of a whistle.

Machiasport is a village on the west bank of Machias River, 2.5 miles above the entrance. There are two fish factories, whose wharves were in good condition in 1940. Gasoline and diesel oil can be obtained here. Diesel oil is delivered in tank-wagon from Machias. There is a customs office here attended to by an officer from **Jonesport.** Storm warnings are displayed from the post office.

East Machias River, emptying into Machias River from northeastward 1 mile above Machiasport, is practically bare at low water at East Machias, a village on the railroad 1½ miles above the entrance. Some lumber is shipped from a wharf ½ mile above the entrance. Above this point the channel is difficult, and is little used except by small craft. A wharf, with a depth of 14 feet alongside at high water spring tides, is located on the north side of the channel north of **Newcomb Point.** Another wharf, with 9 feet alongside at high water spring tides, is located on the west side of the channel about 0.5 mile below **East Machias.**

Machias is a town on the highway and railroad at the head of navigation on the Machias River. It ships some lumber and receives some coal in small coasting vessels. There are a coal wharf and a lumber wharf, the former baring at low water and the latter having about 2 feet of water alongside at low tide.

Pilots may be obtained from among local fishermen at Bucks Harbor or Machiasport.

Repairs.—There are no marine railways for the repair of hulls.

Ice.—In severe winters Machias River is closed to navigation, and drift ice will sometimes fill the bay above Avery Rock. In ordinary winters the bay and river are open to Machiasport.

The **currents** follow the general direction of the channel and are not strong except in the river.

Tides.—The mean rise and fall of tides is about 13 feet.

DIRECTIONS, MACHIAS BAY AND RIVER

(CHART 303)

From eastward.—Many vessels have been wrecked on the eastern side of Libby Islands in thick weather through failure to hear the fog signal. Steer for Libby Islands Lighthouse on any bearing northward of 251° true, and when Avery Rock Lighthouse is open from the western end of Cross Island, bearing 342° true, shape the course to pass about 0.5 mile eastward of the northern end of Libby Islands. Steer for Avery Rock Lighthouse on a 358° true course until abeam of the north end of **Yellow Island,** then steer 342° true and pass 250 yards west of Avery Rock Light and about 150 yards west of the bell buoy off the light. Anchorage for vessels may be had anywhere between Avery Rock and Round Island, or eastward or northeastward of the latter at a distance not greater than 0.5 mile, in 5 to 7 fathoms.

From westward.—Steer for Libby Islands Lighthouse on any bearing northward of 57° true and pass 0.5 mile northwestward of the lighthouse. Then steer 36° true until Avery Rock Lighthouse bears

358° true. Then steer for the latter on that bearing, and follow the directions in the preceding paragraph.

From Cross Island Narrows.—From a position 100 yards northeast of Quaker Head black buoy steer 295° true for 2.0 miles until the north end of Yellow Island bears west true, distance 0.4 mile. Then steer 342° true and follow directions From Eastward.

Machias River from Avery Rock to Machiasport.—The channel in Machias River is marked by buoys at the turns as far as Machiasport and is easily followed. The best time is at low water, when the flats are visible. From a position 250 yards west of Avery Rock Light steer north true until about 0.3 mile northeastward of Round Island and change course to 300° true for about 0.6 mile, until about 0.2 mile eastward of the second black buoy, then steer 269° true for 0.7 mile, passing 100 yards north of a black buoy, then steer 281° true for 0.4 mile to a position southward of a red buoy, and then a 310° true course for 0.3 mile will lead to a position 75 yards westward of a second red buoy. After passing the buoy, the wharves at Machiasport should be kept a little on the starboard bow for about 0.2 mile; then swing slowly eastward and keep the wharves a little on the port bow until in midchannel abreast them. Small vessels often anchor in the channel for a distance of 0.5 mile southward of the wharves at Machiasport.

Above Machiasport.—The channel leads between shoals bare at low water on each side, and is unmarked except by private stakes, which are in position only a part of the time. Local knowledge is necessary to carry the best water, but strangers in small craft should have no trouble in going to Machias on a rising tide with the aid of the chart.

ENGLISHMAN BAY TO NASH ISLAND

(CHART 304)

ENGLISHMAN AND CHANDLER BAYS

(CHART 304)

They form a large bight in the coast between Libby Islands and Head Harbor Island, with Roque Island and numerous smaller islands in the middle. The bays unite northward of Roque Island and form a good anchorage, with depths of 3 to 6 fathoms, good holding ground.

Englishman Bay, northeastward of Roque Island, has numerous dangers before reaching the anchorage northward of Roque Island, but the channel is marked by buoys, is broad and easily followed in the daytime in clear weather. The principal entrance to the bay from eastward is between Scabby Island on the east and The Brothers on the west, and affords a straight channel to Shoppee Island, above which is the anchorage. The bay may be entered from Machias Bay through Foster Channel. Vessels from westward, bound to the enchorage at the head of Englishman Bay or to Chandler River, usually pass through Chandler Bay. Foster Channel and the adjacent islands are described on page 81.

Scabby Islands, on the eastern side of the main entrance to Englishmay Bay, are grass-covered. A mound on the larger Scabby Island is the most prominent mark in approaching Foster Channel from westward.

There is a sunken rock 400 yards north of the north end of the northern Scabby Island.

Scabby Island Ledge, awash at low water, lies 250 yards southwestward of the southwest end of Scabby Island.

Codhead Ledge, 1.5 miles northwestward of Scabby Islands, is awash at low water and marked by a red buoy on its western side.

Shag Ledge, 0.9 mile eastward of Codhead Ledge, has a low grass-covered islet on its western end. The northeast end of the ledge is covered only at high water, and the south end shelves off to 13 feet.

There is a shoal, with a depth of 5 feet midway between Codhead and Shag Ledges.

Pierson Ledge, northward of Shag Ledge, is a rock bare at low water.

Hickey Island, in the entrance of Little Kennebec Bay, has a rock awash at low water 250 yards eastward and another rock 200 yards southward of it. The northern end of the island is wooded.

Little Kennebec Bay is an anchorage westward of Machias Bay, and makes northward from the eastern part of Englishman Bay; it is of no commercial importance, and is frequented mostly by fishermen. There is good anchorage in 12 to 40 feet of water, soft bottom and well sheltered, inside of **Sea Wall Point,** but it is seldom used, being so near Machias Bay and Starboard Cove, which are much easier of access and better anchorages. There are fish weirs in the upper part of the bay. Chart 304 is the best guide for entering.

The Brothers, on the western side of the main entrance to Englishman Bay, consist of a string of grassy islands, with rocky shores. There is a black bell buoy off the northeast end of these islands.

Green Island, northward of The Brothers, is grassy. **Green Island Ledge,** partly bare at low water extends ¼ mile eastward from the island and is marked by a red buoy. A ledge awash at high water extends 200 yards westward from Green Island.

Pulpit Rock, 1 mile westward of The Brothers, is a bare rocky islet. Its southern and eastern sides should be given a berth of 100 yards.

Jumper Ledge, with 5 feet on it at M. L. W., is 0.6 mile southward of Pulpit Rock. It is marked by a horizontally banded buoy. A 28-foot spot is located 0.7 mile to the southeast and 0.6 mile south of the buoy is Misery Ledge with 14 feet.

Halifax Island* is grass covered on top, with rocky sides, and has a prominent mound at its western end. The islands westward are wooded.

A rock bare at low water lies 300 yards southeastward of the southeast end of Halifax Island.

A bar with depths from 18 to 25 feet extends from Halifax Island to Green Island. The current is reported to boil over the bar and this passage should be used with caution.

A rock, covered well at high water, lies 300 yards southward of **Double Shot Island. Shag Rock,** lying 500 yards eastward of Double Shot Island, is high and bare.

Roque Island Harbor is formed on the north and west by Roque Island, and on the south by Great Spruce Island and the islands extending eastward to Halifax Island. It affords shelter from all winds and is used by small vessels. The holding ground is not good

*Lat. 44°34′.4, Long. 67°27′.6; Charts 303, 304, 1201.

except in spots, the entrances to the harbor are generally foul, and it should be avoided by strangers. The best entrance is from eastward, passing north of Halifax Island. There is a least found depth of 10 feet, rocky bottom on the charted shoal lying 0.5 mile northwestward from Halifax Island. Kelp is reported to be visible at low water on this shoal.

Directions, Roque Island Harbor.—Pass 700 yards northward of Halifax Island on a 255° true course, heading for the south end of Lakeman Island until Halifax Island is passed, and then keep near the middle of the harbor. Or, coming from northward in Englishman Bay, steer 149° true, with the western side of Shoppee Island (wooded) in range with the western side of Pond Cove Island astern, which leads clear between unmarked spots in Englishman Bay to the entrance of the harbor. The best anchorage is in the western or northwestern part of the harbor where the bottom is soft.

Lakeman Harbor is used as an anchorage by small craft but is reported to be windy.

Bunker Cove, lying between Great Spruce and Little Spruce Islands and The Thorofare is a good harbor and is used for winter storage of small craft. Small craft often anchor in its entrance just off The Thorofare.

The principal dangers in Roque Island Harbor are a spot with 8 feet on it lying ¼ mile off the middle of the north side of Great Spruce Island; and **Seal Ledge,** bare 3 feet at low water, lying 300 yards westward of the southern point at the eastern end of Roque Island.

The Thorofare, connecting the southwest side of Roque Island Harbor with Chandler Bay, has a depth of 9 feet in a narrow crooked channel.

The bottom is visible in the shoaler parts of the channel. The Thorofare is in constant use by small vessels with local knowledge.

Directions.—To pass through from eastward, enter in midchannel between a rock on each side, bare a few feet at high water. Keep in midchannel throughout the passage, except at a point 300 yards inside the eastern entrance, where the northwest side should be slightly favored to avoid a rock on the southeast side, bare at about half tide; and at the western entrance, where the wooded island on the north side should be favored, to avoid a shoal extending 250 yards northward from the point on the south side.

Shoppee Island is flat and wooded except at the northwest end. A reef, known as **Boundary Ledge,** on the outer edge of which are rocks bare at low water only, extends northeastward from Roque Island to within 0.4 mile of Shoppee Island. It is marked by a black buoy at the end.

Roque Bluffs is a post village eastward of Shoppee Point, on the northeast side of Englishman Bay. There is a launch landing on the point southeastward of Pond Cove Island. The yellow bluffs at the mouth of **Englishman River** show up prominently from the southward.

Shorey Cove is a bight, with 8 to 13 feet of water, in the north shore of Roque Island. It is a good anchorage for small vessels, but is little used. There are no dangers if the southern and western shores of the cove be given a berth of over 300 yards. There is a private landing on the east side of Squire Point.

Pond Cove, on the northeast side of Englishman Bay above Shoppee Point, has excellent anchorage westward or northwestward of Pond Cove Island, at a distance not greater than ½ mile, in 12 to 18 feet, soft bottom. The entrance is westward of Pond Cove Island, between it and Little Ram Island, and is clear with the exception of a rock, bare at low water, lying 300 yards northeastward of Little Ram Island. The part of the cove northward of Pond Cove Island is shoal. There are numerous fish weirs in the cove.

Chandler River, at the head of Englishman Bay, is very narrow and crooked to **Jonesboro,** a village at the head of navigation, about 3½ miles above its mouth. The river is bare at low water at Jonesboro. The channel is unmarked, and strangers should not attempt to enter without a pilot. Drafts of 14 feet have been taken to **Calton Point.** There is no traffic to Jonesboro at present. Ice closes the river to Calton Point from about December to April. It is reported to seldom freeze up below Deep Hole Point, but in extreme winters the bay is said to have been frozen as far as Roque Island. Pilots can be obtained from among the local fishermen at the mouth of the river.

Mason Bay, making westward at the head of Englishman Bay, has an unmarked channel with a depth of 13 feet into the entrance from southward, but is practically bare at low water and has many rocks inside the entrance. There is a small settlement by the same name on the south side just inside the entrance. Fish traps are numerous in the vicinity.

Chandler Bay* is on the west side of Roque Island, and extends northward from Mark Island to Squire Point, the northwestern point of Roque Island, where it joins Englishman Bay. A good channel leads eastward of Ballast Island and around Squire Point into Englishman Bay and Chandler River. The principal dangers in this channel are buoyed, and it can be readily followed in the daytime in clear weather. This bay is the approach from westward to Chandler River and the anchorage in Englishman Bay, and is the one generally used by strangers. There is no good anchorage in the bay until north of Roque Island. Care should be taken to avoid the unmarked 17-foot spot in the southern entrance. It lies about 0.6 mile westward of Little Spruce Island.

Black Ledge, a pinnacle bare at low water, lies on the western side of the approach to Chandler Bay from the sea, 0.2 mile eastward of Head Harbor Island.

Breaking Ledge, with 9 feet over it, lies 0.5 mile eastward from Head Harbor Island. It is marked by a black buoy placed 200 yards eastward of the ledge.

Eastern Ledges are about 600 yards long east and west and lie 1.1 miles eastward (true) from Mark Island. At the easterly end is a rock bare at low water, and at its westerly end are two sunken rocks nearly awash at low water. A rock, covered near high water and nearly always marked by a breaker, lies 0.6 mile east-northeastward of Eastern Ledges.

Fifth Rock, with 7 feet over it, lies 400 yards southwest of Eastern Ledges.

*Lat. 44°33′, Long. 67°32′; Charts 304, 1291.

Great Spruce Ledges lie close to the south side of Great Spruce Island. The southernmost rock is covered at high water.

Little Spruce Ledge, off the southwest side of Little Spruce Island, has about 1 foot over it at M. L. W.

Ballast Island, on the western side of the main channel through Chandler Bay, is grassy; a black buoy marks the end of **Ballast Island Ledge** extending eastward from it.

Roque Island Ledge, marked at its western end by a red buoy, extends 700 yards off the west side of **Squire Point.**

Just above Squire Point, **Great Bar** extends from the western shore of Chandler Bay for 1,000 yards. The black buoy marking its end also marks the western side of the channel.

Directions, Englishman and Chandler Bays.—The following directions are for a draft of 17 feet or less to the anchorage northward of Roque Island. Vessels bound from eastward usually go to the anchorage through Englishman Bay, and if bound from westward usually enter through Chandler Bay. The bottom is rocky and uneven and has not been closely examined, and there are many unmarked shoals. For these reasons, caution is necessary.

Through Englishman Bay.—Pass about 0.3 mile eastward of The Brothers Islands and 400 yards east of the bell buoy northeast of them. Steer **312°** true, heading for the east tangent of Shoppee Island, for about 2.6 miles until the black buoy northeast of Bar Island is abeam. Then change course to **297°** true and pass about 300 yards southwest of Shoppee Island and select anchorage above it as desired.

If entering through Foster Channel, from the black buoy north of Ram Island steer **275°** true for 1.9 miles to a position 200 yards south of the red buoy marking Codhead Ledge, then steer **291°** true, passing 300 yards southwest of Shoppee Island and north of the black buoy marking the end of the reef making off from Roque Island.

Through Chandler Bay.—If entering from eastward, follow the directions on page 63 for approaching the eastern end of Moosabec Reach until northward of Mark Island; or, if bound from westward through Moosabec Reach, follow the directions on page 62 until northward of Mark Island. Then bring the western end of Mark Island astern on a **348°** true course, and pass about 250 yards eastward of the black buoy eastward of Ballast Island and the same distance westward of Roque Island Ledge red buoy. From this buoy, steer **30°** true and pass about 150 yards southeastward of Great Bar black buoy. Select anchorage anywhere northward of Roque Island or in Pond or Shorey Coves, taking care to avoid the shoal on the western side, northward of Great Bar.

CHANDLER BAY TO NASH ISLAND

(CHART 304)

Moosabec Reach.—This thoroughfare is the narrow passage west of Chandler Bay, leading between the mainland on the north and the group of islands between Chandler Bay and Pleasant Bay on the south. **Mark Island,** heavily wooded, is the prominent guide to the eastern entrance, and **Nash Island Lighthouse** to the western entrance. This passage is an important thoroughfare and is much used by vessels of 11 feet or less draft in the daytime; a draft of 23 feet can be taken through at high water. The eastern entrance

has been straightened and dredged to a width of 300 feet and a depth of 14 feet. It is well buoyed and can readily be followed in the daytime in clear weather, but strangers should not attempt to pass through at night.

The least depths in the passage occur at the western entrance between **Hardwood Island** and **Fessenden Ledge,** where there is a depth of about 13 feet, and in the eastern entrance where, 0.5 mile west of **Kelley Point,** in the channel between **Snows Rock Beacon** and **Sand Ledge Buoy,** there is a depth of 11 feet. Vessels caught in the fog while passing through the Reach anchor anywhere in the channel where the bottom is soft.

The stone jetty which extends from **Nova Rocks** to the light bares about 3 feet at low water.

Pilots can usually be obtained from among the local fishermen.

Ice obstructs navigation during January and February.

Tides.—The mean rise and fall of tides is 11½ feet.

The **Tidal Currents** have considerable velocity in the dredged channel, particularly at the light on the stone jetty which extends northwestward from **Nova Rocks.** The current floods to the eastward and ebbs to the westward.

Directions from eastward and westward are given on page 62. Approaching from southward, steer for the eastern end of Mark Island on a 304° true course, which will lead between Breaking Ledge and the dangers near Eastern Ledges, and pass eastward and northward of Mark Island, giving it a berth of over 200 yards.

Jonesport is a fishing town on the north shore of Moosabec Reach, about 2 miles westward of Kelley Point. There is telephone communication and a highway to points east and west. There is a depth of about 15 feet at the wharf of the largest fish factory. There is no regular steamer service. There is considerable trade in fish and lobsters.

Fuel oil, Diesel oil, coal, gasoline, and provisions are available and there are machine shops where repairs to gasoline engines can be made. There is a small marine railway, for hauling out boats up to 60 feet in length, located in Sawyer Cove. Fresh water for boats is available in small quantities at Jonesport.

On approaching the town, the two brick stacks of the fish factories are prominent.

Beal Island,* on the south side of Moosabec Reach, opposite Jonesport, has a village (Beals post office) at its northern end. The main wharf is at the northeast extremity of the island, and has a depth of 8 feet at its end. Gasoline and oils are available here. The fish wharves in the cove on the west side are bare at low water.

Indian River and **West River,** making northward at the western end of Mossabec Reach, have crooked unmarked channels fringed by rocks, and are frequented only by local fishermen. There are no landings except for small craft at high water.

A quarry and a loading wharf are located on the west side of **Bickford Point,** the western entrance point to West River. This quarry is prominent from the western approach to Moosabec Reach. The wharf bares at mean low water.

*Lat. 44°30′.6, Long. 67°36′.9 : Charts 304, 1201.

Wohoa Bay is the name given locally to the large bay east of Moose Neck and south of Bickford Point as far as Shabbit Island. There is reported to be good anchorage between **Carryingplace Island** and Fessenden Ledge in 16 to 37 ft.

The following is a description of the islands adjacent to the usual route bound westward from Moosabec Reach through Tabbott Narrows. **Pomp Island** is grassy and has a single clump of trees. **Hardwood Island** is wooded, and has a house on the north end and a quarry on the south end. A 13-foot shoal lies in midchannel between this island and Fessenden Ledge. **Shabbit Island Ledge** has a small spot bare at high water. **Shabbit Island** is low and wooded in the center. **Sheep Island,** on the northwest side of Tabbott Narrows, is grassy, and **Ram Island,** on the southeast side, is wooded.

Cape Split Harbor, lying 2 miles northeastward of Nash Island lighthouse, is a secure anchorage for small vessels, and with the aid of the buoys is easily entered in the daytime. The harbor has extensive flats and ledges, between which is a channel 200 yards or more wide. The anchorage with best swinging room is about 0.5 mile inside the entrance, from abreast a red buoy to just above a black buoy, in 3 to 4 fathoms; and vessels of less than 9-foot draft can anchor in the entrance of the cove on the eastern side opposite the black buoy, in 9 to 15 feet, or northwest of the wharf in 16 feet. The flats are soft mud in places, and small vessels are sometimes beached on them. A reef, which shows well at low water, extends 400 yards southward and southwestward from the eastern point at the entrance, and is marked on its western side by a red buoy. There is a wharf in poor condition, with 4 feet alongside at M. L. W., and a small settlement, known as Moose Neck, on the bay; some motorboat supplies are obtainable. There is a gasoline pump at a general store near the wharf about 0.9 mile inside the entrance to the harbor and on the eastern side.

The approach to Cape Split Harbor between **Sheep Island** and The Ladle is clear if these islands be given a berth of over 300 yards. From westward the approach is clear between the spindle southward of Norton Island and the Pot Rocks. Enter the harbor midway between the red and black buoys at the entrance on a **12°** true course.

ISLANDS AND CHANNELS SOUTH OF MOOSABEC REACH

(CHART 304)

Lying between Chandler Bay and Pleasant Bay and extending about 5 miles southward from Moosabec Reach is a group of islands, which, though of no commercial importance, form several prominent landmarks for vessels passing along the coast. The passages between these islands lead to several small and sheltered anchorages, of which Mistake Harbor is the only one available for strangers on account of numerous unmarked rocks and ledges.

Head Harbor is between **Head Harbor Island,** the easternmost of the group, and Steels Harbor Island, and is a sheltered anchorage with depths of 15 to 21 feet. The harbor is small and has unmarked rocks bare at low water on both sides of the entrance and anchorage. Strangers should not enter without a pilot. The rocks of **Man Island** and **Black Head**, the eastern side of the entrance, are dark, and those on the western side are light in color.

Mistake Harbor.—This harbor, on the northwest side of Steels Harbor Island, is small, but affords a secure anchorage with depths of 4 to 7 fathoms. It is entered from southward through Main Channel Way, a deep but narrow channel leading between **Steels Harbor Island** on the east and **Mistake** and **Knight Islands** on the west. With care the harbor may also be entered by vessels through Mud Hole Channel; vessels delayed by a head wind in Mistake Harbor sometimes beat out through the Mud Hole Channel. The black buoy in the middle of Mistake Harbor marks a rock bare at low water only.

Directions, Mistake Harbor.—Give the south end of Steels Harbor Island a berth of about 0.3 mile when southeastward of it and enter in midchannel, about 350 yards northeastward of Moose Peak Lighthouse, on a **301°** true course. When through the narrowest part of the channel select anchorage between the northwest end of Knight Island and the black buoy 0.5 mile northwestward of it, in 4 to 7 fathoms.

Green Island is the largest of the islands and rocks extending northwestward along the south side of Mistake Harbor. The northernmost rock of the group is bare at low water and lies 300 yards northward of Green Island and 200 yards northwestward of the outer bare rocks northeastward of the island. At the northwestern end of the group are two sunken rocks with 4 feet over them, which lie 300 yards northwestward of the outer bare rock lying 300 yards northwestward of the island.

Moose Peak Lighthouse,* on the southwest side at the entrance to Main Channel Way, is a white tower connected with a white dwelling. The light is 72 feet above the water, and visible 14 miles. The fog signal is an air diaphragm horn.

Eastern Bay lies between Head Harbor and Great Wass Islands northward of Mistake Harbor; a thorough local knowledge is required for its navigation.

Mud Hole Channel is ½ mile westward of Moose Peak Lighthouse and leads northwestward to the **Mud Hole,** a narrow cove in Great Wass Island used by boats which enter at high water. Boats are sometimes stored in Mud Hole. There is good anchorage for a small vessel at the entrance to **Sand Cove** and Mud Hole, in 14 to 30 feet soft bottom.

On the southwest side of Mud Hole Channel and extending nearly 1 mile in a southeasterly direction from Little Cape Point, Great Wass Island, is a group of rocks and ledges called **Black Ledges,** many of which are bare at half tide. **Channel Rock,** the southeasternmost of the Black Ledges, is awash at high water and lies 600 yards northeastward of **Freeman Rock,** a bare rock about 40 feet high.

The principal dangers on the northeast side of Mud Hole Channel are a rock, bare at low water, lying 150 yards off the southwest side of the island on the northeast side, at the entrance, and a sunken rock lying 350 yards westward of Green Island and 200 yards southward of the bare rock northwestward of the island.

Directions, Mud Hole Channel.—From Mistake Harbor steer **287°** true for the southwest side of Minx Island in range with the

*Lat. 44°28′.5, Long. 67°32′.0: Charts 304, 1201, 70, 1106.

high bluff on the south side of **Sand Cove North,** and pass about midway between the outer bare rock northeastward of Green Island and the black buoy northward. Pass 200 to 400 yards southeastward of Minx Island and steer **181°** true with eastern end of Minx Island in range with the northwestern end of Head Harbor Island astern. When the outer bare rock northwestward of Green Island bears 83° true steer **123°** true and pass about 400 yards southwestward of the rock, and about midway between **Water Island** and **Channel Rock** to sea.

Great Wass Island.—Lying southward of Jonesport has a **Coast Guard Station** on the west side 1.4 miles north of the southern point. **Cummings Head** appears reddish from offshore.

Western Bay, lying westward of Great Wass Island, has numerous groups of islands which lie generally in a north and south direction. Between the groups are passages that lead to the western end of Moosabec Reach and are used by vessels with local knowledge.

The passage between **Great Wass Island** and **Crumple Island** has numerous unmarked sunken rocks and is also obstructed by a line of ledges and rocks extending from **Browney Island** to Great Wass Island. There is a narrow channel with a depth of about 10 feet through these ledges. This passage should not be used by a stranger.

Crumple Island is a high, bare, rocky island with several nubbles. **Fisherman** and **Browney Islands** lie northwestward of Crumple Island, with rocks and ledges between. **Egg Rock,** a bare, rocky islet, lies 1½ miles westward of Crumple Island, with numerous rocks and ledges between, some of which are known as **Curlew, Green,** and **Seal Rocks. Western Egg Rock** is a small, bare, rocky islet about 0.7 mile northward of Egg Rock. **Seahorse Rock** is bare at half tide and lies 0.4 mile westward of Egg Rock. It is marked by a red bell buoy placed southwest of the rock.

The passage between Seahorse Rock, Western Egg Rock, and **Ram Island** on the east, and the Sand and Drisco Islands on the west, has a broad channel in its southern part, although there are unmarked dangers on either side. The northern end of the passage on either side of **Hardwood Island** is foul, and the passage should not be used by strangers.

The passage westward of the Sand and Drisco Islands and **Shabbit Island** and eastward of Black Rock, Flat Island, and Plummer Island is comparatively clear. There is also a comparatively clear passage westward of Black Rock, Flat Island, and Green Island and eastward of **Cone Island.** Both passages can be used by vessels in the daytime and clear weather with the assistance of the chart.

Sand and **Outer Sand Islands** are wooded. The **Drisco Islands, Stevens,** and **Plummer Islands** are wooded. **Flat** and **Green Islands** are comparatively low and covered with grass. The highest parts of **Stanley Ledge** (0.3 mile southward of Outer Sand Island) and **Batson Ledge** (0.4 mile eastward of Sand Island) show above high water. **Black Rock** is a low, bare rock lying 1.2 miles south-southwestward of Flat Island and 2.2 miles south-southeastward of **Nash Island Lighthouse.**

NASH ISLAND TO PETIT MANAN

(CHART 305)

Pleasant, Narraguagus, and **Pigeon Hill Bays** indent the shore between Nash Island Lighthouse on the east and Petit Nanan Lighthouse on the west, and form the approach to the villages of Addison, Harrington, Millbridge, and Cherryfield, all on tributaries of the bays. They are frequented mostly by local fishing boats. The bays are separated by islands and rocks, through which several thoroughfares lead.

Pleasant Bay.—This bay is a secure anchorage and is easily entered in the daytime. There are numerous islands and ledges in the bay, but the important dangers are marked by buoys. The entrance is marked by Nash Island Lighthouse. A channel in no place less than 0.5 wide, with depths of 6 fathoms or more, leads up the bay to an anchorage in 5 or 6 fathoms westward of **Nightcap Island** and southward of **Barton Ledge** (marked by a red buoy). The best and most frequently used anchorage is southeastward and eastward of **Birch Islands,** in 14 to 18 feet.

Cone and **Nash Islands,** on the eastern side of the entrance to Pleasant Bay, are grassy. A ledge, the southern end of which shows bare, extends about 500 yards southward from Nash Island.

Nash Island Lighthouse is a white square tower connected with dwelling. The light is 51 feet above the water, and visible 9 miles. The fog signal is a bell. There are several houses near the light. A bell buoy is located 0.6 mile southwestward of the light.

The Ladle, 0.7 mile southwestward of the entrance to Cape Split Harbor, has a bare symmetrical mound at its northern end.

Pot Rock and **Big Pot,** westward of The Ladle, are bare rocks.

Flint Island, on the west side at the entrance of Pleasant Bay, is wooded. The southeastern side should be given a berth of at least 0.5 mile.

Coles Ledge, 0.3 mile eastward of Flint Island, is bare near low water and marked on its eastern side by a black buoy.

Flint Island Narrows is a deep passage leading from Pleasant Bay to Narragaugus Bay, between **Flint** and **Dyer Islands.** It is used principally by steamers, and is not recommended for sailing vessels on account of ledges which make out from the southern shore of Dyer Island and contract the channel to a width of about 200 yards. A black buoy is placed on the northern edge of the ledges making off from the northeastern side of Flint Island and marks the eastern entrance to the Narrows. The course through the Narrows is about 240° true, passing close to and northwestward of the black buoy and about 300 yards off the northwest sides of Flint and Shipstern Islands and more than 300 yards off the south end of Dyer Island.

Norton Island is grassy. **Norton Island Ledge,** 400 yards westward of Norton Island, is bare in spots at high water. The reef extending 400 yards southward from the west end of Norton Island is partly bare at high water, and marked by a spindle at the end.

The channel between Norton Island and Cape Split is obstructed by a small rocky and unmarked shoal, with a least depth of 9 feet at mean low water.

Narrows Island Ledge is bare at half tide.

Pleasant River, emptying into the head of Pleasant Bay from northward, can be approached on either side of Birch Islands, the channel eastward of them having a depth of 16 feet and that westward 17 feet. For a distance of about 2 miles up the river to Wass Point, the channel, with a depth of over 17 feet, narrows gradually from 400 to 200 yards, and affords good anchorage in 3 to 6 fathoms. Above Wass Point the channel is narrow and crooked, with a least depth of about 6 feet at one place just below **Addison,** and is suitable only for small craft, except with local knowledge. Above this the river is navigable at high water to **Columbia Falls,** about 10 miles above its mouth.

The channel is partially marked by buoys and easily followed with the aid of the chart to **Wass Point.*** For about 1 mile above to White Point, the channel is bordered by ledges, bare at various stages of the tide, and marked by beacons and sometimes by local bush stakes, but is difficult to follow. From **White Point** to Addison there are shoals on either side bare at low water; the channel is unmarked, but is most easily followed at low water or on a rising tide. The river above Addison is unmarked and difficult. Ice obstructs navigation from December to April.

Nightcap Island, on the east side at the entrance to Pleasant River, is grassy, with a few bushes on the north side. **Nightcap Ledge,** extending southward from the island, is bare at the inner end at half tide.

Barton Ledge, 900 yards northwestward of Nightcap Island, is bare at low water and marked by a red buoy.

Bunker Ledge, 0.3 mile westward of the southern Birch Island, is bare at half tide, and marked on its eastern side by a black buoy.

Birch Islands are wooded. **Raspberry** and **Mink Islands,** northward of Birch Islands, are grassy. **Fort Island** is marked by a shanty.

Addison is a village about 5 miles above the mouth of Pleasant River. There is no trade by water, and in 1940 the wharves were in ruins. Just above Addison the river is crossed by a highway bridge with a draw about 40 feet wide. Vertical clearance is about 17 feet at M. L. W. There is no bridge tender and the key to the bridge is kept by one of the local residents.

Gasoline and some supplies can be obtained from a general store with a service station. The river channel above Addison is dangerous and is not much used.

The west branch was not navigable in 1940.

Columbia Falls, a village 5 miles above, has railroad connections.

Harrington Bay is separated from the upper part of Pleasant Bay on the east by **Ripley Neck,** and from Narraguagus Bay on the west by **Foster Island.** Harrington Bay extends 2½ miles in a northerly direction from Strout Island to **Chamberly Island,** where it is met by Harrington River from northeastward and by Flat Bay and Mill River from northwestward. It has a depth in the channel of 4¾ fathoms, and good anchorage in 5 to 7 fathoms, but is seldom used except by local vessels.

Ripley is a small village on the southwest side of Ripley Neck.

---

*Lat. 44°34′.5, Long. 67°45′.7: Charts 305, 1201.

Flat Bay and **Mill River** are mostly bare at low water, and seldom used except by an occasional wood schooner.

Harrington River has a narrow, crooked, unmarked channel, which shoals to a depth of 1 foot at low water near the town of **Harrington,** at the head of navigation on Harrington River about 4 miles above its mouth. The town has railway and highway connections and there is but little traffic by water. Ice forms in the river and bay between December and April as far down as Ripley Neck. The river channel above Nash Point is narrow and tortuous. Motorboats run to the town of Harrington but there are no arrangements for supplying them with gasoline or water.

Strout Island, in the middle of the entrance of Harrington Bay, is sparsely wooded. **Strout Island Ledges,** southeastward of Strout Island, are covered at high water; the south end is bare at low water and marked by a red buoy. A rock awash at low water and marked by a red buoy lies 700 yards eastward of the south end of Strout Island Ledges. **Shag Islet** is a low, bare rock. The channel between Strout Island and **Otter Island** is called **Strout Island Narrows.**

Dyer Island Narrows, the passage between **Dyer Island** and **Foster Island,** has a depth of 9 feet at low water, and connects Harrington Bay and Narraguagus Bay. This passage is buoyed, but is not suitable for sailing vessels on account of the sharp turns and narrowness of the channel. There are numerous dangers close to the channel, and the buoys must be closely followed. Local pilots report dangers in this channel and that a boat drawing 3 feet has struck boulders.

Directions, Dyer Island Narrows, pass about 50 yards southwestward of the red and black buoy lying 300 yards westward of the northern end of Strout Island, steer **321°** true, and pass 50 yards northward of the next black buoy. Haul sharply southwestward around this buoy, leaving it about 50 yards on the port hand, and steer **218°** true to a position 100 yards westward of another black buoy. Then steer **235°** true, and pass close northward of the black buoy at the western end.

Narraguagus Bay.—This bay lies northward of Petit Manan and northwestward of Nash Island. The lower part of the bay is a well-sheltered anchorage, much used as a harbor of refuge in all seasons by vessels up to 18-foot draft. The principal dangers in the channels are buoyed, and the lighthouses on Nash Island and Petit Manan with the lighted bell buoy just eastward of Pond Island are guides for the entrance. It is connected with Pleasant Bay by Flint Island Narrows, and with Harrington Bay by Dyer Island Narrows, both previously described.

Jerry Ledge, off the southeast end of **Bois Bubert Island,** is bare at low water. A 15-foot spot just south of this ledge is marked by a black buoy on its southern side.

Jordans Delight Ledge, in the middle of the entrance to Narraguagus Bay, has a rock at its southwest end, bare at low water and marked by a spindle.

Black Ledge, at the northeast end of Jordans Delight Ledge, is bare at half tide. The ground in this vicinity is very broken and should not be crossed by vessels.

Mackerel Rock, an unmarked rock with 10 feet over it, lies 1.2 miles, 111° true from Narraguagus Lighthouse tower and 0.6 mile northeastward of Black Ledge, and slightly west of the range made by the latter and Petit Manan Lighthouse.

Jordans Delight is a rocky island, sparsely wooded on top.

Pond Island shows from southward as a bare conical hill 160 feet high, and is marked on its eastern side by Narraguagus Lighthouse Tower.

Narraguagus Lighthouse Tower is a white tower connected with dwelling. It is no longer maintained as a light but the tower standing 54 feet above the water is a conspicuous landmark.

Douglas Island Harbor* lies north of the **Douglas Islands** (wooded) and west of Pond Island. It has anchorage in 4 to 6 fathoms, but is seldom used, the anchorage above Trafton Island being better. Considerable sea makes into the harbor in heavy southerly weather. The harbor is clear except at its southwest end, where **Douglas Island Ledge,** partly bare at low water, extends 350 yards northwestward from the middle Douglas Island. The dangers in the southern part of the harbor will be avoided by keeping the summit of Pond Island bearing southward of 94° true.

Entering Douglas Island Harbor northward of Pond Island, pass northward and at least 0.3 mile westward of the black buoy on the end of the ledge which extends nearly 0.3 mile northward from Pond Island. The harbor may also be entered from southward between the islands, the best channel being between the wooded island near the southwest end of Pond Island on the east, and the eastern one of the three Douglas Islands and the bare rock 250 yards southward from it on the west. Entering by this passage, avoid two rocks, bare at low water, which lie 125 yards southwestward of the wooded islet lying 250 yards off the middle of the west side of Pond Island.

A narrow channel, said to have a depth of at least 8 feet at low water, but bordered by rocks sunken and awash, on either side, leads from Douglas Island Harbor into the head of Pigeon Hill Bay. The best water leads about 75 yards northward of **Currant Island** (wooded in the center) and then about 283° true with the highest point of Pond Island astern, until in the main channel of Pigeon Hill Bay. While this channel is much used by local fishermen who use the fish weirs as guides during the summer it is not recommended for strangers without local knowledge.

Shipstern Island, on the eastern side, at the entrance of Narraguagus Bay, is high, round, and wooded, and has rocky bluffs on its south side.

Western Reef (Yellow Ledge), extending 0.4 mile southward from Tommy Island, has a bare rock on its southern end, and is marked by a red buoy.

Tommy Island is low and sparsely wooded.

Trafton Island is wooded. There is a good channel on either side.

Trafton Island Ledge, in the middle of the entrance to the cove on the north side of Trafton Island, is a bare rock.

Halftide Ledge, 0.6 mile northward of Trafton Island, is partly bare at low water and marked by a spindle near its northern end.

---

*Lat. 44°27′.5, Long. 67°51′.2: Charts 305, 1201, 1202.

Wyman is a village on the western side of Narraguagus Bay 1.8 miles northward of Trafton Island. The brick chimney of the old fish plant (destroyed) is prominent. There are several small fish wharves in the cove northwestward of **Mitchell Point.** Gasoline is obtainable. There is a general store and a paved highway to Millbridge.

Narraguagus River, emptying into Narraguagus Bay from northward, has a least depth of about 4 feet to Millbridge, 2 miles above the mouth at Wyman. The channel is narrow, crooked, and leads between flats on each side bare at low water. It is partially marked, but local knowledge is necessary to carry the best water. Strangers should navigate it on a rising tide.

Millbridge is a small town on the west side of the Narraguagus River near its mouth. There is practically no shipping except gasoline, and the two old wharves are in ruins. Fishing boats still use the remains of the lower one (1940). There is an oil wharf with about 4 feet at its end at M. L. W. The highway bridge, fixed span, has clearances of about 122 feet horizontal and 16 feet vertical at M. L. W.

Narraguagus River between Millbridge and **Cherryfield,** a distance of about 4 miles, is bare at low water throughout most of its length, and the deepest draft using it is about 5 feet at high water and with local knowledge.

Pilots for this locality can be obtained from among the fishermen at Wyman.

Cherryfield has railroad communication.

Pigeon Hill Bay.—This bay, having its entrance on the eastern side of Petit Manan Bar and northward of Petit Manan Lighthouse, is easy of access by day, and affords good anchorage in 12 to 24 feet, but is seldom used except by local fishermen. The channel is unmarked except at the entrance. There is a small settlement, named **Pigeon Hill,** on the west side near the Carrying Place. A watch tower, in ruin, on the western side of the bay is visible above the trees in all directions.

Whale Ledge, on the east side at the entrance to Pigeon Hill Bay, is bare at half tide. A red buoy marks a 13-foot spot 300 yards southward of it.

Egg Rock shows at low water as a large ledge of dark boulders, with several high parts which are always out of water. There is a narrow channel between Egg Rock and **Bois Bubert Island,** but a stranger should not attempt it.

Gull Rocks are a large ledge, bare at half tide, making off 0.2 mile from the shore of Bois Bubert Island about 1.4 miles northward of Egg Rock. These rocks are avoided by keeping in mid-channel.

Pigeon Hill, the high, bare-topped hill on the western shore near the head of the bay, is conspicuous, and a landmark for some distance at sea.

The thoroughfare connecting the head of Pigeon Hill Bay with Duglas Island Harbor is described on page 96.

Directions, Pigeon Hill Bay, having made the red buoy on the east side of the entrance, a 348° true course with Pigeon Hill ahead and Petit Manan Lighthouse astern, will lead 0.3 mile westward of red buoy, and clear of all dangers until inside the bay. Follow

a mid-channel course in the bay, and anchor above Gull Rocks in 3 to 4 fathoms, soft bottom. Small vessels anchor on the west side off the Carrying Place (Pigeon Hill).

Petit Manan Bar connects Petit Manan Island with Petit Manan Point on the mainland; it is composed of ledges and large boulders, between which is a channel, marked by two vertical striped buoys, which may be used by vessels of 8 feet draft at low water when the sea is smooth. The sea breaks along the whole length of the bar with a swell or in heavy weather, and the tidal currents set over it with considerable velocity, the flood northeastward, the ebb southwestward; sailing vessels are cautioned not to approach the bar in a light breeze.

The buoys marking the channel across Petit Manan Bar are 1.3 miles northward of Petit Manan Lighthouse and 1 mile southward of the end of Petit Manan Point. The buoys can be left close to on either side.

Another channel across the bar, 0.4 mile southeastward of **Petit Manan Point,** is used by small local boats at all stages of the tide, but it is unmarked and difficult, and should not be attempted by strangers.

Petit Manan Island is low and bare and is marked by the lighthouse and several buildings.

Petit Manan Lighthouse* is a gray granite tower. The light is 123 feet above the water and is visible 17 miles. The fog signal is an air diaphragm horn.

Simms Rock, located 1.7 miles 162° true from Petit Manan Lighthouse, has a least found depth of 6 feet and is marked by a red and black buoy placed between it and a sunken rock to the southeast.

Southeast Rock, located 3.2 miles 133° true from Petit Manan Lighthouse, has a least found depth of 5 feet and is marked by a red lighted whistle buoy.

Tibbett Rock has a least found depth of 12 feet and is marked by a red and black buoy. Another rock, with a depth of 10 feet, and marked by a red and black buoy, is located 0.8 mile 146° true from Tibbett Rock.

Jackson Ledge lies 2.6 miles 85° true from Petit Manan Lighthouse. It has a least found depth of 23 feet and is unmarked.

Jo Leighton Ground, unmarked, and having a least depth of 15 feet, lies 2.1 miles 41° true from Petit Manan Lighthouse.

Petit Manan Pool, on the southeast side of Green Island and north of Petit Manan Island, is a small-boat harbor. It is bare at low water; however, the bottom is soft and boats ground out at low tide.

Pilots can be obtained from local fishermen at Wyman and other points.

Anchorages, Narraguagus Bay.—The usual anchorage for vessels seeking shelter in Narraguagus Bay is between Trafton Island and Lower Middle Ground buoy, in 21 feet, soft bottom; vessels of 10-foot draft or less sometimes anchor in 14 to 17 feet north of Trafton Island, about midway between it and the beacon on Half-tide Ledge. Vessels bound up to Millbridge anchor in 14 to 16 feet about 0.5 mile east of Wyman, the wharf bearing about 274° true.

*Lat. 44°22′.1, Long. 67°51′.9: Charts 305, 1201, 1202, 70, 1106.

Good anchorage in 24 feet, soft bottom, will be found about 0.4 mile northeastward of the spindle on Half Tide Ledge.

Anchorages, Pleasant Bay.—Vessels also anchor in Pleasant Bay in 5 to 6 fathoms westward of Nightcap Island and southward of Barton Ledge; the best and most frequently used anchorage for small vessels in Pleasant Bay is southeastward and eastward of Birch Islands, in 14 to 18 feet.

Ice.—From December to April ice usually forms on Pleasant River and Harrington River to their mouths, and very frequently on Harrington Bay. Ice seldom obstructs navigation in Narraguagus River except in January and February, during which time the river is usually frozen to the mouth. In ordinary winters the ice that forms in these bays goes out with the tides.

Tides.—The mean rise and fall of tides is 11 feet at Nash Island, 12 feet at Addison Point, and 11 feet at Millbridge.

Directions, Pleasant Bay.—From a position close to the bell buoy located 1 mile south of Petit Manan steer **34°** true for 7.7 miles and pass either side of the vertically striped bell buoy located 0.6 mile southwest of Nash Island Light. Then steer about **347°** true for 2.3 miles to a point 0.3 mile 270° true of Norton Ledge. At this position change course to **12°** true and make good the range of the east tangent of the **Birch Islands** with the tangent to **Tumbledown Head.** Pass **Nightcap Island** at a distance of about 250 yards and continue to anchorage eastward or southeastward of Birch Islands.

Anchorage may also be had in 5 to 6 fathoms about 0.3 mile west of Nightcap Island and about the same distance south of **Barton Ledge.**

If coming from eastward, as through Tabbott Narrows, when west of Ram Island (Chart 304), steer **267°** true with the south end of that island astern. If made good this course will lead about 450 yards north of **The Ladle** and the same distance south of the beacon off the south side of Norton Island. When past this beacon round Norton Ledge at a distance of about 0.3 mile, passing south and west of it. When 0.3 mile west of this ledge continue as in the second paragraph of these directions.

Directions, Harrington Bay.—Follow the directions given for Pleasant Bay from Petit Manan until 1.3 miles north of the bell buoy off Nash Island, then steer **319°** with Nash Island Light astern and pass midway between **Otter** and **Strout Islands.** Follow the western shore of Strout Island at a distance of about 200 yards until about 100 yards east of the horizontally striped buoy. Then steer about **0°** true and pass 125 yards west of **Shag Island,** after which follow the shore of **Ripley Neck** at a distance of about 300 to 400 yards and anchor on eastern side of bay below **Ripley Islands.**

If entering from Tabbott Narrows, steer **267°** with the south end of Ram Island astern as in the preceding directions for Pleasant Bay. Continue on this course for about 0.8 mile past Norton Island Beacon, then change course to **319°** true with Nash Island astern.

Directions, Narraguagus Bay.—If approaching from eastward pass close south of the bell buoy southwest of Nash Island Light and steer **290°** true. This course clears the south end of **Trafton Island** by 300 yards.

If entering east of Trafton Island, when on this course, **290°** true, and just past **Western Reef** with the end of the ledge extending southeast from **Tommy Island** abeam, swing right to course **353°** true and run about midway between Tommy and Trafton Islands. When the hill on the north end of Trafton Island is abeam change course to **336°** true and proceed to anchorage eastward of **Halftide Ledge.**

If entering west of Trafton Island, continue on course **290°** true until about 300 yards off the south end of that island. Round the southwest end of the island at about the same distance and proceed up the bay for 0.8 mile to anchorage on course 356° true.

If entering from southward; from close to the bell buoy 1 mile south of Petit Manan, steer **13°** true for about 6.5 miles to a position about 100 yards east of the lighted bell buoy off **Pond Island.** If passing east of Trafton Island, continue this course until the southern points of **Shipstern** and **Flint Islands** are on range, then head for the center of the channel east of Trafton Island and continue as in second preceding paragraph. If passing west of Trafton Island, when off Pond Island bell buoy, change course to **336°** true, heading to clear Trafton Island by not less than 300 yards and continue as directed in preceding paragraph.

Chapter 7.—PETIT MANAN TO JERICHO BAY

(CHART 1202)

PETIT MANAN TO SCHOODIC ISLAND

(CHART 305)

The bight inclosed between Petit Manan Bar and Schoodic Peninsula is the approach to Dyer and Gouldsboro Bays and Prospect Harbor. Prospect Harbor is the most important village, although Gouldsboro and Steuben can be reached by small craft at high water. These waters are frequented principally by local fishermen. There are many rocks in the approach and tributaries, not closely examined, and vessels should use caution when crossing broken areas where the charted depth does not considerably exceed the draft.

Moulton Ledge, off the entrance to Dyer and Gouldsboro Bays, 3 miles westward of Petit Manan Lighthouse, is bare at low water, and is marked by a red and black buoy placed southwest of the ledge. There are several other unmarked ledges and broken ground in this vicinity, and it should be avoided by vessels. There is an 18-foot spot 0.6 mile south of the ledge and **Stone Horse Ledge** with 11 feet of water over it lies about 0.8 mile to the northeast.

Dyer Bay*, the entrance to which lies 3 miles northwestward of Petit Manan Lighthouse, has excellent anchorage in 4 to 7 fathoms, but it is unmarked and seldom used except by small local vessels. Petit Manan Point, on the eastern side of the bay, has a large watch tower which is in ruin but still forms a prominent mark. A group of islands and rocks. with narrow, deep passages between them, extends from westward across the entrance of Gouldsboro Bay and part way across Dyer Bay entrance, leaving a good passage nearly ½ mile wide between the easternmost bare ledge, **The Castle,** and Petit Manan Point. One mile above The Castle the channel is contracted to a width of 250 yards by rocks and ledges, which extend out from both shores and have a depth of 9 to 11 feet over them. Above this the channel widens to 0.5 mile, and contracts gradually to 400 yards westward of **Sheep Island.** The least depth in the channel is about 3 fathoms, but a stranger should not attempt to enter at low water with a vessel of more than 9-foot draft. There are no commercial wharves.

Pinkham Bay, at the head of Dyer Bay, is full of rocks and ledges; a narrow, crooked channel with a depth of 8 feet at low water leads for some distance toward its head, which runs dry at low water.

Dyer Harbor, north of Sheep Island and west of Goods Point, is shallow; the upper part is dry at low water.

*Lat. 44°26′.0, Long. 67°55′.3: Charts 305, 1202, 1106.

540825°—43——8

Carrying Place Cove makes southeastward, north of Sheep Island; the head of this cove is nearly all soft mud and dry at low water and is 300 yards from Pigeon Hill Bay.

The **tidal currents** are strong in the entrance of Dyer Bay, but follow the general direction of the channel except near Dyer Point, where they set in and out of Gouldsboro Bay.

The Castle, Bonny Chess Ledge, and **Little Ledge** are bare ledges, without distinguishing marks.

Yellowbirch Head, on the east side, 0.7 mile northeastward of The Castle, is a high, bare bluff.

Directions, Dyer Bay, entering from eastward.—From just south of the vertical striped bell buoy 1 mile southward of Petit Manan Lighthouse, steer **315°** true for 3.2 miles until the south end of Petit Manan Point is 0.6 mile distant and in range with Egg Rock, bearing 60° true. Then steer **351°** true and pass 250 yards eastward of The Castle. Then bring it astern on a **359°** true course. When halfway up the bay, off Yeaton Point, change course a few degrees to the right heading to pass in mid-channel westward of Sheep Island. Select anchorage near the middle of the bay when over 1.3 miles above The Castle, in 4 to 7 fathoms, but do not go over 400 yards above Sheep Island.

Entering from westward.—From the whistling buoy off Schoodic Island, steer **46°** true for 7 miles, passing 0.4 mile southeastward of Little Black Ledge, 0.5 mile northwestward of Stone Horse Ledge, and to a position 0.4 mile southward of The Castle. Pass about 250 yards eastward of The Castle and proceed as directed in the preceding paragraph.

Gouldsboro Bay.—This bay lies 4 miles northwestward of Petit Manan Lighthouse and 6 miles northeastward of Schoodic Island. It forms an excellent anchorage in 2 to 9 fathoms. It is the approach to the villages of **Gouldsboro** and **Steuben,** 6½ and 7 miles, respectively, above the entrance, but the approaches to these villages are unmarked and can be navigated only by small craft at high water, and are little used. Ice obstructs navigation in the bay from December to March. In severe winters the bay is closed to the entrance.

Sally Islands, a chain of small islands and ledges, extend across the entrance to Gouldsboro Bay; through the chain are two navigable channels known as Eastern Way and Western Passage. When approaching from westward, care must be taken not to mistake the passages, the islands being difficult to recognize. Inside the islands, the bay is free from outlying dangers and the water shoals gradually toward its head.

Eastern Way, or **Ship Channel,** leads into the bay between **Eastern Island** (wooded on top) and **Bald Rock** (a bare rock); it is about 350 yards wide between the 18-foot curves, and has a spot with 24 feet over it about 200 yards west of Eastern Island. This channel has the strongest tidal currents, and when the current is running ebb sailing vessels can enter only with a strong favorable breeze. The currents set diagonally across the channel.

Western Passage leads into the bay between Sally Island (rocky, with grass on top) and Sheep Island (thickly wooded in center). It is about 200 yards wide between the 12-foot curves and leads close along the eastern side of **Sheep Island** westward of ledges bare at

half tide; the least depth in the channel is 20 feet. The tidal currents run true with the channel and have a velocity of 2 to 3 knots at strength.

There is a passage from Dyer Bay to Gouldsboro Bay north of Sally Islands. It is obstructed by rocks, partly bare at low water only, which extend 300 yards southward and southwestward from the southern end of **Dyer Neck,** and by a shelving ledge which extends 250 yards northeastward from Eastern Island. The channel where narrowest, abreast Eastern Island, is 250 yards wide, and the range of the northwest sides of Bald Rock and Sheep Island, bearing 240° true, leads through the middle of it.

Point Francis,* on the western shore, 3½ miles above Sally Islands, is high and wooded, and is prominent from the lower end of the bay.

Joy Bay, a shallow body of water 1½ miles long, with a narrow, crooked channel to the village of Steuben, makes northward from Gouldsboro Bay at **Rogers Point;** it separates into two coves at its head; the eastern one is **Steuben Harbor** and the western, **Joy Cove. Steuben** can be reached at high water by vessels of 7 to 8 feet draft; the channel is nearly bare at low water, and is unmarked and seldom used.

Gouldsboro Harbor is a large shallow arm with numerous ledges at its entrance, making into the northwestern part of Gouldsboro Bay and extending about 2½ miles to the village of Gouldsboro, which is of no commercial importance. The harbor has a narrow, crooked, unmarked channel, nearly dry at low water, and is seldom used.

Directions, Gouldsboro Bay.—A depth of over 4 fathoms can be carried into the bay through the Eastern Way, and 20 feet through the Western Passage. The tidal currents have a velocity of 2 to 3 knots at strength through these passages, and in Eastern Way they set diagonally.

From eastward, entering through Eastern Way.—From off the vertically striped bell buoy southward of Petit Manan Lighthouse steer 312° true a little over 4 miles; the tidal currents set across this course with considerable velocity, the flood northeastward and ebb southwestward. Change course as necessary to pass midway between Eastern Island and Bald Rock. When inside the islands steer a little more northward and stand up the middle of the bay; the water shoals gradually toward the head, and anchorage can be had anywhere between the entrance and Point Francis by giving the shores a berth of 500 yards.

From westward, entering through Eastern Way.—From near the whistling buoy off Schoodic Island steer 46° true for 4.4 miles, passing 0.4 mile southeastward of Little Black Ledge and for 0.5 mile beyond, until Cranberry Point is in line with Prospect Harbor Lighthouse. Then steer 28° true for the eastern end of Eastern Island until about 500 yards from the island. Then steer about 342° true and pass about midway between Eastern Island and Bald Rock. Then steer more northwestward to avoid the rocks, bare at low water only, lying 300 yards off the southwest side of the south end of Dyer Neck, and then stand up the middle of the bay.

*Lat. 44°26′.9, Long. 67°59′.0: Chart 305.

Corea Harbor is a small cove between Gouldsboro Bay and Prospect Harbor, inside a group of grassy islands. It has a depth of 8 feet in the entrance and 7 feet inside the harbor. The best water leads westward of Western Island, and then favors the northeast side of Corea Harbor. Small craft enter from Gouldsboro Bay, inside of all the islands, but strangers should not attempt this passage.

Corea is a post village of fishermen at the head of Corea Harbor. There are several small wharves which are bare at low water. A church and a group of houses are prominent for a considerable distance offshore. There is a store here, where supplies in limited quantities can be obtained. There is a wharf on the eastern side of the channel with 6 feet alongside at mean low water. There is a gasoline pump on the wharf.

Prospect Harbor.—This harbor, 3 miles northeastward of Schoodic Island and 6 miles northwestward of Petit Manan Lighthouse, is the approach to the village of Prospect Harbor. The outer harbor has ample depth and affords anchorage for the largest vessels, exposed to southerly winds. It is easily entered, but seldom used.

The ledges off the entrance to Prospect Harbor divide the approach into two channels; both are clear and deep if the ledges between them be avoided.

Little Black Ledge and **Big Black Ledge** show at high water, and **Old Man** and **Old Woman** are partly bare at low water. The latter is marked by a red buoy at its southwest end.

Sand Cove, the eastern branch at the head of Prospect Harbor, has ample depth until near the head, but is seldom used.

Inner Harbor, the western branch at the head, is marked on the eastern side by Prospect Harbor Light and on the western side by **Clark Ledges** spindle. It has a depth of 2 to 5 fathoms just inside, sheltered from all but southeast winds, and is extensively used by small local vessels. The anchorage is on the southwest side in soft bottom, about 200 yards northward of a line joining Clark Ledges spindle and the fish factory on Clark Point.

Prospect Harbor Lighthouse* is a white conical tower with a covered way to a dwelling. The light is 42 feet high and is visible 9 miles. The entrance to the inner harbor is marked by a bell buoy.

Prospect Harbor is a village on Inner Harbor. There is a depth of 15 feet at the fish wharf on Clark Point, and 12 and 9 feet at the wharves just inside Clark Point. Gasoline, diesel oil, water, and provisions are obtainable.

Birch Harbor, on the western side of Prospect Harbor, 1.5 miles above the entrance, has a depth of 6 feet for 0.5 mile, and shoals rapidly above. There is a small settlement of fishermen near the head; the landings are bare at low water. The channel is unmarked and difficult. The best water in entering favors the southwest side to avoid **Roaring Bull,** a rock bare at extreme low water.

Bunker Harbor, on the west side of Prospect Harbor, just inside the entrance, has a small settlement of fishermen at the head. The landings are bare at low water. The entrance is obstructed by ledges. The outer one is **Bunker Ledge,** partly bare at low water only and marked at its eastern end by a black buoy. Inside of this are ledges

*Lat. 44°24'.2, Long. 68°00'.8: Charts 305, 1202, 1106.

awash at high water. The channels are unmarked and the one northward of the ledges in the entrance is said to be the best.

Directions, Prospect Harbor.—Entering from eastward, from a position midway between the vertically striped bell buoy southward of Petit Manan Lighthouse and the red buoy 0.6 mile northward, a 285° true course for 5.5 miles will lead about midway between Moulton Ledge buoy and Stone Horse Ledge, and to the red bell buoy off the eastern point at the entrance to Prospect Harbor. Pass south of the buoy and continue the course until 0.2 mile northwestward of the buoy, and then steer for Prospect Harbor Lighthouse on a 322° true course until off the entrance to Inner Harbor. Then steer 286° true into the inner harbor, passing 150 yards northward of the spindle. Anchorage can be selected eastward or northeastward of the fish factory.

Entering from westward, vessels can pass 0.4 mile eastward of Schoodic Island and then steer 10° true for 3 miles, passing midway between Bunker Ledge and Old Woman buoys, and continue the course until Cranberry Point is abeam; then a 346° true course, heading for Prospect Harbor Lighthouse, will lead eastward of a black buoy and the spindle. The course into the inner harbor is then 286° true as described in the preceding paragraph.

SCHOODIC HARBOR AND ISLAND

(CHART 306)

Schoodic Harbor, between Prospect Harbor and Frenchman Bay, has ample depth but is exposed to the sea and never used as an anchorage. There are no wharves. There are several islands and ledges in the entrance.

Schoodic Island is low and partly wooded on the south end. The north end is grassy. It is bordered by extensive ledges.

Schoodic Ledge, northward of Schoodic Island, is covered near high water and breakers are always visible. The channel between Schoodic Island and Schoodic Ledge is marked by a buoy on either side. It has ample depth and is generally used by small local vessels and motor boats, bound along the coast.

Middle Ledge is bare at about half tide.

Roland Island in Schoodic Harbor northward of Schoodic Ledge is wooded.

MOUNT DESERT ROCK

(CHART 1202)

Mount Desert Rock, 17½ miles southward of Mount Desert Island and 11½ miles outside the nearest island, is a rocky islet about 20 feet high, with a lighthouse on the top.

Mount Desert Lighthouse is a gray conical tower on Mount Desert Rock. The light is 75 feet above the water, and visible 14 miles. The fog signal is an air diaphragm horn.

There is a **radiobeacon** operated at the light which is synchronized with the fog signal for distance finding.

Columbia Ledge, with 24 feet on it is located 0.7 mile southward of the rock. Two miles northward of the rock a lighted whistle buoy is maintained.

FRENCHMAN BAY, GENERAL INFORMATION

(CHART 306)

Lying westward of **Schoodic Peninsula** and westward of Mount Desert Island, it is the approach to the towns and important summer resorts of Bar Harbor, Winter Harbor, Southwest Harbor, Northeast Harbor, and many smaller villages. The bay is frequented by passenger steamers, yachts, small pleasure craft, and fishing vessels and a few cargo vessels. The bay proper is about 10 miles long and has an average width of about 4 miles. Halfway toward its head is a group of islands extending across the bay, between which are two good channels leading to the upper part. Vessels of the largest size and deepest draft can find an anchorage, and navigation is not difficult for strangers.

The principal entrance is from southward, between Schoodic Peninsula and Baker Island, but small vessels can enter from south westward through Western Way. Small boats may also enter the head of Frenchman Bay at high water through Mount Desert Narrows.

Prominent features.—The principal guides to the entrance of Frenchman Bay from the sea are Mount Desert (Rock) Lighthouse, Great Duck Island Lighthouse, Baker Island Lighthouse, and Egg Rock Lighthouse.

Mount Desert Island is mountainous, and is the highest land feature on the coast of Maine. The summits are rounded and several of them are nearly the same height, making it difficult to identify individual peaks at a distance.

Cadillac Mountain, the highest point, is 1,532 feet high, and on a clear day is visible from 35 to 45 miles. A good highway now leads from Bar Harbor to the summit of Cadillac Mountain.

Schoodic Head, across the bay from Mount Desert Island, is 437 feet high, and is the most prominent land feature at the eastern entrance to the bay.

Anchorages.—Winter Harbor is a good anchorage, and is frequently used by vessels entering for shelter; it is usually open throughout the winter. Bar Harbor is partially protected, except against heavy southeasterly winds, but has poor holding ground except near the head of the harbor. Large vessels sometimes anchor northward or northwestward of Bar Island. Stave Island Harbor is a good anchorage. Southwest Harbor is a well-sheltered and frequently used anchorage.

Pilots.—No licensed pilots are available and none are needed to enter. Local fishermen can usually be obtained as pilots for the tributaries.

Ice.—During mild winters Frenchman Bay is usually clear of ice to Skillings River, but the bays and rivers connected to the northern part of the bay are frozen over. Winter Harbor is reported to be always clear.

Tides.—The mean rise and fall of tides is about 10.5 feet.

Local magnetic variation.—Variations of as much as 1° less than the normal compass variation have been observed in Frenchman Bay, north of a line through Bar Harbor and Winter Harbor.

Fog.—It is reported that during foggy weather Frenchman Bay usually clears during the day although the fog remains heavy outside Schooner Head and Iron Bound Island.

WINTER HARBOR

(CHART 317)

Winter Harbor, on the eastern side of Frenchman Bay, just inside the entrance, is a frequently used harbor of refuge, with good anchorage in 5 to 9 fathoms, good holding ground. It is comparatively free from dangers, and although open southward, a heavy sea never enters. Ice seldom interferes with navigation. The principal entrance from southward is deep and free from dangers. Winter Harbor Abandoned Lighthouse Tower is on Mark Island and is prominent. It can also be entered from northward, close along the western side of Grindstone Neck. The dangers along this channel are marked, but it is used only by local vessels of 12-foot or less draft; the aid are colored for vessels bound north; that is, north-bound vessels will find black buoys on the port side.

Arey Cove and **West Pond** adjacent to **Big Moose Island** are of no importance.

The most prominent leading mark for this section is **Egg Rock Light,** located on **Egg Rock** about 2 miles west of the entrance to Winter Harbor. The light is shown from a square tower on a white dwelling and is 64 feet high. The fog signal is a reed horn. Egg Rock is low and mostly bare. **Handiron Ledge** extends about 200 yards northeast of Egg Rock, and another ledge extends southwestward from the Rock for about 500 yards. Parts of both ledges bare at low water. **Egg Rock Whistle Buoy** is located about 1 mile south-southwesterly from Egg Rock. Part of Egg Rock and the light are shown on Chart 317. (For the reef to the southwest and the whistle buoy refer to Chart 306.)

Cod Ledges, eastward of Iron Bound Island, have a least found depth of 19 feet, but have not been closely examined and probably have less. Vessels should pass eastward of the black buoy marking them.

Halibut Hole, the passage between the north end of Iron Bound Island and Jordan Island, is deep and clear with the exception of a rock on the northeast side, 200 yards off the shore of Jordan Island, with a least found depth of 17 feet, not closely examined. The channel is southward of the rock. The western entrance to Halibut Hole is marked on the south side by a black buoy.

Turtle Island, on the western side of the entrance, is wooded. **Turtle Island Ledge,** bare at half tide, extends 500 yards off the southwest side of the island and is marked by a red bell buoy.

Mark Island is grassy and marked by **Winter Harbor Abandoned Lighthouse Tower,** a white tower connected with dwelling.

Of the islands northward of Turtle and Mark Islands, **Ned** and **Heron Islands** are partly wooded, **Spectacle Island** has a house and a few trees, and the others are grassy or bare rocks. All are surrounded by extensive ledges, bare at various stages of the tide.

Grindstone Neck, forming the west side of Winter Harbor, is wooded, but has many cottages and a hotel. A standpipe and the hotel on the highest point are prominent.

Grindstone Ledge, extending 400 yards southward from Grindstone Neck, is bare at half tide and marked by a spindle. There is a red buoy a little southward of the end of the ledge.

Sand Cove, on a northwest side, at the head of Winter Harbor, is the usual and best anchorage. The coal wharf on the western side of Sand Cove has a depth of 10 feet at its face at mean low water.

There is a yacht club with a landing on the west side of the cove below the coal wharf. There is a depth of about 25 feet alongside the yacht club float. There is a directional fog signal at the yacht club operated privately during the summer season. It is sounded in answer to boat whistles.

Winter Harbor is a town on the two coves at the head of Winter Harbor. **Winter Harbor Cove,*** the westerly of the two coves, is the most frequently used anchorage for local fishing boats, and is generally fully occupied. There is a public pier and float landing on the north side of the entrance. The wharves are bare at low water. A red buoy and spindle mark Guptill Ledge on the north side at the entrance; the midchannel is clear inside. Gasoline and provisions are obtainable .

Repairs.—At the head of Henry Cove is located a marine railway capable of hauling out small craft up to a draft of 8 feet and 50 tons weight.

Directions, Winter Harbor.—The entrance to Winter Harbor from southward is deep and clear. Vessels can steer from Winter Harbor Abandoned Lighthouse Tower or Winter Harbor Lighted Bell Buoy on any course between **339°** true and **21°** true. They should pass eastward of the bell buoy at least 300 yards eastward of the lighthouse tower and steer north-northeastward for 0.8 miles until inside the harbor, and then more northward, following the western shore into the middle of Sand Cove. Anchorage can be selected in the cove according to draft. If bound to the village, the north-northeasterly course from off Winter Harbor Lighted Bell Buoy can be continued until between the red and the black buoys at the entrance to the coves at the head. Then haul westward, pass southward of the red buoy on the north side at the entrance to the inner harbor, and enter in midchannel.

To enter Winter Harbor from northward, westward of Grindstone Neck, pass midway between the black buoy off **Crow Island** and the beach eastward, and follow the western shore of Grindstone Neck southward at a distance of 150 yards for 0.7 mile to a black buoy, and at a distance of 75 yards while passing eastward of the black buoy and a spindle just southward of it. After passing the spindle follow the shore at a distance of 100 yards for 250 yards, then steer **121°** true and pass close southward of a red buoy. When well past the buoy, vessels can haul northward into Winter Harbor and follow the directions preceding.

Caution.—Use **chart 317** in entering from northward. The black buoy marking the northeast extremity of **Pulpit Ledge** must always be passed to the eastward.

---

*Lat. 44°23′.3, Long. 68°05′.0: Charts 306, 317, 1202, 70, 1106.

FRENCHMAN BAY, EAST SIDE, WINTER HARBOR TO SULLIVAN HARBOR

(CHART 306)

Iron Bound Island, the largest of the islands in Frenchman Bay, is thickly wooded and has high vertical cliffs.

Egg Rock Light and the reefs making off from Egg Rock, together with Halibut Hole are described under "Winter Harbor," page 107.

Stave Island Harbor.—This is an excellent harbor of refuge on the eastern shore of Frenchman Bay, formed by the mainland on the east, **Stave Island** on the north, and **Jordan Island** on the south; the anchorage has a depth of 3½ to 6 fathoms, soft bottom, and is sheltered from all winds. It is considerably used as an anchorage.

Summer Harbor is a small settlement on Hammond Cove. The cove is clear with the exception of a rock with 7 feet over it lying 200 to 400 yards from shore in its southeast part.

The north end of the harbor eastward of Stave Island is shoal. There is a narrow channel into the harbor from southward over **Jordan Island Bar,** which is used only by small local craft; the channel has a depth of about 3 feet at mean low water and lies 100 yards off Jordan Island.

South Gouldsboro is a village on the northeastern shore of Stave Island Harbor. There is a small fish wharf.

The main entrance to Stave Island Harbor is between Stave and Jordan Islands. There is a rock with 4¼ fathoms on it nearly midway between Jordan and Stave Islands, the deeper channel lying southward of it. **Yellow Island,** lying 200 yards westward from the north end of Jordan Island, is named from the color of its rocks and is wooded. To enter, pass 200 to 300 yards northward of Yellow Island on a 72° true course. Approaching Stave Island Harbor from southward there is a broad, clear channel between Iron Bound and Long Porcupine Islands, and the approach northward of the Porcupine Islands is also clear. There is no navigation from Stave Island Harbor to Flanders Bay inside of Stave Island, except for small craft at high water.

Flanders Bay.—This bay is on the northeast side of Frenchman Bay, inside Stave and Calf Islands. It is an excellent anchorage, but is little used except by small craft. It forms the approach of the villages of West Gouldsboro and East Sullivan. The bay can be entered across Calf Island Bar between Calf and Stave Islands, or around the north end of Calf Island. The latter has the best water, but the former is more direct, and is generally used.

Calf Island is wooded except on the south end, which is low and bare. A house and barn on the southeast side is visible from southward.

Little Calf Island and Thrumcap are partly wooded islands on the extensive shoal extending southward from Calf Island.

Calf Island Bar, connecting Calf and Stave Islands, has a depth of 9 to 11 feet in a buoyed channel.

An extensive chain of bare and sunken ledges extends through the middle of Flanders Bay from the north end to near the south end. The southerly ledge called **Halftide Ledge** is bare at half tide and marked by a black buoy off its south end. The opening between the

south end of **Long Ledge** (partly bare at high water) and the ledge with 5 feet over it southward, has a least found depth of 19 feet.

Hall Point,* on Ash Neck, is marked by prominent white residences.

West Gouldsboro is a village at the head of the southeasterly tributary of Flanders Bay. There is a depth of 4 feet to within ¼ mile of the village, above which the channel is bare at low water. The channel is unmarked and difficult, and seldom used even by local boats.

Soward Island, at the northwest side of Flanders Bay, is connected to **Waukeag Neck** by a fixed bridge with no usable vertical clearance at high water, horizontal clearance 26 feet.

Junk of Pork is a small dirt cone of unusual appearance. The area between Soward Island and Long Ledge, is foul.

East Sullivan is a village at the northern end of Flanders Bay. The wharf is in ruin.

To enter across Calf Island Bar, give the western shore of Stave Island a berth of 500 yards and steer **19°** true for the bar buoys, passing 0.3 mile southeastward of the Thrumcap. Pass the black buoy and the red buoy on the bar close-to, and from the latter steer **61°** true and pass 100 yards southward and eastward of Halftide Ledge black buoy. Then steer **344°** true for the prominent houses on Hall Point until about 0.3 mile from them. Then steer **308°** true pass midway between Hall Point and a black buoy, and follow the shore of Ash Neck at a distance of 300 yards. Anchor 0.2 mile to 0.5 mile northwestward of Ash Point, in 3 to 4 fathoms.

The entrance to Flanders Bay between Preble and Calf Islands is clear and deep. Enter in midchannel, and follow the shore of Calf Island, giving it a berth of 200 yards. When northeastward of the north end of the island, steer **111°** true and pass 100 yards southward of Halftide Ledge black buoy. Round the buoy at this distance and proceed as directed in the preceding paragraph.

Eastern Point Harbor is a sheltered anchorage for small craft on the north side of the eastern end of Preble Island. The head of the harbor is shallow, and is separated from Sorrento Harbor by a partly dry reef.

Sorrento Harbor is a small anchorage, used by small pleasure craft in summer, on the north side of Frenchman Bay north of **Preble** and **Dram Islands.** The entrance from southward favors Dram Island slightly, and is narrowed by reefs bare at low water, which extend 100 yards from Preble Island and 50 yards from Dram Island. The entrance from westward is narrowed by a reef, partly showing at high water, which extends 175 yards from the north side. The best water is found 100 yards north of Dram Island on a 91° true course. A small ledge, nearly bare at low water has been reported to lie about 100 yards north of the western end of Preble Island.

Sorrento is a summer resort on the north side of Sorrento Harbor. It has several hotels. There is not steamer service. A float landing is maintained during the summer season. The steamer wharf is in ruins (1940). Gasoline and water are obtainable. The place is much frequented by small yachts. There is a wharf with a float having about 7 feet alongside at M. L. W. located on the point east of the old steamer wharf. The yacht club uses the town wharf.

---

*Lat. 44°28′.6, Long. 68°08′.1: Chart 306.

SULLIVAN HARBOR

(CHART 306)

Sullivan Harbor is an arm of Frenchman Bay making northward from the north end. It forms the approach to Hancock Point, Sullivan, and Franklin. The least depth to the falls just above Sullivan is about 25 feet.

Bean Ledge, eastward of Bean Island, shows at high water.

Bean Island, in the middle of the entrance to Sullivan Harbor, is partly wooded. The generally used channel leads westward of it.

Crabtree Ledge, on the west side at the entrance to Sullivan Harbor is marked by an unused lighthouse (white tower on black pier) and a bell buoy.

Hancock Point is a village and post office on the west side of the entrance to Sullivan Harbor. There is a wharf and float landing with 11 feet alongside at mean low water.

Sullivan* is a small village on the north side of Sullivan Harbor, 3½ miles above the entrance. There is a privately owned wharf which bares at extreme low tides.

Sullivan Falls, the contracted section of the river, ½ mile above Sullivan, is said to have a depth of about 7 feet at low water, but is obstructed by ledges and the tidal currents are dangerous. Vessels using it go in and out at high water slack.

An electric power line is carried across the river at the falls by means of two high towers. The northern tower is the higher and is visible from the lower bay.

A highway bridge crosses the bay about 0.5 mile above the falls. There is a swing span with a horizontal clearance of 82 feet 10 inches. It has a vertical clearance of 11 feet above high water when closed. The bridge connects West Sullivan with the town of Waukeag. Waukeag is the railroad terminus and there is a freight office and gasoline tanks.

West Sullivan, on the north side just above the falls, has several quarries at which vessels formerly loaded up to 13 feet. The wharves are in ruins and have not been used for a number of years. The railroad track has been removed.

Taunton Bay (shown only on chart 1202) is the name given to the expanded section of Sullivan River, 6 miles above the entrance. An unmarked channel with a depth of about 8 feet leads through it to near the head, but the bay outside this channel is bare, or nearly so, at low water. The granite quarries along the east side of the bay have been abandoned.

Franklin (shown only on chart 1202) is a town on the railroad at the head of Taunton Bay.

Ice obstructs navigation in Sullivan River during January, February, and March.

Tides.—The mean rise and fall of tides is about 10.5 feet below the falls and about 6.5 feet above. The tidal currents through the falls are dangerous at strength. High water slack is 1⅓ hours and low water slack 1¾ hours later in the falls than below them.

Directions, Sullivan Harbor and Taunton Bay.—The main entrance to Sullivan Harbor is between Bean Island and Crabtree Ledge (unused) Lighthouse Tower. Vessels can also enter by the

*Lat. 44°31′.2, Long. 68°12′.0: Charts 306, 1202, 70, 1106.

buoyed channel eastward of Bean Island, but this channel is seldom used. The channel from the entrance to Sullivan has ledges bare and submerged on either side but has ample depth and is well marked.

Approaching Sullivan Harbor from southward, when in midchannel between Burnt Porcupine and Sheep Porcupine Islands, steer **343°** true for 4½ miles and pass between Crabtree Ledge (unused) Lighthouse Tower and Bean Island; the former should be given a berth of 100 yards, and the western end of Bean Island a berth of over 200 yards. Then steer **15°** true with Crabtree Ledge (unused) Lighthouse Tower astern, and pass westward of a red spar buoy, and to a midchannel position between a spindle and a black buoy above Ingalls Island. Then steer **21°** true to a position 125 yards eastward from **Moon Ledge black buoy.** Then steer more northward and anchor, favoring the northern shore, in 3½ to 7 fathoms off the town of Sullivan. The water shoals abruptly on both sides of the channel throughout the harbor.

Navigation through the falls just above Sullivan is safe at slack water only. Small boats sometimes go in on the flood tide but always come out at high water slack. The channel is unmarked above Sullivan, has dangerous ledges on either side, and is unsafe except with local knowledge.

SULLIVAN HARBOR TO EASTERN BAY

(CHART 306)

Skillings River is an arm of the northern part of Frenchman Bay westward of Sullivan Harbor. The entrance is 1.7 miles wide between Crabtree Point on the east and Meadow Point on the west, but it contracts rapidly to a width of 400 yards about 2 miles above Crabtree Point. Above this the river leads about 4 miles in a northwesterly direction to the post village of North Hancock.

The channel is narrow and crooked and has numerous rocks and ledges, making its navigation difficult. Strangers wishing to enter the river with vessels should anchor 1.5 miles above Crabtree Point in 5 to 7 fathoms and get a pilot from among the local boatmen. The river is unmarked, and is seldom used except by local fishing craft. The wharves are generally small and bare at low water. Strangers in small craft can enter with the aid of the chart.

Repairs.—There is a small marine railway on the Mill Stream about 1 mile northwest of Hyde Point and east of Great Ledge on the Skillings River. Craft up to 65 foot length and 4 foot draft can be hauled out.

There is a small pier and float with 12 feet alongside at m. l. w. about 0.6 mile above **Old Point** on the west side of the river.

Hancock, and **North Hancock** are villages along the main road, some distance from the bay, and have no business by water.

Raccoon Cove is a large shallow cove on the west side of Skillings River, near the entrance. It is obstructed by **Shooting Ledge** and other ledges as well as by many fish weirs.

Eastern Bay forms, with Mount Desert Narrows, a thoroughfare from the head of Frenchman Bay to Blue Hill Bay, north of Mount Desert Island. It is generally deep and clear in midchannel to the entrance of Mount Desert Narrows, except for **Googins Ledge,** nearly

0.5 mile long, bare in the center at low water and marked on the southwest side by a red buoy. The channel leads southward of it.

The north shore for 0.7 mile west of **Meadow Point** is foul with a rock baring 9 feet at mean low water, lying over 0.2 mile offshore. There is a covered boat storage with a railway at **Lamoine Beach** about 0.6 mile west of Meadow Point.

The old naval coaling plant situated on the north shore of Eastern Bay has been abandoned and the superstructure has been removed. The wharf is in poor condition, with a depth of about 26 feet alongside.

The **University of Maine Marine Laboratory** is located near the old coaling station.

There is good anchorage for deep-draft vessels between Googin Ledge and a position northwestward of the old coaling station in 6 to 9 fathoms. There is also good anchorage about 0.3 mile from shore off the entrance of **Salsbury** and **Emery Coves** in 7 or 8 fathoms. On the point between these two coves is located a **Biological Experimental Station** with a float landing.

At **Hadley Point,*** Eastern Bay merges into Mount Desert Narrows, and **Berry Cove** makes into the northern shore. There is good anchorage in 3 to 4 fathoms off the entrance to this cove, which is shallow at its head.

MOUNT DESERT NARROWS

(CHART 307)

Jordan River, making northward just west of Berry Cove, has a narrow, crooked channel with 5 feet at low water up to Lamoine. Local knowledge is necessary for its navigation. The few wharves are all in ruin.

Mount Desert Narrows connects the head of Frenchman Bay with the head of Blue Hill Bay northward of Mount Desert Island. It is crossed by an overhead transmission line with ample clearance, and a highway drawbridge having two openings 40 feet wide; the north opening is generally used. When closed, the bridge has a vertical clearance of 7.5 feet at high water. The bridge tender is on duty for about 3 hours before and 3 hours after high tide. The signal for the bridge is the sounding of a whistle or horn on approaching.

The channel is bare at low water with ledges of rock, and is used at high water by boats up to 9-foot draft. It is narrow and difficult and is fringed with reefs.

Strangers should not attempt to use it with a greater draft than 4 or 5 feet, and should go through on a rising tide. The mean rise and fall of tides is 10.5 feet, and high water occurs at about the same time as at Eastport and Bar Harbor.

The current sets westward on the flood, and eastward on the ebb.

Directions.—The following remarks may be of use to strangers in going through the Narrows: Having passed through Eastern Bay, pass at least 200 yards northward of Hadley Point and steer westward for 1.2 miles with the steel tower at the north end of the bridge ahead, until 250 yards northward of the north end of **Thomas Island**

*Lat. 44°26′.7, Long. 68°19′.2: Charts 306, 307, 1202.

(wooded). Then swing a little northward and head for Trap Rock (low bare islet), showing a little to the right of the northerly steel tower, for over 0.3 mile until 400 yards from **Trap Rock** and past a reef on the south side. Then haul southwestward to round the reef extending 250 yards southwestward from Trap Rock, and then steer westward for the draw, with the north end of Thomas Island astern. After passing through the draw give the shore on the south side a berth of 150 yards to avoid ledges making off it, until 0.3 mile from the bridge, and then haul south-southwestward into Western Bay, giving **Haynes Point** on the western side a birth of 300 yards to avoid ledges off it.

EASTERN BAY TO BAR HARBOR

(CHART 306)

Hulls Cove is a broad open bight on the northeast side of Mount Desert Island. There are several dangers off the cove, but they are all marked by buoys. There is a railway for hauling out small craft which can handle boats up to 45 feet long and draft of 4.5 feet. There is no machine shop.

The rock awash lying nearly 250 yards offshore and 1.2 miles southeast of Hulls Cove is marked by a private spindle. The shore line from Hulls Cove to Bar Harbor is backed by numerous pretentious summer residences.

Bald Rock and Bald Rock Ledge are marked by a black buoy to the northeast and a red buoy to the southwest. The high part of the ledge bares at low water.

The area between **Bald Rock Ledge** and Bar Island is used as a yacht anchorage, it being a much safer anchorage than Bar Harbor.

BAR HARBOR

(CHART 318)

This is a town and anchorage on the eastern side of Mount Desert Island, 3½ miles above Egg Rock Lighthouse. This harbor is formed by an indentation in the shore of Mount Desert Island and two islands northward, **Bar Island** and **Sheep Porcupine Island; a** breakwater extending southwesterly from **Bald Porcupine Island** across **Porcupine Dry Ledge** to within 250 yards of the shore affords some shelter against southerly winds. A swell heaves in during southeast winds, and vessels should not attempt to ride out a gale here from that direction. The breakwater is awash on the higher tides. There is a mound at its western end which always shows.

All of the islands surrounding Bar Harbor are high and wooded, and have no prominent marks. When approaching from southward, **Bald Porcupine Island** is distinguishable on account of its bare rocky slopes.

Cromwell Cove, westward of the end of the breakwater, has several private float landings, but is seldom used as an anchorage.

Bar Harbor is an important summer resort and yachting center. There is good highway connection and during the summer season there are usually week-end cruises to Bar Harbor from Portland and New York.

The Municipal Pier has a depth of 10 feet at mean low water at its end and there are floats for small boats on each side of it. In 1940

10 free moorings for visiting yachts were maintained east of the Municipal Pier. There is a chart agency of the U. S. Coast and Geodetic Survey located here.

The coal and other wharves have depths of 4 feet and less alongside. Coal is received in barges drawing up to 11 feet.

There is a harbor master at Bar Harbor. It is a customs port of entry and marine documents are issued. Gasoline, Diesel oil, and water can be obtained from the wharves. There are facilities for minor repairs only, and boats up to about 45 feet in length can be hauled out at Hulls Cove and Skillings River.

The principal entrance is from eastward between **Bald Porcupine** and **Sheep Porcupine Islands,** and is clear. Passing about 300 yards northeastward of Bald Porcupine Island, a 289° true course will lead to the anchorage. Local vessels sometimes enter from northward between Sheep Porcupine Island and the islet eastward of Bar Island, where the depth is 8 feet in mid-channel. There is a deep channel 150 yards wide into the harbor from southward between the end of the breakwater extending southwestward from Bald Porcupine Island and the western shore; this is sometimes used by local vessels.

Anchorage.—The usual anchorage is southward and southeastward of the eastern end of Bar Island, in 1 to 13 fathoms, the depths shoaling rapidly toward the bar southward of Bar Island. The southern limit of the anchorage is marked by white barrel buoys placed by the harbor master to leave a clear channel to the wharves.

Large vessels frequently anchor northward or northwestward of **Bar Island,** in 7 to 10 fathoms, soft bottom. The bar inside of Bar Island will be avoided by keeping the north side of Sheep Porcupine Island open from the north side of Bar Island. The western shore is fairly bold, with the exception of a rock, bare at low water, lying 0.6 mile westward of Bar Island and 250 yards from the shore at the entrance of Duck Brook. Vessels should keep over 0.3 mile southward of a line joining Bald Rock Ledge red buoy and Bald Rock (a bare rocky islet).

The bar extending between Bar Island and the town consists of scattered boulders on soft bottom.

BAR HARBOR TO OTTER COVE

(CHART 306)

The southeast side of Mount Desert Island between Bar Harbor and Seal Harbor is rocky and precipitous. The small coves indenting the shore are of no importance to navigation. Several dangers lie off the shore, but the most dangerous either show above water or are marked by buoys.

Thrumcap Island, 1.4 miles southward of Bald Porcupine Island, is a round rocky island, with a clump of trees in its center. It is reported that there are down draft wind currents around Thrumcap Island on account of which small sailboats should keep offshore.

Caution.—An 8-foot spot lies 0.2 mile north-northwest from Thrumcap Island. It is unmarked and has been struck by several yachts navigating along the coast at this point.

Newport Ledge lies 400 yards from shore, midway between the Thrumcap and Schooner Head. It is bare at extreme low water, and is marked on its eastern side by a black buoy. The bottom inside of it is broken, and should not be crossed by vessels.

Egg Rock is described on page 107.

Schooner Head and **Great Head** are prominent rocky headlands. On the summit of the eastern hill at Great Head is a small, round, flat topped granite building which is prominent.

Schooner Ledge (Old Whale Ledge) 350 yards from shore, midway between Schooner Head and Great Head, is bare 4 feet at low water and marked by a lighted bell buoy 300 yards eastward of it.

Newport Cove, a small cove westward of Great Head, is exposed southward, has poor holding ground and is never used as an anchorage. There is a bare rock off the entrance. Because of a prominent sand beach at the head of the cove this area is known locally as **The Sand Beach.**

Otter Cliff Ledge, 400 yards eastward of Otter Point, is bare at half tide and marked by a black bell buoy.

Otter Cove, a long cove making northward of the west side of **Otter Point,** has deep water in the entrance and is bare for 3/8 mile from the head. It is exposed southward and not used as an anchorage. A fixed bridge crosses the cove 0.8 mile above the entrance. There is 15 feet horizontal clearance and 2.2 feet vertical clearance at mean high water.

DIRECTIONS, FRENCHMAN BAY

(CHART 306)

The bay is rocky, but the water is deep and generally free from dangers except near the shores. The main part of the bay, from a little southward of Egg Rock Lighthouse* to the entrances of Skillings River, Sullivan River, and Eastern Bay, including the channels between Jordan and Long Porcupine Islands, and between Burnt Porcupine and Sheep Porcupine Islands, has been examined by means of a wire drag.

The tributaries, with the exception of the main part of Winter Harbor and the channels northward and southward of Sutton Island, have not been examined by means of a wire drag, and vessels navigating them should proceed with caution when crossing areas where the charted depth does not considerably exceed the draft.

The following directions are good for vessels of the deepest draft, and lead to Eastern Bay at the head of Frenchman Bay. General directions for entering the harbors and arms of Frenchman Bay are given in the description of the tributaries.

From eastward.—From 100 yards south of the whistling buoy off Schoodic Island, steer **296°** true for Egg Rock Lighthouse for 3.3 miles until 0.3 mile southwestward of a red bell buoy and Winter Harbor Abandoned Lighthouse Tower is in line with the southern end of Turtle Island. Then steer **314°** true for 4.2 miles, heading just clear of the east side of Sheep Porcupine Island and passing 0.5 mile northeastward of Egg Rock Lighthouse, to a position 400 yards eastward of Bald Porcupine Island and 100 yards eastward of the lighted horn buoy off that island.

*Lat. 44°21'.3, Long. 69°08'.3: Charts 306, 317, 1202, 70, 1106.

Or, from a position 100 yards south of the whistling buoy off Schoodic Island, steer **284°** true for 4.7 miles to a position 100 yards south of Egg Rock whistling buoy. Continue the course about 0.3 mile past the buoy, and then steer **342°** true to a position 400 yards eastward of Bald Porcupine Island.

From a position 400 yards eastward of Bald Porcupine Island, and 100 yards eastward of the lighted horn buoy, steer **328°** true, pass midway between Burnt Porcupine and Sheep Porcupine Islands, and when 1.5 miles northward of them pass 500 yards eastward of Bald Rock black buoy. Then steer **300°** true for 2 miles, and pass 450 yards northeastward of Sunken Ledge buoy. When about 400 yards past this buoy, and Sand Point bears **252°** true, steer **266°** true, pass about 400 yards northward of Sands Point, and southward of the red buoy marking Googins Ledge, giving it a berth of over 100 yards.

From westward.—From 100 yards east of the whistling buoy 1.2 miles south-southeastward of Baker Island Lighthouse, steer **7°** true for 7.7 miles, until Egg Rock Lighthouse is abeam, then steer **342°** true for 2.2 miles, with the western part of Burnt Porcupine Island ahead, to a position 400 yards eastward of Bald Porcupine Island. Then follow the directions preceding.

Or, having come from westward through the passage northward of Sutton Island, as described under the directions for Southwest Harbor on page 121, pass about 200 yards southward of Seal Harbor lighted buoy and steer **58°** true for 2.6 miles, following the shore of Mount Desert Island at a distance of 500 yards. When 200 yards southeastward of Otter Cliff Ledge bell buoy, steer **21°** true for 1.8 miles, passing about 400 yards southeastward of Great Head, to a position 200 yards eastward of Schooner Ledge lighted bell buoy. Then steer **353°** true for 3.4 miles to a position 400 yards eastward of Bald Porcupine Island and 100 yards east of the lighted horn buoy. Then follow the directions preceding.

SOUTHWEST HARBOR AND APPROACHES

(CHART 306)

Southwest Harbor, Somes Sound, Northeast Harbor, Seal Harbor and several other coves lie in the southeast side of Mount Desert Island, inside a large group of islands and shoals. These waters are the approaches to several important villages and summer resorts, and are frequented by many pleasure crafts and fishing boats. Southwest Harbor is also extensively used as a harbor of refuge. They can be approached through the channels on either side of Sutton Island or through Western Way.

Baker Island, the most southeasterly of the islands in this vicinity, is generally wooded but grassy on its northwest end and marked in the center by Baker Island Lighthouse. It is surrounded by ledges, bare and submerged, and should be given a berth of at least 0.4 mile. **The Thumper** is a ledge, bare at low water, lying 300 yards southward of the island. Another ledge, partly bare at low water, lies 400 to 700 yards off the southwest side. There is a boathouse and runway on the northwest side of the island.

Baker Island Lighthouse* is a white tower connected with dwelling. The light is 105 feet above the water, and visible 16 miles.

Little Cranberry Island is low and wooded. **Islesford** is a post village on the west side. There are three small wharves and several fish houses on **Hadlock Cove.** On the southeast point of the island is located **Cranberry Island Coast Guard Station** (white building with red roof), consisting of a lookout tower connected to a dwelling with a steel signal tower to the westward. The passage between Little Cranberry and Great Cranberry Islands is used at any stage of the tide by small local craft, but it has many unmarked ledges and should not be used by strangers. A small gas boat maintains communication between Islesford and Seal Harbor.

Cranberry Harbor is southward of Sutton Island between Little Cranberry and Great Cranberry Islands. It is frequented by small local vessels, and coasting vessels sometimes anchor here, but Southwest Harbor is a much better anchorage. The usual anchorage is in 14 to 20 feet in the middle of the harbor with the wharves at Islesford bearing about 50° true, taking care to keep well clear of the black buoy on the end of the ledge, which extends 350 yards westward from the east side at the entrance.

The Pool is a large shallow cove on the east side of Great Cranberry Island. There is a rock awash nearly in midentrance. Several small wharves and marine railways for small craft will be found inside. There are facilities for storing yachts.

Great Cranberry Island is wooded and has no prominent marks visible from southward. **Cranberry Isles** is a post village on the island. **Spurling Cove,** on the north side of the island, has a small wharf. **Long Point** is the northeast end of the island. **Crow Island,** northeast of **Deadman Point** is low and grassy with prominent reefs to the east and southeast.

South Bunker Ledge, in the southern approach to Western Way, is bare 4 feet at low water and marked by a spindle.

Long Ledge is a dangerous reef, mostly bare at low water and having a few rocks bare at high water, extending ½ mile southeastward from Mount Desert Island. It is marked off its end by a lighted gong buoy.

Western Way, between the western side of Great Cranberry Island and Mount Desert Island, is a frequently used passage for vessels bound to Southwest Harbor and vicinity, and is generally used by all small vessels bound between points westward and any point in Frenchman Bay, except in rough weather. The channel is buoyed, and the least depth is 14 feet on a bar at the northern end, but there are unmarked spots of 10 to 12 feet close to the sailing lines, and the passage should not be used by strangers with a greater draft than 10 feet.

Southwest Harbor is an important harbor on the south side of Mount Desert Island. It is an excellent, well-sheltered anchorage in 2 to 8 fathoms, and can be entered from eastward, northward of Sutton Island, by vessels of the deepest draft. The approach from southward across **Cranberry Island Bar** has a depth of 14 feet.

*Lat. 44°14′.5, Long. 68°12′.9; Charts 306, 308, 1202, 70, 1106.

Deep-draft vessels can anchor midway between Greening Island and the southern shore, in 7 to 9 fathoms. Smaller vessels can anchor farther in, the depths shoaling gradually to 12 feet 150 yards eastward of the islet which lies 400 yards from the head of the harbor and which is marked by a light. In the daytime, with clear weather, a pilot is not required to enter from eastward. Strangers coming from westward and crossing Bass Harbor and Cranberry Island Bars can take a pilot at Bass Harbor, if desired.

The Coast Guard wharf on **Clark Point,** on the north side of the harbor, has a depth of 15 feet at M. L. W. alongside. Northwest of the Coast Guard Wharf are several wharves and floats at which supplies may be obtained. Coal, Diesel oil, gasoline, ship chandlery, water and ice are available. There is a marine railway and repair yard for small craft. In 1940 there was a gasoline barge in the harbor.

Southwest Harbor is the name of a village on the north side of the harbor.

Manset, on the south side of Southwest Harbor, has a boat yard where yachts are built. There is a repair shop and a marine railway capable of hauling out craft of 45 feet in length and 4 feet draft. The wharf at the boat yard has 1 foot alongside at M. L. W. Gasoline and water are available. There is a large fish factory with wharf which has 12 feet alongside at M. L. W. Gasoline and Diesel oil are piped onto this wharf. There are also public and private landings.

Greening Island, on the north side at the entrance of Southwest Harbor, is low and wooded, but has several houses visible. A large house at the eastern end is prominent. It has several float landings. Shoals border it on all sides.

The passage between Greening Island and Clark Point has a least found depth of 15 feet and is extensively used. It is buoyed, and a ledge in the middle is marked by a spindle. The best water from southward leads 100 to 150 yards westward of the red buoy at the south end and 100 yards eastward of the spindle.

Somes Sound is a narrow body of water, about 4.5 miles long and 0.2 to 0.7 mile wide, making into the south shore of Mount Desert Island. It lies between steep, rocky shores and has a narrow entrance with few dangers. With the aid of the chart good anchorage can be selected in the sound in 9 to 12 fathoms. Small sailing vessels should be prepared for down draft winds from the hills. Greening Island lies in the middle of the approach, with a channel on either side of it. On the east side of the sound above **Manchester Point** are a number of private float landings.

Norwood Cove, on the west side of the entrance to Somes Sound, is not navigable and has a bridge across its entrance.

Hall Quarry is a post office, quarry, and small settlement on the west side of Somes Sound 3 miles above the entrance.

Somes Harbor is a small cove at the head of Somes Sound. The entrance is narrow and marked by buoys.

Somesville (Mount Desert post office) is a village on Somes Harbor. The principal wharf has a depth of 13 feet.

In the northeast corner of Somes Sound is located a boat yard with storage sheds, float landings, small repair shop, and marine

railway that can handle boats up to 50 feet long with draft of 8 feet. Gasoline is available.

Gilpatrick Cove is small and shoal and has a footbridge with a small draw across its entrance. A large float landing makes out from this bridge. Gasoline and water are available at the float. There is a coal wharf and shed located 0.3 mile northwest of Gilpatrick Cove.

Gilpatrick Ledge, just east of the entrance to the cove, consists of several ledges which are marked by several beacons. Vessels should keep south of these.

Northeast Harbor has its entrance northwestward of Bear Island. The head of the harbor is shoal, but there is anchorage 200 yards wide for very small vessels, for a distance of 0.4 mile inside its entrance, favoring the western side, in 3 to 4 fathoms. There are several large summer hotels on the shores of the harbor, and it is an important yachting center.

A rock, bare at low water, lies in the middle of the entrance to Northeast Harbor, and is marked by a buoy on either side. The best passage into Northeast Harbor lies westward of the rock.

The Clifton Dock is located on the west side near the entrance. There is a pier and float with 14 feet alongside at M. L. W. A yacht club float is located at the south end of the pier. Diesel oil, gasoline, and water are piped onto the dock.

There is a town landing with 7 feet alongside at M. L. W. The dredged channel to the pier has 5 feet of water at M. L. W. Water is piped to the landing; gasoline and supplies are delivered by truck.

There is a small marine railway about 100 yards north of the town landing.

A chart agency of the U. S. Coast and Geodetic Survey is located here.

Ice, in average winters Northeast Harbor is reported to be clear except at its head, but in severe winters it is reported to freeze as far out as Bear Island.

Bear Island, on the eastern side of the entrance to Northeast Harbor, is high, partly wooded, and marked on its western end by a lighthouse, a white cylindrical tower. The fog signal is a bell. The passage north of the island is blocked by reefs. There is a buoy storage wharf of the Coast Guard on the northwest side of the island.

Sutton Island, about 1 mile long and wooded, lies in the middle of the passage (Eastern Way) between the south shore of Mount Desert Island and Cranberry Islands. **Sutton,** a post office and summer resort, is on its western part. There are several float landings. The channel north of Sutton Island has a depth of about 8 fathoms and is generally used—the ledges, Long Pond Shoal with 5 feet on it and Bowden Ledge with 2 feet, are marked by buoys. The channel south of it, Gilley Thorofare, has a depth of about 17 feet and is contracted by rocks; the principal dangers are marked by buoys, and its navigation is not difficult in the daytime with the aid of the chart.

Bracy Cove, 0.5 mile eastward of Bear Island, is exposed to southeast winds, has a rocky and uneven bottom, and is unfit for anchorage.

Seal Harbor makes into the south shore of Mount Desert Island about 1 mile east of Bear Island; it is an anchorage for small vessels, but is exposed to southeasterly winds. The old steamer wharf which has a depth of about 9 feet alongside, is on the eastern side near the entrance. Gasoline and water can be obtained and float landings are available. A coal wharf which has 3 feet alongside at low water is located on the west side of the harbor. The village of Seal Harbor with numerous large hotels and summer residences is located on the harbor. There is a yacht club with float landings on the east side of the harbor.

A black buoy marks the end of the ledge which extends from the western shore halfway across the entrance of the harbor. The anchorage is about 400 yards in diameter, in the middle of the cove, in 16 to 18 feet; the head of the cove must be given a berth of over 300 yards. The approach is between **Seal Harbor lighted buoy** on the east and **Bowden Ledge** buoy on the west.

East Bunker Ledge, 1 mile eastward of Sutton Island, is 0.3 mile long and has two sections bare at high water. There is a stone beacon near its southwestern end and a black buoy marking a 6-foot rock **(Lewis Rock)** 200 yards northward of its northern end. There is a gong buoy about 0.5 mile southeastward of the ledge.

DIRECTIONS, SOUTHWEST HARBOR

(CHART 306)

The channel northward of Sutton Island is deep and well marked and has been examined by means of a wire drag; it is used by all vessels entering from northward and by most of those entering from eastward and southeastward. The channel southward of Sutton Island has unmarked rocks with a least found depth of 16 and 17 feet. It has been examined by means of a wire drag. Its navigation is easy in the daytime with the aid of the chart. Vessels of 14 feet or less draft, approaching from southward or westward, usually enter through Western Way, but this passage is not recommended for strangers with a greater draft than 10 feet, or in rough weather.

From eastward, northward of Sutton Island.—Pass 200 yards southward of Seal Harbor lighted buoy and steer **259°** true for the southeast end of Greening Island, until midway between Bear Island and the western end of Sutton Island. Then steer **249°** true and pass 100 to 200 yards southward of the red buoy lying nearly 200 yards southward of the southeast end of Greening Island. Then steer **269°** true and select anchorage according to draft.

From westward through Western Way.—Crossing Bass Harbor Bar close to the fairway buoy lying about 350 yards southward of Bass Harbor Head Lighthouse,* steer **89°** true and pass about 100 yards southward of Long Ledge black bell buoy. Round the buoy at this distance and steer **25°** true for a little over 1 mile to the fairway buoy.

From the fairway buoy steer northeastward about 500 yards and pass between Cranberry Island Ledge red buoy and Flynns Ledge black buoy. From the latter buoy steer **356°** true for the fairway

*Lat. 44°13'.3, Long. 68°20'.3: Charts 306, 307, 308, 1202, 1106.

buoy at the northern end of Western Way. Then steer 323° true and follow the western shore at a distance of about 400 yards into Southwest Harbor.

ISLANDS OFF BLUE HILL BAY

(CHART 308)

Under this heading are described all of the islands southward of Bass Harbor Bar and Casco Passage from the Duck Islands westward to Swans Island.

This area includes numerous islands, generally wooded and having few prominent marks. The only ones having settlements are Swans Island, Long Island, and Great Gott Island. The area is very broken and rocky and has numerous bare and submerged ledges, many of them unmarked. The through route by way of Casco Passage and Bass Harbor Bar is used by many vessels, but the passages through the islands southward are seldom used except by local fishermen and yachtsmen. With the exception of the broad channel leading between Black and Placentia Islands on the east and Long and Swans Islands on the west, which has been examined by means of a wire drag, the area has not been closely examined and strangers should use it with extreme caution and should avoid crossing broken areas.

Great Duck Island, the most southeasterly of the islands off Blue Hill Bay, is partly wooded and appears as two islands from eastward or westward from a distance. The lighthouse at the south end and the buildings around it are prominent.

Great Duck Island Lighthouse* is a white cylindrical tower. The light is 67 feet above the water, and visible 14 miles. The fog signal is an air diaphone.

Little Duck Island, 0.7 mile northward of Duck Island, is partly wooded and has no distinguishing marks.

The Drums is a dangerous ledge 2 miles northeastward of Long Island. It is bare at low water and marked by a black buoy at the southeast end. The range of the western ends of Green and Placentia Islands leads well westward of it.

Horseshoe Ledge is bare at low water and marked by a spindle.

Drum Island is a bare rock 400 yards eastward of the easterly Green Island.

Green Islands are two rocky islets with grass on top lying 0.7 mile southward of Black Island.

Black Island is wooded. Three ledges lie off its east side; **Inner Dawes Ledge** is bare at high water. **Outer Dawes Ledge** is awash at high water, and **Grindstone Ledge** is bare at about half tide and marked by a spindle.

Little Black Island is wooded in the center.

Placentia Island is wooded except on its eastern end, which is grassy.

Little Gott Island and **Great Gott Island** are generally wooded. There is a small settlement **(Gott Island)** on the west side of Great Gott Island, the approach to which is by the passage between the islands. This passage can be entered from southward at low water,

*Lat. 44°08'.5, Long. 68°14'.8: Charts 308, 1202, 70, 1106.

but a bar, bare at low water, crosses it at the northwest end. There are no wharves. The houses of the settlement are the most prominent marks in this vicinity.

Bass Harbor Bar and Bass Harbor are described on page 128.

Staple Ledge, between Placentia Island and the north end of Swans Island, is bare at low water only, and marked by a buoy.

Long Island, the most southerly of the large islands off Blue Hill Bay, is wooded and has no prominent marks visible from seaward.

Lunt Harbor is a cove on the north side of Long Island. **Frenchboro** is a village of fishermen in the cove. There is a large fish-packing wharf with a depth of 1 to 2 feet at low water; the other wharves are bare before low water. Gasoline and provisions are obtainable. The cove has good holding ground and is used as an anchorage by local boats, but it is somewhat exposed in northeasterly weather. Ice seldom interferes with navigation. Mail comes by small boat from Swans Island, to which there is steamer communication. In 1940 a crib wharf for loading pulpwood was being built out to deep water on the northeast side of the harbor.

The passage between Long and Swans Islands has deep water, but there are many unmarked ledges. The best channel leads between John Island and **Beach Ledge** bell buoy, thence between the westerly **Sister Island** and **Ram Island.** Any of the passages can be used by small craft with the aid of the chart. The islands are all wooded and have no prominent marks, except Ram Island, which is marked by a single tree. **Sunken Money Ledge** is bare at low water.

Dry Money Ledge is a white rock islet about 10 feet high. **Otter Ledge** is awash at low water. **Red Point,** that extremity of Swans Island that is just west of Sister Island has a low bare reddish bluff. **Crow Island** is wooded except at its eastern end which is bare rock. **Harbor Island** is wooded and a reef bare at low water extends west from it. A bell buoy marks a 12-foot spot 600 yards west of Harbor Island.

John Island is grassy and has many dead trees. **John Island Dry Ledge** is 0.2 mile in diameter and has rocks showing at high water. **John Island Sunken Ledge** has 6 feet over it and is marked on its south side by a red buoy.

Swans Island is the largest of the islands off Blue Hill Bay. There are three post villages on the island—Atlantic, Swans Island, and Minturn. The island has several sheltered coves, but all except Mackerel Cove and Burnt Coat Harbor are generally foul and little used. There is no piped water supply on the island.

Mackerel Cove is a good anchorage on the north side of Swans Island, at the eastern entrance of Casco Passage. There are islets and numerous ledges in the cove, but the entrance from northward is easy of access in the daytime. There is a narrow channel into Mackeral Cove from York Narrows which follows closely the shore of Swans Island, passing southward of **Orono** and **Round Islands.** The dangers in the entrance are buoyed and although there are many dangers inside it should not be difficult even for a stranger to enter and anchor safely by daylight, with the use of the chart. The common anchorage is westward of the black buoy in the center of the harbor.

Atlantic is a post village on the southeast side of Mackerel Cove. The wharves are nearly bare at low water and there is a dangerous 4-foot spot off the village which must be carefully avoided. Gasoline and some stores are available. The church spire and several houses are prominent from the eastward.

Directions, Mackerel Cove, enter between the black buoy and the red buoy and steer about 181° true so as to pass westward of a black buoy which marks a 11-foot spot. Anchorage can be selected between the red buoy and inner black buoy in 4 to 5 fathoms, taking care to give the eastern shore a berth of 300 yards; there is also a good berth about midway between the inner black buoy and the bare ledge, lying 0.3 mile northwestward of the wharf, in 4 fathoms. A rock with 4 feet over it lies 0.3 mile northwestward of the bare ledge.

On the northwest side of Swans Island is **Seal Cove,** located just south of **Buckle Island** and **York Narrows.** On the southwest side is **Toothacher Cove.** These coves have many unmarked dangers and are of importance only to fishermen.

Burnt Coat Harbor is a small, well-sheltered anchorage on the southwestern side of Swans Island; it is much used by fishermen and yachtsmen. The anchorage eastward of the lighthouse is about 500 yards wide, with depths of 3½ to 6 fathoms, soft bottom. There is also good anchorage for small craft in the channel northward of the lighthouse in 13 to 24 feet. There is a crib wharf on the north side of Long Cove.

Burnt Coat Harbor Lighthouse on the west side at the entrance is a white tower connected with dwelling. The light is 75 feet above the water, and visible 12 miles. The fog-signal is a bell.

Swans Island is a village on the west side of Burnt Coat Harbor. The steamer wharf has a depth of 10 feet and the fish wharves less. Gasoline and provisions are obtainable. In 1940 there was daily communication by boat with Rockland, North Haven, Stonington and Frenchboro.

Minturn is a quarry and small settlement on the east side of Burnt Coat Harbor. The wharf is said to have a depth of 6 feet. There are several fish wharves. Pilots can be obtained from among local fishermen if desired.

Directions, Burnt Coat Harbor.—The main entrance to the harbor is from southwestward, between Harbor Island and the point northward, and is marked on the north side by a lighthouse (white tower connected with dwelling) and on the south side by a spindle marking a rock bare at low water.

Vessels entering from southward may make the vertically striped whistling buoy 3 miles westward of Long Island, then from 100 yards west of the buoy steer **342°** true for 2.7 miles, passing 500 yards westward of Green Island, to the vertically striped bell buoy off the entrance. From southeastward, they may pass 0.3 mile southward of Southwest Point* of Long Island, steer **267°** true for 1.7 miles to a position 0.3 mile south-southwestward of a red buoy, then **304°** true for 2.4 miles to a position 500 yards westward of Green Island, and then **342°** true to the bell buoy. From Jericho Bay, vessels may pass midway between the two buoys marking the passage between Hat Island and Marshall Island, and steer **108°** true to the bell buoy.

*Lat. 44°05′.8, Long. 68°22′.0: Charts 308, 1202.

To enter.—From a position about 100 yards north of the vertically striped bell buoy, off the entrance to Burnt Coat Harbor, steer about 49° true, which course will lead through the entrance, passing a little closer to the spindle on the south side of the channel than to the lighthouse. Anchorage may be had eastward or northeastward from the lighthouse or in the channel northward.

To enter inside Baker and Harbor Islands.—This passage is available for small craft entering from eastward. It is extensively used by local boats but narrow and difficult, and strangers are advised to use it only on a rising tide. In entering, pass between the northerly Baker Island and the south shore of Swans Island, favoring Baker Island slightly to avoid two reefs bare at low water on the north side. Then steer 292° true for about 0.3 mile; pass northward of a black buoy marking a reef awash at low water on the south side and draw in to 100 yards off the north shore abreast Stanley Point. Then haul northward through the passage eastward of Harbor Island, passing 50 yards southwestward of the southerly of two thickly wooded islets, and the same distance northeastward of a ledge, marked by a black buoy and bare at half tide, opposite the islets. Then haul northwestward into the main channel.

Harbor Island is wooded except for its southwest and southeast sides. **Baker Islands** are wooded. **Scrag, Hat, Green, Gooseberry,** and **Brimstone Islands** are bare and grassy.

Marshall Island, the largest of the group, is wooded. **Heron Island** is grassy with trees in the middle. **Ringtown Island** is wooded. **Gooseberry Island Ledge,** southeastward of Gooseberry Island, is bare at low water only and is marked by a black buoy at the southeast end. **Yellow Ledge,** southeastward of Ringtown Island, has a rock bare at high water and a considerable area bare at low water. There are many other bare and submerged rocks, most of them unmarked. This area has not been closely examined and should be navigated with extreme caution.

Spirit Ledge, 0.7 to 1.2 miles southwestward of Marshall Island, is in two sections; the northeastern is bare at high water, and the southwestern is bare at about half tide.

Boxam Ledge, off the southwest side of Marshall Island, is bare at low water.

Drunkard Ledge, 2 miles southwestward of Marshall Island, is bare at low water and is marked by a buoy on its eastern side.

Marshall Ledge, off the west side of Marshall Island, is bare at low water.

These islands and ledges extend across Jericho Bay and southwest across the entrance to that bay to Isle au Haut, see page 143.

JERICHO BAY

(CHART 308)

This is the body of water between Swans and Marshall Islands on the east and Isle au Haut and Deer Isle and adjoining islands on the west. The inside routes leading from Casco Passage and York Narrows to Deer Island Thorofare and Merchant Row and from the passage north of Pond Island to Eggemoggin Reach lead across its head, and this section is used by many vessels. The part

of the bay southward of these Thorofares has deep water but there are many ledges, rocks, and small islands, and this part is little used except by local fishermen and yachts.

The islands on the eastern side are described under "Islands off Blue Hill Bay" on page 122. Casco Passage and York Narrows are described on page 127. The passage north of Pond Island, and Herrick Bay are described under "Blue Hill Bay, West Side." The dangers on the western side are described in chapter 8.

Directions, Jericho Bay, from southward.—The channel leading into Jericho Bay between Spirit Ledge and Three Bush Island on the east, and Drunkard Ledge, Blue Hill Rock, and North Popplestone Ledge on the west, the main part of the bay northward, and also the channel leading into the bay between Marshall and Swans Islands, have been partially examined by means of a wire drag. Approaching from southward, it is advisable to pass between Marshall and Swans Islands, where the dangers are well marked. The entrance between Marshall Island and Isle au Haut is obstructed by a number of unmarked submerged ledges, and is little used.

Vessels may pass 0.3 mile southward of Southwest Point of Long Island, steer **267°** true for 1.7 miles to a position 0.3 mile south-southwestward of a red buoy, then steer **301°** true for 5.5 miles, passing about midway between Green and Brimstone Islands, 350 yards northeastward of Ringtown Island, 200 yards northeastward of the black buoy northward of Marshall Island, and to a position 200 yards southwestward of the red buoy westward of Hat Island; or from off the whistling buoy 1.8 miles southeastward of Heron Island, a **337°** true course for 2 miles will lead to a position about midway between Green and Brimstone Islands, and the **301°** true course can then be followed to a position 200 yards southwestward of the red buoy westward of Hat Island.

Bound to Merchant Row.—From this position, vessels steer **261°** true passing northward of a black bell buoy and at least 300 yards northward of West Halibut Rock buoy, to a postion 0.5 mile west-northwestward of West Halibut Rock, then follow directions for Merchant Row on page 59.

Bound to Deer Island Thorofare.—From a position 200 yards southwestward of the red buoy westward of Hat Island, steer **309°** true for 2½ miles, passing 0.3 mile northeastward of Whaleback Ledge buoy, and to a position 200 yards southwestward of Shabby Island (marked by a few trees). Then bring Shabby Island astern on a **293°** true course, with Sheep Island a little on the port bow, and pass 100 yards northeastward of East Mark Island Ledge buoy; then haul westward and follow the directions for Deer Island Thorofare on page 58.

Bound to Eggemoggin Reach.—Pass 200 yards westward of the red buoy westward of Hat Island and steer **0°** true for 2.7 miles to 0.4 mile west of Egg Rock Beacon. Then steer **330°** true, heading for Devils Head, until midway between Hay Island Ledge buoy and Channel Rock buoy passing on either side of the bell buoy south of Hay Island Ledge and then haul northwestward and follow the directions for Eggemoggin Reach on page 59.

CASCO PASSAGE AND YORK NARROWS

(CHART 227)

Northward of Swans Island, between it and Black Island and **Johns Island,** there is a narrow passage which separates into two branches in its western part. The eastern end and northern branch is known as **Casco Passage,** the southern branch as **York Narrows.** They form a part of the different inland passages from Mount Desert to Whitehead (see tabulated courses on p. 60). Casco Passage and York Narrows are well marked by buoys, and at the eastern entrance, on the north end of **Orono Island,** there is a large black tripod. Off the western entrance is **Egg Rock** marked by a tripod with a bell buoy just south of it. The islands are generally low and wooded, and have no prominent marks. At the eastern end of the passage **The Triangles** is a bare ledge from which a reef covered at half tide extends 400 yards northward.

Casco Passage is the straighter and better channel, and has a depth of 18 feet and a width of 150 yards; there are rocks with little depth on each side. Vessels of 16-foot draft have been taken through. Directions for the passage are given on page 60. The **Current** through Casco Passage and York Narrows sets eastward on the flood and westward on the ebb. The velocity is influenced greatly by strong winds. There is a rock, bare at low water, 125 yards off the south side of **Black Island.**

York Narrows has a width of but little over 100 yards, and has dangerous ledges on both sides. It is not recommended for vessels of a greater draft than 9 feet at low water, except with local knowledge. **The following directions** will lead through the Narrows: Pass about 50 yards northwestward of the black buoy northward of Orono Island tripod, and steer **222°** true for the western edge of the trees on Buckle Island. On this course, pass southward of the two red buoys and when the second one is abeam, change to **267°** true and pass between **Hawley Ledge** and **Long Ledge** and about 50 yards south of the red buoy located southwest of Long Ledge. If of very light draft, instead of the 267° course steer **249°** true and pass just north of the two black buoys on the south side of the channel. This course leads over a 10-foot spot about midway between the two black buoys.

BLUE HILL BAY

(CHART 307)

Blue Hill Bay lies west of Mount Desert Island. It is about 14 miles long and contains several large and some small islands, between which are good channels with deep water. The dangers are comparatively few, and the most prominent are marked by buoys. There are numerous coves on both sides of the bay, and its head is divided into several large arms, the most important of which is Union River Bay.

Blue Hill Bay forms the approach to the villages of McKinley, South Blue Hill, Blue Hill Falls, Blue Hill, and Surry, and the city of Ellsworth. It is frequented by a few coasting vessels, fishing vessels, and yachts.

Supplies.—Gasoline and provisions are best obtainable at McKinley or Ellsworth, although they are kept at all of the villages. Coal can be obtained at Ellsworth and there is water on the wharves.

Repairs.—There are repair yards for small vessels at Ellsworth and Webber Cove.

Tides.—The mean rise and fall of tides is about 10 feet.

Directions for Blue Hill Bay are given on page 134.

BLUE HILL BAY, EAST SIDE

(CHART 307)

Placentia, Little Gott, and Great Gott Islands are described on page 122.

Bass Harbor Bar, connecting Great Gott Island with Mount Desert Island at Bass Harbor Head, has been improved by dredging a channel across it. In 1940 an effective channel depth of 12 feet at mean low water was reported. Caution should be used in navigating this channel. The channel lies 350 yards southward of **Bass Harbor Head Lighthouse** (white tower connected with dwelling, the fog signal is a bell), and is marked by a vertically striped buoy, which may be left close to on either side. The channel is on the through route used by most vessels of 12 feet or less draft, and it is sometimes used by vessels of 18 feet draft at high water and with a smooth sea. In heavy weather breakers sometimes form entirely across it.

Bass Harbor, in the south end of Mount Desert Island, just westward of Bass Harbor Bar, is an important fishing port, and is sometimes used as an anchorage by vessels bound through the inside passage. but the outer harbor is exposed southward. The outer harbor is clear with the exception of **Weaver Ledge,** in the middle, bare about 2 feet at low water and marked by a black buoy on the southeast side and a red buoy on the northwest side. Vessels can enter on either side and anchor between Weaver Ledge and the entrance to the inner harbor, in 5 to 7½ fathoms, bottom soft in places.

The inner harbor is a crooked channel, 100 yards wide, with depths of 2 to 4 fathoms, and forms a secure anchorage for small craft. The entrance is marked by two buoys on the western side. The channel inside is unmarked and there are shoals close to it on either side.

McKinley is a village on the east side of Bass Harbor. It has fish factories and is the headquarters of many fishing vessels. The wharf of the fish plant has a depth of 9 feet alongside. Gasoline and provisions are available but there are no special facilities for taking fresh water. A stack and water tank are prominent from southward.

Bernard is a village on the west side of the harbor. These are fish wharves and sheds.

Mitchell Cove and **Duck Cove,** northward of Bass Harbor, are shoal and foul and have no landings.

Goose Cove, on the eastern side of Blue Hill Bay, 2 miles northward of Bass Harbor, is frequented by fishing boats. A red buoy marks a shoal in mid-harbor. **West Tremont** is a village at the head of the cove. A church spire at West Tremont is prominent from seaward.

Goose Cove Rock and **Rumell** are rocky islets with grass on top. The former has a small wooden lookout on its summit.

Latty Cove has a pier and float landing.

There are fish weirs between **Rumell Island** and the mainland.

Seal Cove, 4 miles northward of **Lopaus Point,*** is a sheltered anchorage for small vessels except with westerly winds. A rock awash at high water lies 300 yards off the north side just inside the entrance, and a ledge partly showing at high water lies off the shoal bight on the south side. Entering midway between the rock and ledge, anchor near the middle of the cove, in 3 to 6 fathoms. There are no wharves.

Moose Island, north of the entrance to Seal Cove, is covered with grass. The point eastward of the island has a few buildings, a wharf and a prominent flagpole with cross arm. The bar connecting the island and the point is bare at low water. Small craft anchor northward of the bar.

Hardwood Island is wooded at the north end and grassy, with scattered trees, southward. The bar extending 0.3 mile southwestward from it is marked at its end by a red buoy.

Sawyer Cove, on the eastern shore of Blue Hill Bay eastward from the north end of Hardwood Island, is an anchorage for small craft. On the northeast side at the entrance is a ledge awash at high water. There are several float landings.

Pretty Marsh Harbor makes into the eastern shore of the bay northeastward from Hardwood Island. There is good anchorage for vessels 300 to 500 yards from the eastern shore eastward of Folly Island in 5 to 6 fathoms. The northern and western sides of the cove inside **West Point** are shoal, and a shoal extends 350 yards southeastward from the point. **Folly Island** is grassy, with a few trees. A shoal extends 150 yards southeastward from Folly Island, and a ledge with 3 feet over it lies 200 to 300 yards eastward from the island; otherwise there are no dangers away from the shores. There are several float landings on the east side of the harbor.

John Island is a grassy islet, and there is a lower grassy islet 400 yards northwestward.

Birch Island is wooded.

Bartlett Narrows leads between Mount Desert Island and Bartlett Island. The channel is narrow, but has deep water, with few dangers, and is not difficult. The mid-channel westward of Folly and John Islands is clear. If passing eastward of Folly Island give it a berth of about 400 yards, and give the south end of John Island a berth of 200 yards. The eastern shore of the Narrows from West Point to its northern end is bold and should be favored. In the narrowest part keep the eastern shore aboard distant 100 yards to avoid a ledge which extends 200 yards southward from a group of bare rocks.

A ledge with 2 to 3 feet over it lies 400 to 600 yards from the eastern shore 0.4 mile northward of Bartlett Narrows. It will be avoided by keeping westward of a range marked by the northwest tangents of Black and Alley Islands.

Bartlett Island is generally wooded and has a few houses. There is a pier and float landing on the east side, and several on the west side. There is a grass covered islet close to the northeast end of the island.

*Lat. 44°18′.6, Long. 68°21′.9; Charts 307, 308, 1202.

Western Bay is northeastward of Bartlett Island, and is a part of the waters which separate Mount Desert Island from the mainland. Mount Desert Narrows, described on page 113, is at the head of Western Bay. Vessels of any size can select anchorage in the bay southwestward of **Alley Island,** in 10 to 12 fathoms, but the broken ground with 5½ to 6 fathoms extending 0.4 mile off the southeast side of **Oak Point** should be avoided. With the aid of the chart, good anchorage can also be selected in 3½ to 6 fathoms southeastward and eastward of Alley Island. The range of the summit of Bartlett Island over the middle of **Black Island** (thickly wooded) clears the shoal which extends 500 yards southeastward from Alley Island.

Foul ground extends about 500 yards from the south shore between **Green Island** and **Indian Point. Northwest Cove,** eastward of Indian Point, has an anchorage in 12 to 18 feet, but a ledge with little water over it extends 500 yards from its southeast shore 600 yards eastward from Indian Point.

Goose Cove is a large shallow bight on the north side of Western Bay above Alley Island, and at its head is the village of **Trenton.** The head of the cove is dry at low water for a distance of 0.5 mile, and thence it deepens gradually to 7 feet 0.5 mile farther down. There are no wharves.

BLUE HILL BAY, WEST SIDE

(CHART 307)

Mahoney Island, just eastward of the entrance to Eggemoggin Reach, has scattered trees. **Smutty Nose Island,** 0.5 mile northwestward of Mahoney Island, is grass covered. **Mahoney Ledge,** westward of Mahoney Island, is partly bare at low water.

Passage north of Pond Island.—This passage is used by vessels entering Blue Hill Bay from westward and sometimes by vessels following the inside passage eastward or westward. It has a least depth of about 19 feet in the buoyed channel, but there are dangers close to the sailing lines. The buoys are colored for vessels bound westward, that is, red buoys will be found on starboard hand.

Pond Island is wooded on its eastern side. The western side is grassy and is marked by a house on the summit. **Lamp Islet** is a grassy islet 0.2 mile northward of Pond Island.

The islands between Pond Island and Casco Passage are: **Opechee Island** (wooded), Johns Island, **Black Island** (wooded), **Sheep Island** (grassy), and **Eagle Island** (wooded). A reef bare at low water is located 500 yards eastward of Eagle Island. The passages between these islands are obstructed by reefs.

Channel Rock with a whitish top is about 5 feet above high water. A submerged ledge extends 0.4 mile east-southeastward of it.

Green Island is grassy and marked by an abandoned lighthouse tower (white with dwelling) and **Blue Hill Bay Light*** on a black skeleton tower. The shoal of which it is a part is bare at low water from the island to the shore 1.1 miles northward and for a distance of nearly 0.3 mile southward of the island. It is marked by a black

*Lat. 44°14′.9, Long. 68°29′.9; Charts 307, 308, 1202, 1106.

buoy off the south end. **Sand Islet** (bare), 0.3 mile northeastward of the lighthouse, is nearly covered at high water.

Flye Island Ledge, having rocks with depths of 7 to 13 feet, not closely examined, extends to a point 1 mile south-southwestward of Blue Hill Bay Light.

Herrick Bay is a shallow and unimportant bight on the western side of Blue Hill Bay northwestward of Blue Hill Bay Light. It is dry at low water for a distance of nearly 1 mile from its head. There is good anchorage in the approach to the bay 0.5 mile from the western shore northward of **Naskeag Point,** in 4 to 7 fathoms. The range of the western ends of Flye and Long Islands leads westward of Flye Island Ledge.

Ship and Barges Ledge, 0.6 mile south-southeastward of Ship Island, is 350 yards long and bare at half tide. It is marked by a tripod beacon on the south end, a spindle on the north end, and a black bell buoy 250 yards eastward.

West Barge is a flat grass-topped rock 600 yards westward of Ship Island. **East Barge** is a round grassy islet on the end of the shoal extending 200 yards southward from Ship Island.

Ship, Trumpet, Bar, and **Tinker Islands** are a chain 4 miles long in the middle of Blue Hill Bay. The islands are joined by shoals bare at low water, except for a channel between Trumpet and Bar Islands, which has a depth of 17 feet and is marked by a vertically striped buoy. Ship and Bar Islands are high and grassy, and Bar Island is marked by a shack at the north end. Trumpet Island is low and grassy. Tinker Island is partly wooded and has a shack at its southeast end.

Cow and Calf Ledge, extending 0.4 mile westward and northward from the north end of Tinker Island, has several rocks with little water, and one rock bare at half tide. It is marked by two red buoys.

Allen Cove, on the west side of **Herriman Point,** 3.5 miles northward of Blue Hill Bay Light, is used as an anchorage. The shores are foul. The anchorage is in the middle in 2 to 5 fathoms and is open northward.

Long Island is generally wooded, with many clear sections.

Long Island Hub off the south end of Long Island is conspicuous because it is covered with high trees.

South Blue Hill, a village on the western side of Blue Hill Bay just south of Sand Point, has a wharf with about 50-foot face and 5 feet alongside at mean low water.

Salt Pond, just south of the entrance to Blue Hill Harbor, has falls at the entrance, is crossed by a fixed bridge with a horizontal clearance of 100 feet and a vertical clearance of 7.6 feet at mean high water. Salt Pond is entered by local motorboats except for about 3 hours before, and 3 hours after, low tide.

Blue Hill Harbor is in the northwestern part of blue Hill Bay, northwestward of Long Island. It consists of a large bight, called the outer harbor, and a small area extending northwestward to the village of **Blue Hill,** called the inner harbor. Ledges extend 200 to 700 yards from the western shore of the outer harbor, and at a point 1 mile southward of the entrance of the inner harbor they extend

0.5 mile from shore. Anchorage, sheltered from northerly and westerly winds, will be found in the outer harbor in 4 to 8 fathoms.

The channel in the inner harbor is narrow and crooked. The entrance has a depth of about 18 feet, but it is so narrow that a stranger should not depend on carrying a greater depth than 8 feet at low water. There is secure anchorage for small vessels just inside the entrance, in 3 to 4 fathoms.

There is no steamer service. Ice usually closes the harbor from December to April.

Many of the rocks show except at high water, and the principal dangers are buoyed. **The Triangles** are three rocks, bare at low water only and marked by a black buoy. The entrance is 50 yards wide between **Sculpin Ledge** (bare at one quarter ebb and marked by a red buoy) and a ledge southwestward of it which has 8 feet on its northern end and extends to the shore southwestward. Eastward of the entrance is a detached shoal 350 yards long, with 4 feet over it, the eastern end of which is marked by 2 black buoys. Vessels can enter on either side of the shoal but the northern channel is easier and much safer.

To enter northward of it, pass 50 yards eastward and about 50 yards northward of the black buoys and steer **279°** true to clear for Sculpin Ledge red buoy. Leave it about 20 yards on the starboard hand and steer **320°** true. Select anchorage near midchannel 200 to 500 yards above Sculpin Ledge, in 3 to 4 fathoms, bottom soft in places.

Caution.—It is reported that some small craft have attempted to pass between the two black buoys marking the end of the detached shoal. It is necessary to pass east and north of both black buoys if using the northern entrance channel.

Darling Island, covered with bushes, lies just eastward of the entrance to Blue Hill Bay. **Darling Ledge,** the top of which shows at low water, extends 0.3 mile southward of Darling Island. There is foul ground between the ledge and the shore. The ledge is marked, on its southeast side, by a red buoy. There is a granite wharf with a float landing on the main shore northwest of Darling Island.

McHeard Cove is less than 1 mile north of Darling Island.

Mink Island and a reef, bare at high water, lie in the center of the cove. There is a crib wharf, bare at low water, at **East Blue Hill,** near the head of the cove.

Morgan Bay, lying northeastward of Long Island and on the west side of Newbury Neck, is about 3 miles long and is much used by yachts. The entrance is obstructed by **Jed Islands** and the surrounding ledges, leaving a deep, narrow channel close to the western shore on either side of Conary Nub.

Conary Nub is a rock with a clump of scrub. **Seal Ledge** is awash at high water. **Black Rock,** bare 3 feet at low tide, is on a shoal with 7 to 10 feet which extends 0.4 mile northeastward of Seal Ledge. **Bird Rock,** westward of Jed Islands, is about 3 feet high. **South Ledge,** 0.2 mile southwestward of Jed Islands, is covered at half flood. A rock with 4 feet over it and marked by a red buoy lies 0.2 mile southwestward of South Ledge. Danger will be avoided by keeping westward of a line from Conary Nub to the southwest end of Newbury Neck. There are a number of privately maintained

marks on some of these dangers. Information regarding these can be obtained at the yacht club.

The **Kollegewidgwok Yacht Club** has a clubhouse with pier and float landing from the west side of Morgan Bay, northwesterly of Jed Islands. There is 6 feet of water at the pier and 3 feet at the float landing at mean low water.

Webber Cove is on the west side of Morgan Bay about 1.3 miles above Conary Nub. It is used as an anchorage by small craft. At the head of the cove is located a boat yard where small craft drawing 6 feet and 50 feet long can be hauled out on a marine railway and repairs can be made. There is a crib wharf, bare at mean low water, on which gasoline and water are piped. On the point at the north entrance to the cove is a pier and float landing. There is 15 feet of water alongside at mean low water. A large white house and flagpole on this point are prominent.

Directions.—To enter, pass in mid-channel westward of Conary Nub on a 38° true course, and keep the western shore aboard distant 200 yards until abreast Seal Ledge. Or pass 125 yards eastward of Conary Nub on a 2° true course, and pass midway between Seal Ledge and the western shore. Good anchorage can be selected in the bay, in 2 to 6 fathoms, for which the chart is the guide.

Union River Bay is a large bay extending about 5 miles in a northerly direction between Oak Point on the east and Newbury Neck on the west. It is free from dangers, except near its northern end. The head of the bay is separated into two arms, Union River, the eastern, leading to the city of Ellsworth, and Patten Bay, the western, leading to the town of Surry.

Patten Bay* is a long, narrow arm making northwestward from **Union River Bay.** The town of **Surry** is at its head. The deepest draft entering is 10 feet, but the channel up to the town bares at low water. There is good anchorage at the entrance near mid-channel as far as 1.5 miles above the entrance in 4 to 5 fathoms. A ledge, partly bare at half tide, extends 400 yards from the northern shore 0.7 mile westward of Weymouth Point, and is marked by a red buoy. Between the buoy and a point 1 mile above, the northern shore is fairly bold, while the opposite side should be given a berth of 300 yards. Ice closes the upper end of the bay during January, February, and March.

The Ellsworth Yacht Club is located on the north side of the bay about 1.6 miles west of Weymouth Point. There is a pier and float landing with about 1 foot alongside at mean low water. At the town of Surry is a wharf which bares at low water. There is a gas station and store in town.

Union River.—This river empties into the head of Union River Bay from northward and forms the approach to the city of Ellsworth, 4 miles above the entrance. There are several rocks off the entrance and the most prominent are buoyed. It is about 1 mile wide at the entrance but contracts to 100 yards 1.3 mile above. Union River has been improved by dredging a channel through the flats at the entrance, and for a distance of 1 mile below Ellsworth. In

*Lat. 44°29′.3, Long. 68°28′.3: Charts 307, 1202.

1940 there was a controlling depth reported of about 4 feet in the river channel to Ellsworth. Freshets occasionally occur in the spring. Ice usually closes the river from December to April.

Mill Cove, on the eastern side of Union River at the entrance, is small and shoal.

Off the river entrance are **Tupper Ledge** with a rock baring at low tide, buoyed on two sides and from which broken bottom extends northward, and **Lord Rock,** close to the eastern shore with 9 feet on it marked by a red buoy on its west side.

Ellsworth is a city of 3,000 population on the railroad and highway at the head of navigation on Union River. The river at this point is obstructed by a dam. There are 2 small wharves with but little water alongside. The oil wharf where small tankers discharge has about 4½ feet alongside. Coal is no longer received by water. There is a yacht storage shed and a railway capable of hauling vessels of 9-foot draft and about 80 feet in length. The maximum draft brought to the city at high water is about 10 feet.

There are machine shops and gasoline, Diesel oil, water, and supplies can be obtained. The river water is fresh at low water.

Pilotage is not compulsory but pilots can be obtained from among local boatmen if desired.

Directions, Union River.—The channel in Union River is narrow and difficult, and strangers in vessels should not enter without a pilot. With the aid of the chart and the following directions, small craft should be able to go to Ellsworth, but should do so a rising tide.

Pass between Lord Rock red buoy and Tupper Ledge black buoy and steer northeastward to the red buoy at the entrance of the dredged channel. The dredged channel across the flats at the entrance favors the eastern side. Stakes are sometimes used in marking this channel. From the red buoy at the entrance the course is **31°** true for 350 yards, then **9°** true for ⅜ mile, keeping about 150 yards off the eastern shore, and then **341°** true for .65 mile to a position close westward of a spindle at the entrance to the narrow part of the river. From this point to the entrance of the dredged channel 1 mile below Ellsworth there are no marks, and a general mid-channel course is best, although in the bend just before reaching the dredged channel the best water slightly favors the east side. The dredged channel in the upper end does not follow a mid-channel course. It is marked by three black buoys. The chart is the guide.

DIRECTIONS, BLUE HILL BAY

(CHARTS 307 AND 308)

Blue Hill Bay is appropached from eastward across Bass Harbor Bar, from southward between Placentia Island and Swans Island, and from Westward through Jericho Bay, which is entered through Merchants Row, Deer Island Thorofare, or Eggemoggin Reach. The channels between Blue Hill and Jericho Bays are Casco Passage, York Narrows, and the passage northward of Pond Island. These approaches are more or less obstructed by islands and ledges, but are sufficiently marked to be safely navigated in clear weather. At high water small boats can also enter the head of Blue Hill Bay from Frenchman Bay through Mount Desert Narrows (described on p. 113).

The generally used inside route, used by most vessels of 12 feet or less draft, across Bass Harbor Bar and through Casco Passage, leads across the south end of Blue Hill Bay. Directions for it are given on page 60.

The vessels **bound to points in Blue Hill Bay** do not often exceed 12 feet draft, and these vessels usually follow the inside passage, generally entering from eastward across Bass Harbor Bar and from westward by the passage between Pond Island and Blue Hill Bay Light. Vessels of too deep draft, or when there is too much easterly or southeasterly swell on Bass Harbor Bar, can enter the bay southward of Little Gott * and Placentia Islands and northward of Black Island, but this passage has not been closely examined and is not recommended for a greater draft than 15 feet. Vessels of the deepest draft can enter by the main channel between Black and Placentia Islands on the east and Long and Swans Islands on the west. This passage has been covered sufficiently by means of a wire drag to insure a clear channel as indicated on the chart.

Above the entrance, Blue Hill Bay is deep and generally free from dangers, and several channels are available.

From Bass Harbor Bar.—Directions to Bass Harbor Bar from eastward and from Bass Harbor Bar westward through Casco Passage are given on page 60. Vessels bound from Bass Harbor Bar to Union River usually use the channel between Tinker and Hardwood Islands, and between Long and Bartlett Islands. This channel is deep and unobstructed and the chart and buoys are the guides. Small craft sometimes use the more protected passage between Moose and Hardwood Islands and through Bartlett Narrows (described on p. 129). Bound to Blue Hill Harbor from Bass Harbor Bar, the most direct route leads eastward of the chain of islands and reefs extending from Ship and Barges Ledge to Tinker Island, and southward and westward of Long Island. It is deep and clear and the chart is the guide.

Entering between Black and Placentia Islands, Chart 308.—This passage has a rock with a least depth of 18 feet, not closely examined, 250 yards off the southwest end of Little Gott Island. Vessels of 15 feet or less draft may use it by favoring the north shore of Black Island, 250 yards off, after passing Inner Dawes Ledge (a rock islet), and round the north end of Black Island at a distance of 200 yards. Then steer west-southwestward and round the southwestern end of Placentia Island at a distance of 400 to 500 yards. The course can then be shaped northward into Blue Hill Bay, or if bound to Casco Passage, north-northwestward to pass northeastward of Staple Ledge buoy and North Point of Swans Island. Directions through Casco Passage are given on page 60.

Entering from southward, Chart 308.—Pass 0.7 mile eastward of Long Island Head, and steer 334° true to clear the western end of Green Islands. When about 0.5 mile south of the Green Islands change course to 315° true to clear both the Green Islands and Placentia Island by about 500 yards. Off Placentia Island shape course as desired. Or, passing 0.4 mile or more southward of Great Duck Island Lighthouse, bring it astern on a 282° true course, heading

*Lat. 44°11′.6, Long. 68°20′.3: Charts 306, 307, 308, 1202.

for the western end of Green Islands, and pass about 0.4 mile northeastward of The Drums buoy. When this buoy is abeam change course to **273°** true and round the Green Islands at a distance of about 500 yards, when 500 yards southwestward of the Green Islands steer **315°** true for 2.3 miles to a position 500 yards westward of Placentia Island. The course can then be shaped as desired.

Entering from westward, Chart 307.—Vessels entering Blue Hill Bay from westward generally come through Eggemoggin Reach or Deer Island Thorofare, and enter Blue Hill Bay by the passage between Pond Island and Blue Hill Bay Light. The deeper channel (about 19 feet) leads through the buoyed channel 0.5 mile northward of Pond Island.

Vessels entering Blue Hill Bay from Eggemoggin Reach, Chart 307, can use the directions on page 59. **Entering from Deer Island Thorofare,** they can use the directions on page 58 to Egg Rock beacon in Jericho Bay. From a position 0.3 mile west of Egg Rock beacon steer **19°** true for 3.2 miles, passing over 0.3 mile east-southeastward of Mahoney Island, to a position 50 yards northwestward of a black buoy, and then about **69°** true changing slightly as necessary to pass 50 yards southward of a red buoy and 100 yards northward of a black buoy, into Blue Hill Bay. The course can then be shaped as desired.

Chapter 8.—JERICHO BAY TO EAST PENOBSCOT BAY

(CHART 309)

EGGEMOGGIN REACH

(CHART 309)

This lies between the Deer Isles and the mainland and connects Blue Hill Bay and the head of Jericho Bay with Penobscot Bay near its head. It is 11 miles long and has a least width of about 0.4 mile at Byard Point. The reach has several villages along its shores.

The eastern entrance is well marked by **Devils Head,*** a prominent, high, rocky bluff on the south end of **Hog Island,** and the western entrance by **Pumpkin Island Abandoned Light Tower** and **Cape Rosier** (high and thickly wooded), with **Green Ledge Light** 1.3 miles south of Cape Rosier.

The main channel through Eggemoggin Reach has been examined by means of a wire drag. The depth is sufficient for deep-draft vessels, but the channel is narrow and the bottom irregular in places. The principal dangers are buoyed, and can be easily avoided in the daytime and clear weather.

Greenlaw Cove, on the southwest side of the eastern entrance to Eggemoggin Reach, has a narrow unmarked channel with shoals on both sides, and is suitable only for small craft with local knowledge. **Mountainville** is a post village near the head. The landing is said to be nearly bare at low water.

Devils Head Ledge, extending 0.3 mile southeastward from Devils Head, is partly bare at high water and marked off its end by a red buoy. **Channel Rock** is bare at extreme low water and marked by a black buoy. **The Boulders,** 400 yards northwestward of Channel Rock, are bare at low water.

Naskeag Harbor lies north of **Harbor** and **Hog Islands.** The post village of **Naskeag** is on the north side. The harbor can be entered from eastward or westward; but there are many unmarked dangers, and strangers should not attempt to enter except in small craft. At the eastern approach to the harbor, the bar from the northern shore extends two-thirds of the way across. Between the end of this bar and Harbor Island, there is a rock bare at half tide with deep water on either side of it. At half tide the bar is distinguishable by ripples. At the western entrance a submerged rock has been reported about 60 yards north of Hog Island.

Centre Harbor, a small cove on the eastern side of the Reach northeastward of **Torry Islands,** is an anchorage for small craft only. The town of **Brooklin** is at the head of the harbor. A rock marked by a black spindle with cage lies in the middle of the entrance northward of **Chatto Island;** the channel is close southward

*Lat. 44°13′.2, Long. 68°32′.8: Charts 309, 307, 1202.

of the rock. Between the spindle and the boat yard on the north side of the cove the channel has depths of 8 to 10 feet, and above this is mostly dry at low water. There is good anchorage off the entrance in 4 fathoms; bottom soft in places. The main approach to Centre Harbor is from westward, but local vessels enter by the channel eastward of Torry Islands, passing in mid-channel on either side of the bare rock 350 yards eastward of the easterly Torry Island. This passage should be used by strangers only in small craft.

The red buildings and the black stack of the boat yard at Centre Harbor are prominent.

The Centre Harbor Yacht Club is located on the north side. There is a wharf and float landing with 7 feet alongside at M. L. W. located between the old steamer wharf (in ruins) and the boat yard.

The boat yard is on the site of the old fish wharves, a part of which remain. There is a marine railway capable of hauling out small boats up to 50 feet in length and facilities for making repairs to small craft.

Benjamin River, the approach to the town of Sedgwick, makes into the eastern shore 2 miles northward of Centre Harbor. The channel at the entrance, northward of **Cape Carter,** has a least depth of 19 feet, but is much obstructed by ledges on both sides, leaving a passage only 100 yards wide at its narrowest part. The town of **Sedgwick** can only be reached at high water, as the river runs dry some distance below.

There is a boat yard with a marine railway capable of hauling out small craft 80 feet in length and of a draft of about 10 feet at **West Brooklin** is a post village on the east side of the river near the entrance.

North Deer Isle is a post village at the north end of **Deer Isle.** An old wharf, known as **Scotts Landing,** 0.4 mile westward of **Tinker Ledges,** has a depth of about 12 feet at mean low water. A rock crib breakwater has been constructed just east of the old wharf and the enclosed space between the two is used for beaching local small craft.

There is a highway fill extending from the northwest corner of Deer Isle to the southeast corner of Little Deer Isle, just south of **Stave Island.** The fill closes this passage to all boats.

Billings Cove, on the northern shore of the Reach, lies east of **Byard Point,** marked by a large white house on the summit. It affords anchorage in the middle just inside the entrance in about 5 fathoms. **Sargentville** is a post village near the eastern shore of the cove. The wharf is in good condition and has gasoline, Diesel oil and water piped on it. Coal, ship chandlery, and provisions are available.

The **Deer Isle-Sedgwick Bridge** is of the suspension type and extends across the Reach from **Byard Point** to Little Deer Isle. Horizontal clearance is 1,030 feet. Vertical clearance, at center, 86.8 feet, minimum clearance for 100 feet each side of center 85.0 feet, minimum clearance for 200 feet each side of center is 80.0 feet. Clearances are given above mean high water.

Eggemoggin is a summer resort with a float landing at the north end of Little Deer Isle southeastward of Pumpkin Island. There are several small boat yards on the north shore of Little Deer Island just

east of Eggemoggin and west of **Howard Ledges.** Small craft up to about 40 feet are hauled out on skids and stored. Limited repairs can be made.

Buck Harbor* is on the north side of the Reach, north-northeastward of Pumpkin Island beacon; it affords excellent anchorage, and is often used by small vessels. **Harbor Island,** in the middle of the harbor, has a good channel around it, which forms the anchorage. Shoals extend 250 yards off the northeast side of Harbor Island, and the channel is narrow between them and the shore northeastward. **Harbor Ledge,** at the north end of the shoals, is marked by a black buoy. The channel between the rock and the north end of Harbor Island has a depth of 12 feet. Small craft can anchor in the bight on the northeast side of Harbor Island. The best anchorage for vessels is westward and northwestward of Harbor Island, in 5 to 6 fathoms. The post village and landing of **South Brooksville** is at the head of the harbor. The steamer wharf has a depth of 11 feet. There are several hotels with float landings. Gasoline and water are piped onto a good concrete wharf with 12 feet of water alongside at mean low water. Provisions, ice, etc., are available. There is a yacht club with a pier and float landing.

Orcutt Harbor lies just westward of Buck Harbor and northward of Pumpkin Island. It is about 1.3 miles long and 500 yards wide. It has good anchorage in 3½ to 8½ fathoms in the middle of the harbor just above a small wooded islet on the western side near the entrance. A reef, bare at low water, extends 300 yards southward from **Condon Point,** on the east side at the entrance. When inside this reef, favor, if anything the eastern side of the entrance to avoid a sunken rock lying nearly 200 yards from the western shore and the same distance southward of the wooded islet. In the slight expansion 0.5 mile above the islet care must be taken to avoid two sunken rocks, one lying 200 yards from the western shore and the other 150 yards from the southeast side of the expansion.

Horseshoe Cove is a long, narrow cove, the entrance to which lies northwestward of Pumpkin Island beacon; it is navigable only for small craft with local knowledge. There are no wharves.

Thrumcap Island, 1 mile northwestward of Pumpkin Island beacon, is low and grassy. **Thrumcap Ledge,** southwestward of Thrumcap Island, is partly bare at high water. **Merriman Ledge** is bare at low water only and marked by a black buoy on its north side.

Of the islands near the western entrance to Eggemoggin Reach, **Spectacle Islands** are grassy, **Two Bush** is bare, **Hog Island** has scattered trees and a house and barn in the center, and **Pond Island** is grassy, with a small clump of trees on the northeast side and a shanty at the south end. **Western Island** is grassy on its eastern end and has a thick clump of trees on its western end. **Green Ledge** is grassy and is marked by a light on a white skeleton tower. There is a red bell buoy 600 yards westward of the light.

Anchorage.—Vessels can anchor anywhere in the Reach where the depth is suitable and the bottom soft, making a lee of either shore, according to the wind. Small craft anchor in the coves.

Tides.—The mean rise and fall of tides is about 10 feet.

*Lat. 44°20′.4, Long. 68°44′.8: Charts 309, 311, 1293.

Supplies.—The supplies available at the different landings are noted in the description of the places.

Directions.—For directions for Eggemoggin Reach see page 59.

DEER ISLAND THOROFARE

(CHART 227)

Deer Island Thorofare is a narrow passage leading along the south side of Deer Isle, between it and the numerous islands southward. It joins Jericho Bay on the east and Penobscot Bay on the west and forms one of the chain of inland passages. It is used by the passenger vessels between Rockland and points eastward, and by many other vessels and small craft bound through the inland passages. It has a least width of 150 yards in several places and a least depth of 15 feet in a dredged channel 300 feet wide through the bar between **Moose** and **Crotch Islands.** It is reported to be used by vessels up to 18 feet draft, but there are unmarked rocks with 9 to 14 feet close to the channel, and local knowledge is necessary to carry through a greater draft than 9 feet at low water. The more important dangers for vessels of this draft are marked, and the channel easily followed in the daytime and with clear weather.

Southeast Harbor lies northwestward of the eastern end of the Thorofare, between **Stinson Neck** on the east and **Whitmore Neck** on the west. (The whole of the harbor is shown on chart 309 but the entrance and eastern part of the harbor are shown on chart 227.) It is an excellent anchorage for vessels using the thorofare. The entrance is easily distinguished and the principal dangers are marked by buoys.

Oceanville is a post village on the south side of Southeast Harbor. There is a stone wharf with about 2 feet of water alongside it at mean low water.

Webb Cove, on the north side of Deer Island Thorofare, has rocks in the entrance, but there is good anchorage inside in 8 to 12 feet. The best water favors the west side of the entrance. There is a quarry on the cove and a wharf with a reported depth of about 8 feet.

Stonington is the principal town on the north shore of Deer Island Thorofare. It has steamer communication with Rockland, North Haven, and Swans Island, and is the headquarters for the large granite quarries on the adjacent islands. The steamboat wharves have depths of 8 feet, but there is a ledge off the wharves with very little water over it. The other wharves have less depths. Gasoline, coal, Diesel oil, provisions, and some ship chandlery are obtainable. There are highway, telephone, and telegraph connections with the mainland. Float landings are available.

A towboat engaged in towing rock barges from the quarries is stationed at Stonington and is available.

Allen Cove, just west of Stonington and east of **Moose Island** is protected by a pier and breakwater built out from the southeast end of Moose Island. It is known locally as **Yacht Basin.** There is a marine railway capable of hauling out boats 100 feet long with 10-foot draft, capacity about 300 tons. Marine supplies are available. Sheds on the southeast end of Moose Island are prominent from westward.

Crotch Island* is the site of extensive granite quarries. A large wharf on the east side of the island, south of the entrance to Mill Cove, is reported to have a depth of from 7 to 12 feet at mean low tide. The large red buildings at this wharf are prominent from southward and eastward. A large wharf on the north side of the island is reported to have a depth of 11 feet at mean low water.

Prominent objects.—The standpipe at Stonington, the high brick stack on the north end of Crotch Island and the derricks on Crotch Island are prominent from all directions.

On the northern side of the western entrance to the Thorofare is **Andrews Island,** 60 feet high. Northward of this island and reaching with their off-lying reefs for 0.5 mile south of **Fifield Point** are two islands known locally as **Fort** and **Second Islands.** The 9-foot and 15-foot spots 700 yards westward of these islands should be avoided.

Burnt Cove and **Crockett Cove** are two small coves lying between **Fifield Point** and **Barred Island,** on the southwestern side of Deer Isle. They are of no importance as anchorages, and are foul. **West Deer Isle** is a village on Burnt Cove.

Anchorage.—The best anchorage for vessels bound through the Thorofare and overtaken by night or bad weather is Southeast Harbor. When overtaken by fog, they may anchor anywhere near the channel where the bottom is soft and depth suitable. Many small vessels anchor on the north side of the channel abreast Stonington, the generally used anchorage being between the steamer wharf and the red buoy 700 yards eastward, and north of **Round Island.**

Ice closes the Thorofare and Southeast Harbor for about 1 month each winter. During severe winters, solid ice has existed from Stonington to Isle au Haut.

Tides.—The mean rise and fall of tides at Stonington is 9.5 feet.

Currents.—The tidal currents follow the general direction of the channel and are not strong. The direction of the currents is influenced by the wind; with strong easterly winds both the flood and ebb set westward, and with westerly winds they set eastward. When not influenced by the wind the flood sets eastward and the ebb westward, and continues to run about ¾ hour after high and low waters.

Directions, Deer Island Thorofare.—Entering from eastward.—There are two well-marked channels into Deer Island Thorofare from the eastward. The northern one passes east and south of the buoys marking the ledges off **Green Ledge** and enters the Thorofare between **Long Ledge,** marked by a prominent beacon, and **Potato Ledge,** which extends northeastward from **Shabby Island** 0.6 mile. The channel then leads westward, passing **Lazygut Ledge, East Mark Ledge, Haycock Rock, Haskell Ledge,** and several other dangers, most of which are buoyed, to join the other channel in the Thorofare west of **Bold Island Ledges.** The southern eastern entrance channel passes south of **Whaleback Ledge,** about 0.8 mile south of Shabby Island, runs nearly true west, past **Saddleback Island,** and is well marked by buoys to its juncture with the other channels.

Entering from the westward.—The principal leading mark is **Deer Island Thorofare Light,** located on **Mark Island.** The light

*Lat. 44°08′.4, Long. 68°40′.4: Charts 227, 309, 1203.

is shown from a white square tower attached to a dwelling, is 52 feet above mean high water, and visible 13 miles. The fog signal is a bell. Westward of the light care must be taken to avoid The Brown Cow, a rock awash at high water, located a little over a mile west-southwestward from the light, and **West Mark Island Ledge** with 4 feet of water over it, about 0.7 mile northwesterly of the light, which is marked by a red buoy. Passing north of the light and south of **Western Deer Island Ledge** and **Bay Ledge** there will be no difficulty in following the aids marking the Thorofare. **Local magnetic attraction** has been reported in a small area south of Mark Island. For courses and distances, see page 58.

ISLANDS BETWEEN DEER ISLAND THOROFARE AND MERCHANT ROW

(CHART 227)

South of Deer Island Thorofare and north of Merchant Row are many small islands, the more important of which are mentioned below. Navigation among them must be considered dangerous for there are many ledges and the channels are unmarked.

Halibut Rocks, in Jericho Bay eastward of the entrance, are two rocks, the northerly one marked by an unwatched light on a red skeleton tower. There is a black bell buoy northward of the rocks.

West Halibut Rock, 1 mile westward of Halibut Rocks, has 2 feet over it and is marked by a red buoy. A rock with 9 feet over it lies 400 yards northeastward of the buoy. **A local magnetic attraction** is reported on the broken ground ½ mile east-northeastward of Southern Mark Island.

Southern Mark Island Ledge has a rock bare at high water.

Colby Ledge is bare at half tide and marked by a spindle. A ledge with 15 feet over it lies 300 yards southward of the spindle. **Colby Pup,** with 3 feet over it, and marked by a black buoy lies 0.5 mile south of the spindle.

McGlathery Island is the largest island on the north side of Merchant Row. There is a rock awash at mean low water about midway between the east end of the island and **Gooseberry Island.*** The passage between these islands has several other dangers and should be avoided by strangers.

Barter Island Ledges are covered at high water and marked by a spindle.

Harbor Island Ledge has 3 feet of water on it and is marked by a black buoy.

A 14-foot spot in mid-channel southwest of **George Head Island** wooded is marked by a red buoy.

Farrel and **Scraggy Islands** are wooded; there are several grassy rocks off the south side of Scraggy Island. **Sparrow Island** is grass covered. **Sparrow Island Ledges** extend 0.5 mile west of the island.

Of the remaining islands in this area **Bare** and **Round Islands** are grassy, **Buckle, Little Camp,** and **Potato Islands** are bare. **No Mans Island** is wooded on the western end and grassy elsewhere.

*Lat. 44°07′.2, Long. 68°36′.5: Charts 227, 309, 308, 1202.

Enchanted Island has scattered trees. **Camp, Rock,** and **Russ Islands** are partly wooded. **Phoebe, Millet, Spruce, Coot, Wreck, St. Helena, Green, Sand,** and **John Islands** are wooded.

MERCHANT ROW

(CHART 309)

This passage leading from Jericho Bay to East Penobscot Bay and passing between the islands and ledges lying between Deer Isle and Isle au Haut, is used by vessels in the winter, when Deer Isle Thorofare is closed by ice, and by deep-draft vessels at all times. It is not quite so direct as Deer Island Thorofare, but the channel is wider and much deeper. There are numerous ledges and rocks on both sides of this passage, but the principal ones are marked by buoys or spindles, and the channel can be readily followed in clear weather and daylight.

Directions for Merchant Row are given on page 59. Deep-draft vessels can enter through the passage between Marshall and Swans Islands and Jericho Bay, as directed on page 126. Directions for entering Merchant Row from southwestward in Isle au Haut Bay are given on page 155.

The islands and reefs on the north side of Merchant Row, including many of those in the channel, are described in the preceding section under the heading "Islands between Deer Island Thorofare and Merchant Row (Chart 227)." The Row could in fact be navigated on that chart for the greater part, but it is better to use Chart 309, which, although it is on a smaller scale, shows the islands and reefs on both sides of the channel, as well as the approaches.

There are two entrances from the eastward which are separated by the islands and reefs in Jericho Bay. South of Halibut Rocks and west of Marshall Island a series of islands and reefs extend to the eastern entrance to the Row. **Southern Mark Island** is about 30 feet high and grassy. South of this is **Fog Island,** which is wooded. The numerous ledges east of Fog Island, and between it and Marshall Island, are all bare. The more important of these, since they are closest to the channels, are **North Popplestone Ledge** and **Saddleback Ledge** on the north, and **Green, White,** and **Drunkard Ledges** to the south. On the south side of Merchant Row, **Burnt, Pell, Bills, Merchant** and **Ewe Islands** are wooded. **Harbor Island** is grassy.

Hardwood Island is round and heavily wooded. **Ram Island,** ¼ mile southwestward of Hardwood Island, has a clump of trees on its north side. **Channel Rock,** nearly 0.5 mile westward of Ram Island, is covered at high water. **Ram Island Ledge,** bare at low water, lies 400 yards southeastward of Channel Rock.

Scraggy Ledge is a bare ledge 700 yards westward of Channel Rock. There is foul ground between it and **West Halibut Ledges;** the latter are bare. **Outer Scrag Ledge,** 1 mile northwestward of Scraggy Ledge, is partly bare at high water. **The Brown Cow,** 1 mile north-northwestward of Outer Scrag Ledge, is awash at high water. It is the westernmost danger at the western end of Merchant Row.

ISLE AU HAUT AND OFF-LYING DANGERS

(CHART 309)

Isle au Haut Island is one of the principal landmarks of the locality, its maximum elevation being 556 feet and it is wooded. It is quite isolated and has few inhabitants. Its coast is for the most part foul and must be approached with caution.

York Island lies about 0.3 mile off the eastern shore of Isle au Haut near its northern end. There is a ridge of shoals and reef extending northward from York Island, culminating in **Airy Ledge,** marked by a buoy. The channel between York Island and Isle au Haut is almost blocked by a group of rocks between the two islands. Between **Richs Point*** and York Island, there are numerous reefs and rocks, the most of which are marked by heavy growths of kelp. This area should be avoided by all except those with local knowledge.

Foul ground also extends southward of York Island. Several ledges extending for about a mile south of the island are called **Turnip Yard, Halfway Rock,** and **Horseman Ledge.** Parts of these bare at low water.

About 1.5 miles south-southeast of York Island is a group of islands which are all grass covered. They are known as **Little Spoon** and **Great Spoon,** with **Great Spoon Ledge** (3 feet of water over it), 0.3 mile northeast of Great Spoon, unmarked, and **Black Horse** and **White Horse Islands** with **Colt Ledge** 0.5 mile to the southward of them with 7 feet of water over it. The chart should be carefully followed in this locality.

Eastern Ear Ledge with 1 foot over it lies 0.6 mile southward of **Eastern Ear,** a small island close to the southeast corner of Isle au Haut. It is marked by a red buoy to the southward.

Head Harbor is a small bight in the south shore of Isle au Haut, just west of **Eastern Head;** it is exposed to southerly winds and used only by fishermen. The bottom is rocky, except in the northwestern part, where the depth is from 4¾ to 9 fathoms. There are a few houses in the northeastern part and two fish wharves.

Roaring Bull Ledge, 1 mile south-southwestward of Head Harbor, is bare at half tide and marked by a spindle. There is a red lighted whistle buoy 0.6 mile southward of the ledge.

Western Ear is a wooded island at the southwest end of Isle au Haut. **Western Ear Ledge,** ¼ mile southward of Western Ear, is bare at half tide.

The western side of Isle au Haut is fringed with many rocks and shoals, bare and submerged. The westernmost visible at high water are **The Brandies,** three bare rocks 1 mile westward of the southern part of Isle au Haut, and **Kimball Rock,** awash at high water, 0.6 mile westward of the western end of **Kimball Island.** Several rocky spots with depths of 18 to 30 feet lie outside the line joining these rocks.

Moore Harbor is a cove on the western side of Isle au Haut, about 2½ miles above Western Ear. This harbor has many outlying ledges off the entrance and in the harbor, and is an unsafe anchorage.

Isle au Haut Thorofare is on the western side of Isle au Haut, between it and Kimball Island; though called a thorofare, it has

*Lat. 44°05′.2, Long. 68°36′.1: Charts 308, 309, 1202.

a bar near its eastern entrance, dry at low water, extending from Isle au Haut to Kimball Island. It has a greatest width of 500 yards at its western end, and is a secure anchorage for small craft or very small vessels in 5 fathoms. A buoy and spindle mark the two principal dangers. Opposite the town of Isle au Haut and near the southeast end of Moxie Island, the channel is narrowed by a ledge having only 2 to 4 feet at low water. The ledge is so close to the charted 16-foot depth that boats either run on it unawares or come to anchor and are set aground by the falling tide.

Enter Isle au Haut Thorofore between Isle au Haut Lighthouse (on **Robinson Point**) and **Sawyer Ledge** black buoy, and pass southward of **Inner Ledge** spindle, giving it a berth of over 50 yards. Then keep in mid-channel except in the choke at the entrance of the anchorage, where the northern side should be favored slightly. Avoid a rock, bare at low water only, which lies 90 yards from the northwest side of the anchorage.

Isle au Haut is a village on the south side of Isle au Haut Thorofare. There are several landings which bare at low water. Gasoline and provisions are obtainable. A white church with a steeple is prominent. A small gas boat carrying mail and passengers plies between Stonington and Lookout.

There is no piped water on Isle au Haut.

Lookout is a village and summer resort at the eastern end of Isle au Haut Thorofare. There is a buoyed channel to the wharf from Merchant Row, leading between Merchant and Hardwood Islands a private spindle marks the eastern extremity of the ledge extending eastward from Flake Island (grassy). The wharf has a depth of 7 feet alongside.

Chapter 9.—PENOBSCOT BAY AND APPROACHES

(CHART 1203)

This is the largest and most important of the many indentations on the coast of Maine. It is about 20 miles wide from Isle au Haut on the east to Whitehead on the west, and is 28 miles long, from its entrance to the mouth of the Penobscot River. A chain of large and small islands divides it into two parts known as East and West Penobscot Bays; the southern part of East Penobscot Bay is known as Isle au Haut Bay. Numerous harbors indent its shores, those of the most importance being Rockland, Rockport, Camden, Belfast, and Searsport on the western shore, Castine and Stonington on the eastern shore, and Vinalhaven and North Haven in the center of the bay. The bay is the approach to Penobscot River, which has several towns, and the city of Bangor at the head of navigation.

The sea approaches to the bay are well marked by the lighthouses on Monhegan Island and Matinicus Rock, and the entrances by Saddleback Ledge Lighthouse on the east and Whitehead and Two Bush Island Lighthouses on the west sides of the bay. The harbors are well lighted and the more important dangers are indicated by buoys or beacons. A number of coasting vessels enter the bay, especially in summer. In winter many of the harbors, are obstructed by ice, and the Penobscot River is sometimes entirely closed by it. The Thorofares are only occasionally obstructed by ice and are much used by vessels bound along the coast.

Penobscot Bay is a region of rocks and ledges, and extreme caution is necessary in navigating. It can be entered from eastward through Eggemoggin Reach, Deer Island Thorofare, or Merchant Row, and from westward through Muscle Ridge Channel or Two Bush Channel. The main channel through these Thorofares and the main part of both East and West Penobscot Bay, from a line joining Isle au Haut and Matinicus Islands northward to the entrances of Penobscot River and Belfast Harbor have been examined by means of a wire drag.

Pilots.—Pilotage is not compulsory for vessels entering Penobscot Bay, and vessels seldom take pilots. Pilots for the bay and river can be obtained at Bucksport and Rockland. By prearrangement these pilots will meet a vessel at any designated point. Penobscot River pilots live on the south end of Verona Island 4 miles south of Bucksport and board vessels from there when signaled.

Towboats.—There are towboats at Rockland, Stonington, and Bucksport.

Tides.—The mean rise and fall of tides varies from 9 feet near the entrance to about 10 feet in Eggemoggin Reach and near the head of Penobscot Bay. The rise and fall increases in passing up the Penobscot River, the mean range at Bangor being about 13 feet.

ISLANDS AND ROCKS SOUTHWARD, OFF PENOBSCOT BAY

(CHART 225)

There is no secure harbor for vessels at any of the islands, but the small craft of local fishermen moor in Matinicus Harbor, the cove on the eastern side of Matinicus Island northward of Wheaton Island. The waters of this area are well surveyed, and there are deep passages between the islands, as shown on the chart. On account of the broken nature of the bottom, however, vessels, particularly deep-draft ones, should avoid all broken ground, especially with depths less than 10 or 12 fathoms.

These waters are frequented mostly by local fishermen. The only settlements are on Matinicus and Ragged Islands, to which there is communication by launch from Rockland.

Seal Island, the easternmost, is bare, rocky, about 60 feet high, and 1 mile long. There are three abandoned houses near its eastern end. **Eastern Ledge,** on which the sea generally breaks, extends 350 yards off the east end of the island. **Three Fathom Ledge** lies 1.4 miles eastward of Seal Island.

Malcolm Ledge, lying midway between Seal Island and Wooden Ball Island, is 0.4 mile long. The north end of the ledge is awash at high water; the south end is bare at half tide.

Wooden Ball Island is bare, rocky, about 60 feet high, and 1 mile long. The eastern point of the island is a prominent knob about 80 feet high, and there are a few small abandoned houses at the low place in the western part of the island.

Matinicus Rock, the southernmost islet, is about 40 feet high, and is marked near its south end by Matinicus Rock Lighthouse.

Martinicus Rock Lighthouse* is the southernmost of two cylindrical granite towers. It is 90 feet above high water and visible 15 miles. The fog signal is an air diaphone.

Matinicus and **Ragged Islands,** partly wooded, with **No Mans Land** and **Tenpound Island,** both grassy, are the principal islands of a group of islands and rocks about 5 miles long. There are numerous, high, bare rocks, including **Green** and **Brig Ledges,** on the east and south sides of Ragged Island, and broken ground extends 0.9 mile southward from it to **Inner Breaker,** which has a depth of 3 feet over it and is marked by a red buoy. **South Breaker** is on a small rock, awash at lowest tides and marked by a horizontally striped buoy, 1.7 miles southward of Ragged Island and 1.6 miles northwestward of Matinicus Rock Lighthouse.

Criehaven is a post village of fishermen in the cove on the western side of Ragged Island. The fish wharf has a depth of about 7 feet. There is a breakwater extending northward from the southern entrance point, with a light at its end. A red buoy is located 700 yards off the harbor entrance. Gasoline and provisions are obtainable. There are shoals on the south side just outside the entrance to the harbor, and the best water favors the north side until inside. The harbor is a poor shelter in westerly weather. At such times the tri-weekly mail launch from Rockland lands at a wharf in **Marsh Cove,** on the

*Lat. 43°47′.0, Long. 68°51′.4: Charts 225, 1203, 70, 1106.

southeast side of Ragged Island, and anchorage can also be had here. The wharf here is nearly bare at low water.

Shag Ledge, close to the northeast end of Ragged Island, is high, bare, and rocky. **The Hogshead** is a small bare rock 0.2 mile northeastward. **Tenpound Island** is grassy with a few trees.

Western and **Eastern Black Ledges** are bare rocks eastward of Matinicus Island. **Tuckanuck Ledge,** 200 yards eastward of **Eastern Black Ledge,** is covered at high water. A rock with 10 feet over it lies 0.2 mile south-southwestward of Western Black Ledge. **Mackerel Ledge,** bare at half tide, lies 700 yards north-northeastward of Eastern Black Ledge and is marked by a black buoy.

Matinicus Harbor is a cove on the east side of Matinicus Island inside Wheaton Island and a breakwater making out from the north shore to **Indian Ledge.** Small vessels can anchor in the middle, south-southwestward of Indian Ledge, in 4 fathoms, exposed to northeasterly winds. Small craft can anchor inside the breakwater, where there is an area 200 yards square with depths of 1 to 7 feet, protected from all winds. This anchorage is usually full of local fishing boats in bad weather. The entrance to the inner harbor is on either side of **Dexter Ledge,** awash at high water and usually marked on the southwest side by a small private spindle. The usual entrance is 125 feet southwestward of the highest part of the ledge.

Matinicus is a town on Matinicus Harbor. It has tri-weekly mail launch communication with Rockland. The principal wharf, on the northwest side, has a depth of about 2 feet at low water, and the other wharves are bare. Gasoline, provisions, and some motorboat supplies are obtainable. There is no piped water on the island.

The thoroughfare between **Wheaton Island** and the point westward is bare at low water. There are small wharves, and small craft sometimes anchor here. **Old Cove,** westward of the south end of Wheaton Island, is seldom used as an anchorage.

Harbor Ledge is a rock with 4 feet on it, lying 300 yards northeastward of the entrance of Matinicus Harbor, and is marked on its south side by a horizontally striped buoy. **The Barrel,** lying 300 yards northeastward of Harbor Ledge, is a rock bare at half tide at the south end of a sunken ledge 300 yards long.

No Mans Land, the largest of the rocks and islets northeastward of Matinicus Island, is grassy and has a shanty on its west side.

Two Bush Islet is grassy on top and is joined to the northeast end of Matinicus Island by a sunken ledge. **Two Bush Ledge,** high and bare, lies southeastward of the islet; sunken rocks extend 350 yards eastward and northeastward from the ledge. **Beach Ledges** are two rocks, bare at a little below high water, between Two Bush Ledge and Matinicus Island. **Whaleback** is a rock, bare at low water, lying 0.3 mile westward of No Mans Land, and is marked on its northwest side by a black buoy. **Zephyr Ledges** are two rocks, bare at low water, lying 0.3 mile northeastward of No Mans Land. **Zephyr Rock,** the northeast end of the group, is a rock with 5 feet over it lying 0.6 mile northeastward of No Mans Land, and is marked on its northerly side by a black buoy.

Matinicus Island lighted bell buoy is located 0.5 mile northward of Martinicus Island.

Local boats bound to Matinicus Harbor from northward carry a draft of 6 feet at low water through the channel between Matinicus Island on the west and Two Bush Island and Beach Ledges on the east. Strangers should use this passage only in small boats and with a smooth sea and be careful to avoid the various ledges.

Black Rocks* are three bare rocks 0.3 mile westward of Matinicus Island.

Bantam Ledge is a rock bare at half tide, with deep water around it, lying 2.4 miles 283° true from the south end of Ragged Island. It is marked by a horizontally striped buoy, placed 100 yards south of the ledge.

Foster Ledges are two rocks with 6 and 13 feet over them; the southwestern and shoaler rock is marked on its west side by a red buoy. The ledges lie 2.4 miles westward of the north end of Matinicus Island.

Bay Ledge, with a least depth of 3 feet, is located about 5 miles north-northeast of No Mans Land. It is marked on its west side by a lighted bell buoy.

Pigeon Ground is broken ground about 2 miles long in an east-northeasterly direction, lying 2 miles southward of Large Green Island. There are depths of 3½ and 2½ fathoms on its eastern and western parts, respectively.

Green Island Seal Ledges lie 0.6 to 0.9 mile south-southeastward of Large Green Island, with broken ground between. The southern part of the ledge is awash at high water; its north end is covered at half tide. A black and white vertically striped whistling buoy is moored about 0.8 mile east-southeast of the ledge.

Large Green Island is low and grassy, and has some houses on its northern part. **Herring Ledge,** partly bare at low water, extends 0.4 mile southward from the island.

About 1 mile north-northeastward of Large Green Island is **Collins Rock** with 5 feet on it. **Junken Ledge** with 18 feet on it and marked by a hrizontally striped buoy on its south side is located 5 miles north-northeastward of Large Green Island. A vertically striped whistle buoy is located 1.3 miles southwest of Junken Ledge.

ISLANDS AND ROCKS SOUTHWESTWARD, OFF PENOBSCOT BAY

(CHART 312)

Little Green Island is low and grassy, and has 2 camps.

Northern Triangles is a reef about 1 mile long in an east-southeasterly direction lying 1 mile northward of Little Green Island. In the western half of the reef are some ledges bare at low water Northern Triangles black buoy is placed about 0.7 mile northward of the eastern end of the reef. A ledge with 15 feet over it lies 2 miles northward of Little Green Island and 2 miles southeastward of Two Bush Island Lighthouse, and is marked by a horizontally striped buoy.

Alden Rock, with 4 feet over it and marked, on its southern side, by a horizontally striped buoy, lies 1.4 miles northwestward of Little Green Island. An unmarked rock with 14 feet over it lies 0.8 mile west-northwestward of Alden Rock. The 14-foot rock 0.8 mile west

*Lat. 43°51'.5, Long. 68°54'.7; Charts 225, 1203.

of Alden Rock is at the eastern end of broken ground nearly 1 mile long, with least depths of 25 to 28 feet.

Southern Triangles are three rocks, awash at low water lying midway between Little Green and Metinic Islands. The southwestern rock lies 0.6 mile from the other two. A black buoy lies 75 yards southeastward of the easternmost rock.

Metinic Island is nearly 2 miles long, 70 feet high near its northern end, and partly wooded; it has no wharves. **Metinic Green Island,** low and grassy, lies 0.4 mile southwestward of Metinic Island, with foul ground between. A rock awash at low water lies 300 yards southwestward of Metinic Green Island. **Wheeler Rock,** with 5 feet over it, lies 0.4 mile north-northeastward, and Wheeler Big Rock, awash at high water, lies 300 yards northward of the northeast point of Metinic Island. **Green Point Shoal,** with 19 feet over it, lies 0.7 mile eastward of the middle of Metinic Island.

Broken ground extends 2 to 3 miles westward and southwestward from Metinic Island.

Black Rock, covered at high water, lies 0.7 mile westward of the middle of Metinic Island. A rock with 14 feet over it, lies 0.3 mile southwestward of Black Rock.

Metinic Island Ledge, with 8 feet over it and marked at its southwest end by a horizontally striped buoy, lies 1.8 miles westward of Metinic Island, on the range of the north end of the latter and the middle of Large Green Island. A rock with 26 feet over it lies 0.6 mile northeastward of it. **Hooper Shoal,** with 17 feet over it, lies 0.6 mile southwestward from Metinic Island Ledge. Kelp is reported on Metinic I. Ledge.

Roaring Bull,* awash at low water and generally marked by breakers, lies 2.7 miles westward of Metinic Green Island. It is marked on its northwest side by a black buoy. A ledge, with a least depth of 4½ fathoms, lies 0.7 mile north-northwestward of Roaring Bull.

Southeast Breaker is on a ledge about 0.5 mile long in a northeast direction, the higher part of which is bare at half tide. It lies 2 miles southwestward of Metinic Green Island, on the range of the south end of the latter and the north end of Large Green Island.

Haddock Ledge, with 13 feet over it, lies 1.3 miles southward of Southeast Breaker and 2.5 miles southwestward of Metinic Green Island.

Monhegan Island, lying 9 miles off the mainland, is one of the important landmarks for vessels bound along the coast. It is 1.4 miles long, 160 feet high, and presents a rocky shore with high bluffs in places.

Monhegan Island Lighthouse, in the middle of Monhegan Island, is a gray conical tower, with a covered way to a white dwelling. The light is 178 feet above the water, and visible 20 miles.

Manana Island, a smaller island close westward of Monhegan Island, is 110 feet high and rocky and has a fog signal and radio beacon on its summit. The signal is a horn and it is synchronized for distance finding. A bell will be struck by hand if the horn is disabled.

---

*Lat. 43°51′.6, Long. 69°11′.6: Charts 312, 1203.

Monhegan Harbor is an anchorage for small craft, exposed southward, lying between Monhegan and Manana Islands; it is used principally by local fishermen and has 3 to 5½ fathoms with poor holding ground and scant room at the anchorage for a small vessel to swing. The deeper water in the harbor favors Manana Island. A depth of 12 feet can be taken through the northern entrance, between Monhegan Island and the grass-covered rock on the end of the ledge making out from Manana Island; the best water leads close to the end of the wharf in entering. Even small craft should not attempt to ride out bad weather in this roadstead. During heavy weather the daily mail boat is frequently unable to land at the wharf.

Monhegan is a village of fishermen and summer residents on the east side of Monhegan Harbor. The principal wharf has a depth of about 12 feet at the end. The village has telephone communication with the mainland, and communication by a launch carrying mail, freight, and passengers with Thomaston, Boothbay, and Port Clyde. Gasoline and provisions are obtainable.

Eastern Duck Rock is a large bare rock, with some grass on top, lying 400 yards off the north end of Monhegan Island; the narrow channel between them is near the rock.

Duck Rocks, lying 0.6 mile off the northwest side of Monhegan Island, are two large bare rocks, the western one marked by a large black tripod beacon. **Sunken Duck Rock,** with 6 feet over it, lies 350 yards north-northeastward of the tripod, and is marked on its north side by a black buoy. A black bell buoy is moored 650 yards north-northwestward of the tripod.

Allen Shoal lies 1.9 miles eastward of Monhegan Island Lighthouse and 1 mile from the nearest point of the island. The least depth found by the survey is 5½ fathoms, but a depth of about 3 fathoms is reported.

Gull Rock Ledge, with 3¾ fathoms over it, lies 1 mile south-southeastward of Monhegan Island Lighthouse.* Kelp has been reported on this shoal.

EAST PENOBSCOT BAY TO CAPE ROSIER

(CHART 309)

East Penobscot Bay to Cape Rosier is the part of Penobscot Bay lying eastward of Vinalhaven, North Haven, and North and South Islesboro; its southern end, between Isle au Haut and Vinalhaven Island, is called **Isle au Haut Bay.** The islands in East Penobscot Bay have numerous coves and small harbors, but few of these are available anchorages, some on account of their depth and others on account of the numerous dangers which obstruct their entrances. East Penobscot Bay is entered from eastward through Eggemoggin Reach, Deer Island Thorofare, and Merchant Row, and from southward between Isle au Haut and Vinalhaven Island. Saddleback Ledge Lighthouse is the guide to this entrance. Numerous unmarked ledges lie westward of Isle au Haut and off the western entrance to Merchant Row and Deer Island Thorofare. Northeastward of North Haven Island there are numerous islands and ledges.

For directions, East Penobscot Bay, see page 154.

*Lat. 43°45′.9, Long. 69°19′.0: Charts 312, 313, 1203, 1204, 1106, 79.

The channel to the head of Penobscot Bay leads eastward of **Eagle Island,** marked by a lighthouse and fog signal (bell), and passes between the islands in a north-northwesterly direction to Cape Rosier. A depth of over 5 fathoms can be carried up the bay by closely following the directions.

Saddleback Ledge Lighthouse,* on a rocky islet in the middle of the southerly entrance to East Penobscot Bay, is a gray conical tower with white dwelling attached. The light is 54 feet above the water, and visible 13 miles. The fog signal is a bell. There is broken ground between the lighthouse and Vinalhaven, and deep-draft vessels should enter eastward of the lighthouse.

The islands and dangers on the **eastern side** of this part of **East Penobscot Bay** are nearly all described in the preceding chapter under the headings indicating their general location. That is, under the heading "Deer Island Thorofare" will be found a description of those islands and reefs at its western entrance, etc.

Between Deer Island Thorofare and Eggemoggin Reach the eastern side of this bay is formed by the western shores of Deer Isle and Little Deer Isle.

From Barred Island to Southwest Harbor, **Sellers Rock,** part of which bares at low water, and which is marked by a red buoy, and the 18-foot spot 700 yards west of it are the only off-lying dangers.

Southwest Harbor is on the western side of Deer Isle, about 4 miles north of Deer Island Thorofare Lighthouse. It is about 0.3 mile wide at the entrance and 1 mile long, with anchorage in 3 to 5 fathoms, but is not much used, as it is open southward. The village of **Sunset** is on the eastern shore of the harbor; there are no wharves. The western side of the harbor is formed by **Sheephead Island,** from which **Sheephead Ledges** extend 0.3 mile southward.

Northward of Southwest Harbor is Mill Pond, of no importance, and **Sylvester Cove.** In this cove is located the **Deer Isle Yacht Club.** On the north side of the cove is a float landing and a fish wharf. There is a private pier on the south side. The anchorage in the cove is partly sheltered by a long reef, which lies on the south side of the entrance and which bares at about half tide. There is a buoy on the northern side of the reef. Caution should be used in rounding this reef by passing northward of the buoy, as a number of small craft are reported to have grounded on the reef.

Northwest of Sylvester Cove is **Dunham Point,** from which **Dunham Point Ledge** extends 300 yards offshore. From the southern entrance point to Northwest Harbor a ledge, part of which bares at low water, extends 500 yards northwestward. Its outer limit is marked by a red buoy. Outside the red buoy, and between it and Gull Ledge, is a narrow channel. Westward of Gull Ledge is a reef, which must be avoided, even by small boats if using this channel. Its southwest end is marked by a black buoy, about 0.5 mile from Gull Ledge, and 0.4 mile off the main shore.

Northwest Harbor, on the northwestern side of Deer Isle, is about 0.3 mile wide and over 1 mile long. A large part of its upper half is bare at low water, but in mid-harbor good anchorage will be found for small vessels in 13 to 17 feet, soft bottom. The harbor

*Lat. 44°00′.9, Long. 68°43′.6: Charts 225, 309, 1203, 70, 1106.

is sheltered from all but northwesterly winds. There is also good anchorage off the entrance of the harbor between Gull Ledge and Heart Island, in 3½ to 5 fathoms. The village of Deer Isle is near the head of the harbor. There are two small wharves which bare at low tide. During January and February the harbor is closed by ice.

Directions.—Approaching Northwest Harbor from southward, pass 300 to 400 yards westward of the bare ledge off the north side of Dunham Point, steer **33°** true for the eastern end of Little Deer Isle, and pass 300 to 400 yards northwestward of a black buoy which marks the southwest end of a ledge bare at half tide. When well past the buoy, steer 67° true for **Heart Island** (high, grassy, partly wooded knoll near Deer Isle), and pass 300 to 400 yards northward of **Gull Ledge** (partly bare at high water). When past Gull Ledge, steer **124°** true for the middle of the entrance of Northwest Harbor.

Approaching Northwest Harbor from northwestward, pass 150 to not over 250 yards southwestward of the southwest point of **Pickering Island** and from this position a **124°** true course for 2.8 miles will head to the middle of the entrance.

North of Northwest Harbor the western shore of Deer Isle extends in a northeasterly direction to Eggemoggin Reach. It was formerly possible for small boats to follow this shore and pass between Little Deer Isle and Deer Isle directly into Eggemoggin Reach. This passage is now closed by the highway fill. The islands off-lying the western end of Eggemoggin Reach are described on page 59. Between Little Deer Isle and North Haven Island there is a chain of islands, between which are many passes, which must be used with care on account of the many reefs lying between them. **Pickering Island,** 90 feet high, and **Bradbury Island,** 170 feet high, both of which are wooded, are the two principal islands north of the main ship channel. About 0.7 mile south-southwest of Bradbury Island, and 0.4 mile northwest of **Hardhead Island** (bare), lies **Middle Rock,** a 10-foot spot on the north side of the main ship channel. There is a red buoy on its southwest side.

Southwest of the main ship channel at this point, and between it and North Haven Island, the passes between the islands are nearly obstructed by reefs in many cases, and navigation, even by small craft, must be very carefully done. A few of the reefs are buoyed. The more important of these islands are as follows:

Eagle Island is wooded, and has **Eagle Island Lighthouse** (white tower attached to dwelling) at the eastern end. The fog signal is a bell. There is a post office **(Eagle)** and small settlement on the island, and a wharf at which vessels sometimes land at high water.

The other islands in this vicinity are wooded and have no prominent marks. **Great Spruce Head Island** is the highest (220 feet on the north end). **Butter Island** (partly wooded) and **Oak Island** (grassy) are uninhabited. The passage between Butter Island and the northeast **Barred Islands** is reported to bare at ⅔ tide.

Burnt Island is wooded except for its northwest end, which is grass covered.

Directions, Passage north of North Haven Island.—There is a passage northward of North Haven Island, which is used in winter when Fox Islands Thorofare is closed by ice. To go through this passage, pass about 300 yards southward of Eagle Island and steer

275° true for **Spoon Ledge** (high, with grass on top). On this course pass 400 yards northward of **Grass Ledge** (high and grass-covered) and the same distance northward of **Oak Island,** the grassy island southeastward of Spoon Ledge. Pass midway between Oak Island and Spoon Ledge and steer 242° true for 12.3 miles to Rockland Breakwater Lighthouse.*

The **western side** of the southern part of **East Penobscot Bay** is very foul. Northwest of Saddleback Ledge Light, 0.8 mile, is located **Saddleback Ledge Shoal** with 2 feet of water on it, marked by a horizontally striped buoy. The mile wide channel west of this shoal and east of **Diamond Rock** and **Diamond Rock Ledge** (marked by a black buoy) has a number of shoal spots in it, on which various depths ranging from 14 to 28 feet were found by the survey. Between this and the southeast shore of Vinalhaven Island are many islands and reefs dangerous to navigation. A channel is buoyed through these to enable moderate sized vessels in daylight with good visibility to run roughly parallel to this shore at a distance varying from about 0.5 mile to 1 mile. This is part of the partially protected inside route around the south end of Vinalhaven and the use of it may save many miles' running.

Arey Cove and **Roberts Harbor,** on the southeast side of Vinalhaven Island, are much obstructed by rocks and ledges, and are unsafe for strangers.

The coast northward to Bluff Head and the eastern entrance to Fox Islands Thorofare has many offlying islands and reefs, extending in some places nearly a mile offshore. The coves are small and foul and of no value as harbors.

Winter Harbor, Seal Bay, and **Smith Cove** make into the northeastern part of Vinalhaven Island, south of the eastern entrance to Fox Islands Thorofare; they are of no commercial importance and not safe for a stranger to enter.

Fox Islands Thorofare and Little Thorofare are described on page 156. Carver Cove and Kent Cove are two excellent anchorages, easily entered by strangers, in Fox Islands Thorofare near its eastern entrance. They are described under, "Fox Islands Thorofare."

DIRECTIONS, EAST PENOBSCOT BAY

This region is an area of rocks and ledges, many of them unmarked, and extreme care is necessary in navigating it. The main part of East Penobscot Bay, from a little southward of Saddleback Ledge Lighthouse to the entrance of Penobscot Bay by the channel between Eagle and Hardhead Islands, has been examined by means of a wire drag. The principal thoroughfares east and west have also been dragged. Areas near the shores were not covered.

The principal traffic through East Penobscot Bay is in an east and west direction, through the inside passages, but there is a clear channel, good for the deepest draft vessels and with the principal dangers marked, through the bay from sea to the head. The following directions lead in a depth of over 5 fathoms to the entrance of Penobscot River. For directions through the thoroughfares, see their descriptions.

*Lat. 44°06'.2, Long. 69°04'.6: Charts 310, 320, 1208, 1106.

1. Approaching from eastward or southward (Charts 225 or 1203).—Approaching from eastward or southeastward, shape the course for Roaring Bull Ledge whistling buoy lying 1.7 miles southward of Isle au Haut, and from off the buoy steer 295° true for Saddleback Ledge Lighthouse.

Or, steer for Saddleback Ledge Lighthouse on any bearing between 295° true and 343° true, the latter bearing leads 1 mile eastward of Three Fathom Ledge.

When northward of Seal, Wooden Ball, and Matinicus Islands, steer for Saddleback Ledge Lighthouse on any bearing northward of 59° true. This bearing leads 0.6 mile southeastward of Bay Ledge bell buoy.

Pass about 0.5 mile eastward of Saddleback Ledge Lighthouse close to the whistle buoy and proceed as directed in section 2 or 2A.

1A. Approaching from southwestward (Chart 225).—The passages between the islands eastward and westward of Matinicus Island may be used with the assistance of the chart. (See the description of the islands on p. 147.) One of the best is as follows:

Steer for Matinicus Rock Lighthouse, passing southward of South Breaker buoy, pass 0.5 mile northwestward of the lighthouse, and steer 17° true for 4.6 miles to a position 0.7 mile off the northwest side of Wooden Ball Island. Then steer 27° true for Saddleback Ledge Lighthouse, the distance to which is 10.3 miles. The last course leads about 0.3 mile westward of **Snippershan Ledge,** which has a least depth of 6 fathoms, as determined by means of a wire drag, and lies 4 miles southwestward of Saddleback Ledge Lighthouse.

Or (on Chart 1203) pass 1.5 to 2 miles southward of Monhegan Island and steer 64° true for 17.5 miles, heading for the north end of Matinicus Island. When about 1.5 miles from the island, and its southwest end is closed on the northeast end of Ragged Island, the position should be 0.7 mile southward of Foster Ledges red buoy. Then steer 47° true for about 13 miles and pass 0.5 mile northward of Matinicus Island and over 0.5 mile southward and eastward of Saddleback Ledge Lighthouse. Then follow the directions in section 2 or 2A.

2. Saddleback Ledge to Fort Point (Charts 309, 310, and 311 may be used, or the single chart 1203).—Pass about 0.5 mile eastward of Saddleback Ledge Lighthouse, close to the vertically striped whistle buoy, and steer 351° true for 12.4 miles, passing 0.5 mile westward of The Brown Cow, and 0.2 mile eastward of a black bell buoy 0.7 mile southward of Eagle Island Lighthouse to a position 0.3 mile eastward of Eagle Island Lighthouse. Then steer 322° true for 5.4 miles to a position 0.5 mile true west of Green Ledge and 0.3 mile beyond red bell buoy No. 2. Then steer about 2° true for 8 miles, passing about 0.5 mile westward of Cape Rosier, and then following the eastern shore at a distance of about 0.5 mile. When Fort Point Lighthouse bears 19° true, steer for it. Pass over 200 yards westward of Fort Point Ledge beacon and change course to pass midway between the beacon and the lighthouse. Pass 500 yards eastward of Fort Point and follow the directions for Penobscot River on page 182.

2A. Saddleback Ledge to Merchant Row or Stonington (Charts 309 and 227).—The directions of this section are good for a depth of 28 feet to Merchant Row, and are good for vessels of 12-foot or

less draft through the passage eastward of Crotch Island to Deer Island Thorofare, but lead close to unmarked dangers with less depth. Strangers are advised not to use them with a greater draft than 10 feet.

Bring Saddleback Ledge Lighthouse astern on a **15°** true course, heading for the prominent standpipe at Stonington. **Farrel Island** (wooded) will be made ahead, and Scraggy Ledge (bare) a little on the starboard bow. When 0.5 mile or more southward of Scraggy Ledge, stand eastward until the standpipe is in line with the eastern end of Farrel Island, and then steer this range, course **11°** true, which will lead nearly 200 yards eastward of the rock with 11 feet over it lying 400 yards southward of Scraggy Ledge, and pass midway between Scraggy Ledge and Channel Rock.

From a position 300 yards northwestward of Channel Rock steer **31°** true for the northwestern part of Green Island and pass 300 to 400 yards southeastward of **John Island.** Pass 150 to 200 yards eastward of **Sand Island,** and steer **348°** true, following the shore of Crotch Island at a distance of 250 to 300 yards and passing westward of two red buoys. When a little past the second buoy steer **45°** true, with the entrance of Mill Cove astern, and pass about 100 yards eastward of a black buoy into Deer Island Thorofare. Select anchorage in the channel off Stonington.

Bound eastward through Merchant Row.—Steer the **31°** true course of the preceding paragraph until **Harbor Island,** the grassy island with a few trees lying on the northeast side of Merchant Island, opens northward of Ewe Island. Then stand eastward, pass about 400 yards northward of Ewe Island and 100 yards southward of the buoy marking the 14-foot ledge located 0.3 mile northeast of Ewe Island. Then when 100 yards south of this buoy change course to **96°** true and turn to the directions for Merchant Row on page 59.

FOX ISLANDS THOROFARE

(CHART 235)

This Thorofare, leading from East Penobscot Bay to West Penobscot Bay, between North Haven and Vinalhaven Islands, is one of the chain of inshore passages commencing at Bass Harbor and ending at Whitehead. It is about 7 miles long, and the channel, with a depth of 19 feet or more, has a least width of about 150 yards in several places; the principal dangers are marked by buoys or spindles, which can be easily followed in the daytime with clear weather. The least depth in the channel is 19 feet, but the Thorofare is seldom used by vessels of over 14 feet draft at low water. The main channel has been examined by means of a wire drag.

On the north side of the eastern entrance lie **Babbidge, Calderwood,** and **Stimpsons Islands,** inside and north of which is **Little Thorofare,** which may be used by small craft with local knowledge. South and southeast of these islands ledges extend for over 0.3 mile. A red buoy, marking the northern side of the east entrance to Fox Islands Thorofare, lies 0.6 mile off Babbidge Island. Of the several reefs south of these islands the most prominent are **Black Ledge, Sunken Black Ledge** (marked by a red buoy just south of it), and **Channel Rock** with its prominent beacon and red bell buoy.

Carver Cove, in the south shore of the Thorofare, near its eastern end, is a secure anchorage, easy of access, and convenient for vessels

windbound in East Penobscot Bay or passing through the Thorofares. The anchorage is about 0.5 mile from the head of the cove and 197° true from the cottage on Widow Island, in 16 to 20 feet, good holding ground. The entrance on either side of Widow Island is clear, if the shores be given a berth of about 200 yards; but the point on the south side, at the eastern entrance of the cove, must be given a berth of over 300 yards.

Kent Cove,* in the north shore of the Thorofare, north of Widow Island, is a secure anchorage, with 15 to 24 feet, good holding ground. Goose Rocks Lighthouse is the prominent guide for entering either in the daytime or at night, the entrance being westward of the lighthouse. **Kent Ledge,** the only outlying danger, has 5 feet over it and lies 500 yards northeastward of Fish Point Ledge red buoy, and the same distance from the northwest shore of the cove.

Waterman Cove makes into the north shore west of Kent Cove; it is a good anchorage for small vessels, the water shoaling gradually from 18 feet at the entrance to 5 feet near its head, where a narrow channel leads into a shallow cove called the **Cubby Hole. Waterman Ledge,** with 4 feet over it and marked by a red buoy, lies in the mouth of the cove 500 yards from the western shore. The better entrance is between the buoy and Fish Point Ledge. **Fish Point Ledge,** partly bare at half tide and marked at its southeast end by a red buoy, lies 400 to 600 yards southeastward of Fish Point, with foul ground between.

Seal Cove is a large arm extending 1.5 miles southward from Fox Islands Thorofare southeastward of the village of North Haven. Large areas in the cove have depths of 8 to 12 feet, bottom soft in places. Good anchorage can be selected in the channel of the Thorofare between the entrance of Seal Cove and the western end of the village of North Haven, in 4 to 6 fathoms soft bottom.

Perry Cove is a long, narrow arm making westward on the west shore of Seal Cove; it is of no importance as an anchorage and should be avoided by strangers.

Southern Harbor makes northeastward between the **Dumpling Islands** and **Amesbury Point,** near the western end of the Thorofare. It has good anchorage in 19 to 22 feet, soft bottom, in the middle of the harbor; the water shoals gradually toward its head.

In the western entrance of Fox Islands Thorofare there is good anchorage for vessels of any draft westward or northward of **Sugar Loaves,** and between **Crabtree Point Ledge** and Amesbury Point, in 5 to 7 fathoms, soft bottom.

North Haven is a village on the north shore of Fox Islands Thorofare. It had, in 1940, steamer communication with Rockland, Swans Island, and Stonington, and seaplane service with Rockland and Vinalhaven. The steamer wharf has a depth of about 12 feet and the other wharves less. The yacht club and several wharves have float landings. Gasoline, coal, diesel oil, fresh water, and provisions are obtainable. Small craft anchor on the north side of the channel, taking care to leave a clear channel to the steamer wharf. Two ledges off the town, both marked by buoys, must be avoided. There is telegraph and telephone communication with the mainland. There is an auto ferry running between North Haven and Vinalhaven Island.

*Lat. 44°08′.1, Long. 68°49′.9: Charts 235, 309, 310, 1203, 1106.

The north shore of Vinalhaven Island, across the Thorofare from North Haven, has numerous summer residences with private landing floats. North Haven is an important yachting center. There is a repair shop for small craft and boats up to 50 feet in length and 6-foot draft have been beached for repairs.

Prominent features.—**Widow Island** is marked by a small cottage. **Goose Rocks Lighthouse** (white conical tower on black base) is on the north side of the channel, north of Widow Island; it is the guide for the eastern entrance of the Thorofare and for the anchorage in Kent Cove. **Browns Head Lighthouse** (white cylindrical tower connected with dwelling) marks the entrance to the Thorofare from westward. The fog signal is a bell. **Sugar Loaves** are a ledge of prominent high rocks lying 600 yards northwestward of Browns Head Lighthouse. **Fiddler Ledge** beacon (gray stone), lying 1.4 miles westward of Browns Head Lighthouse, is a prominent mark when approaching from westward. **Drunkard Ledge spindle** is 0.5 mile westward of the beacon. Broken ground, which should be avoided by vessels, extends 0.2 mile southward of the line joining the beacon and spindle. The southern extremity of the broken ground is marked by a red gong buoy. A large standpipe on the high ground just back of North Haven shows up prominently in approaching from either direction. The Thorofare is often closed by ice in the winter season.

Tidal currents.—The currents are not strong; they meet at Iron Point, in the middle of the Thorofare, the flood setting in from both ends and the ebb setting out. The mean rise and fall of tides is about 9½ feet.

Directions.—For directions through Fox Islands Thorofare see page 57.

In the western approach to Fox Islands Thorofare, on the south side, are located **Dogfish Ledges,** marked by a beacon, **Seal Ledge,** the north end of which is marked by a black buoy, and **Inner Bay Ledges,** which form the westernmost danger in the western approach and are marked by several buoys. The main entrance channel is north of these ledges and is well buoyed. The channel leading southeast, between these ledges, is also well buoyed for the benefit of those vessels going to Hurricane Sound and the southern part of Vinalhaven Island.

Crockett Cove is just eastward of **Crockett Point,** the southeastern point at the western entrance to Fox Islands Thorofare. The cove is 1 mile long and 200 yards wide at the entrance, is obstructed by ledges, and is suitable only for small craft with local knowledge.

Dogfish Island, lying northwestward of Leadbetter Narrows, has a good stone wharf at its eastern end.

Leadbetter Narrows is a narrow passage between the Vinalhaven shore on the north and Leadbetter Island on the south; passing south of the eastern side of Leadbetter Island, it leads in the northern end of Hurricane Sound. In making this passage the northern shore or Vinalhaven shore should be favored. There is a small stone wharf on Leadbetter Island at the narrows. There is also a quarry and wharf on the shore of Vinalhaven, eastward from the narrows. Leadbetter Narrows should not be attempted by strangers except in the case of launches or small craft.

Laireys Narrows leads between **Leadbetter Island** on the north and Laireys Island on the south. This passage is a part of the route between Carvers Harbor and Rockland, and the principal dangers are buoyed.

The Basin is a large irregular bight in the west side of Vinalhaven Island, about 2.5 miles north of Heron Neck Lighthouse. Barton Island lies in the middle of the entrance, leaving a narrow, crooked, and shallow channel north of it. The depth of water in the basin varies from 1½ to 18 fathoms.

WEST PENOBSCOT BAY, EAST SIDE

(CHART 310)

SOUTHWEST SIDE VINALHAVEN ISLAND

(CHART 310)

The southeast side of the island is described on page 154.

Carvers Harbor is a secure anchorage for small vessels on the southwest side of Vinalhaven Island. The anchorage is about 500 yards long and 250 yards wide, and has been dredged to a depth of 16 feet, and an additional area on the south side to a depth of 10 feet. In 1940 these depths were reported to have shoaled to about 14 and 8 feet, respectively. At that time a bar was reported to have formed across the channel at the entrance to the harbor with a least depth of 13 feet. The village of **Vinalhaven,** at the head of the harbor, is of some importance for its shipment of granite and fish. There is communication by telephone and steamer with Rockland. The deepest draft of vessels entering is 13 feet; the depth at the wharves is 6 to 10 feet. Water, provisions, diesel oil, and gasoline can be obtained. There are 2 marine railways with a capacity of about 10 tons. Small craft of a length up to 40 feet and a draft of 6 feet can be hauled out. Ice closes the harbor during January and February, but a channel is kept open to the steamboat wharf. A standpipe back of the town is prominent. There is seaplane service to Rockland during the summer season.

Pilots.—Pilots can be secured by showing a flag off the whistle buoy to the light keeper at Heron Neck.

For directions to Carvers Harbor, see page 160.

Heron Neck Light, on the southern extremity of **Green Island** is shown from a white tower connected to a dwelling. The light is 92 feet above the water and is visible 14 miles.

Indian Creek, just eastward of Carvers Harbor, has an entrance from sea and also from Carvers Harbor through a thoroughfare crossed by a drawbridge. This draw was not being used in 1940. The channel is not safe for strangers.

Sand Cove, making northward from Carvers Harbor, is foul. There are several wharves at the head at which vessels lie aground at low water while loading.

The island forming the west side of Indian Creek is known locally as **Lane Island.** It is grassy with two prominent white houses visible from the southward.

The Reach is a narrow, much-obstructed channel leading northwestward from the entrance of Carvers Harbor, inside Green Island.

It is buoyed and used by vessels between Carvers Harbor and Rockland.

Old Harbor is a small cove at the northern end of The Reach and northeastward of the northern end of Green Island. Caution is necessary in using this harbor because of the many old fish pier stakes.

Hurricane Sound lies between Vinalhaven and Green Island on the east, and Hurricane Island and White Islands on the west. It has deep water. Several passages lead into the sound, but there are no good anchorages.

At this part of Vinalhaven Island the numerous rocks and reefs extend over 2 miles offshore and the bottom of the bay is irregular with many 10- to 18-foot spots for about 2 miles further offshore. The better passes among the islands are buoyed. Great care must be used to avoid the numerous reefs. The chart (the largest scale available) is the best guide and may be considered essential to safe navigation.

Directions, Carvers Harbor.—These directions are good for vessels of 12-foot or less draft in the daytime and with clear weather, but lead close to unmarked dangers, and should be used with extreme caution by strangers. The channels have not been dragged.

From Merchant Row or Deer Island Thorofare (Chart 309).—From a position near The Brown Cow or the red whistle buoy about 0.5 mile south of it, head to clear the black buoy marking Triangle Ledge on a course between **196°** and **201°** true. This course should head a little west of Brimstone Island. Pass 400 to 500 yards east of Triangle Ledge buoy and head for the northwest tangent to Carvers Island on a course **226°** true. This course will lead about 200 yards southeast of the red buoys marking Halibut Ledge and Crosby Ledge. Continue this course for about 2 miles until the red buoy marking the southwestern extremity of Sheep Island Ledge is about 300 yards on the port beam, then change course to **253°** true, heading to pass south of the red buoy marking Bunker Ledge. If the **226°** course is carried beyond the Sheep Island Ledge buoy, care must be taken to avoid the bank with 8-foot spot making northwest of Carvers Island. When a little over 100 yards south of Bunker Ledge red buoy, steer **279°** true with either Saddleback Ledge Lighthouse or Diamond Rock* in range with the south extreme of Carvers Island astern, until 300 yards southwestward of Point Ledge spindle. At this point change to chart 310. Then steer **298°** true and pass between **Folly Ledge** (bare at high water) and **Green Ledge** (grassy top), slightly favoring the latter. Pass about midway between Green Ledge and **Green Island Knob** (awash at high water) and steer about **37°** true for the entrance of Carvers Harbor, passing between a red and a black buoy (the latter marks the eastern end of a reef bare at low water only). Pass about 75 yards westward of Potato Island, and enter the harbor in mid-channel. Anchor about 150 yards from the western shore, abreast or a little above the steamboat wharf, in 16 feet.

From eastward (Chart 309).—Give Saddleback Ledge Lighthouse a berth of about 0.3 mile and then bring it astern on a **285°** true course, heading for the two prominent white houses on the knoll on the

*Lat. 44°01'.1, Long. 68°46'.0; Charts 309, 1203.

west side at the entrance of Indian Creek. On this course pass 300 yards northward of Diamond Rock, about 500 yards southward of the black buoy marking the north end of Diamond Rock Ledge (bare at low water) and pass between Carvers Island and the red buoy marking the south end of Sheep Island Ledge (partly bare at low water). From a position 250 yards northward of Carvers Island, steer 256° true and pass 100 yards southward of the red buoy off Bunker Ledge. Then follow the directions in the preceding paragraph.

From southward (Chart 310).—Steer for the standpipe at Vinalhaven on a 4° true course, passing westward of the red buoy marking the southwest end of Colt Ledge, and between the black buoy marking the eastern end of **The Breakers** (bare at low water) and the red buoy marking the southwest end of Arey Ledges (higher parts are bare rocks). Continue the course for the standpipe until Folly Ledge is a little abaft the port beam, then steer 298° true and pass between Folly Ledge and Green Ledge (grassy top), slightly favoring the latter. Pass about midway between Green Ledge and Green Island Knob (awash at high water) and steer about 37° true for the entrance of Carvers Harbor, passing between a red and a black buoy. Pass about 75 yards west of Potato Island and enter the harbor in midchannel.

Or, from Heron Neck whistling buoy, steer 41° true for Heron Neck Lighthouse until about 350 yards from the lighthouse. Then steer 75° true and pass midway between Heron Neck and **Heron Neck Ledge** (a bare rock). Continue the course and pass about 300 yards southward of the southeast point of Green Island. Continue on course until the standpipe at Vinalhaven bears north true and is in range with the west tangent of Lane Island, the large island forming the west side of Indian Creek. Then change course quickly to 298° true and hold this until 300 yards southwest of Green Ledge. Then swing right, keeping about 300 yards off the high point of Green Ledge, until midway between that ledge and Green Island Knob, then steer 37° true for the entrance to Carvers Harbor and enter as directed in preceding paragraph.

From Rockland through Laireys Narrows and The Reach (Chart 310).—Passing 200 yards southward of Rockland Breakwater Lighthouse, steer 99° true for 5.3 miles to a position 250 yards northwestward of Fox Islands Thorofare bell buoy (perpendicularly striped). Then steer 125° true for a position 200 yards westward of the perpendicularly striped bell buoy westward of Green Islet, and pass northward of two black buoys. From the bell buoy, steer 107° true for the north end of Laireys Island to a position 25 to 50 yards southward of a red buoy. Then steer about 101° true, pass midway between the north end of **Laireys Island** and the south end of the bare rocks northward, and pass about 50 to 100 yards northward and eastward of a black buoy, marking the 9-foot spot east of Laireys Island. Then stand southward to a midchannel position between the eastern side of **Cedar Island** (wooded) and the grassy islet opposite.

Then steer 135° true for 1.1 miles to a position 50 yards southwestward of Dog Point Ledge red buoy. Then steer 118° true pass midway between the northeast point of Green Island and the rock awash at high water lying southward of the island in the entrance of Old Har-

bor and close to and north of the buoy marking the south side of the channel off the northeast end of Green Island. Then pass in midchannel eastward of the island close to the northeast end of Green Island. Pass close westward and about 50 yards southward of buoy No. 4 and steer **113°** true to a position about 50 yards northeastward of black buoy No. 1A. Then pass 100 yards eastward of the black spindle on the end of the ledge extending eastward from a grassy island. A rock with 3 feet over it lies 200 feet northeastward of the spindle, and the channel has a width of but little over 100 feet between the rock and the edge of the ledge just northward of the spindle. Great care is required in passing this point.

Pass about 100 yards southwestward of red buoy No. 2 at the south end of The Reach and steer **92°** true, heading a little northward of red buoy No. 4. When nearly up with the latter buoy steer about **37°** true, pass eastward of a black buoy and about 75 yards westward of Potato Island, and enter Carvers Harbor in midchannel. Anchor about 150 yards from the western shore, abreast or a little above the steamboat wharf, in 16 feet.

NORTH COAST NORTH HAVEN ISLAND

(CHART 310)

The western entrance to Fox Islands Thorofare and the offlying dangers are described under the heading, "Fox Islands Thorofare, chart 235," on page 156.

Bartlett Harbor is a small cove with deep water and good anchorage sheltered from all but westerly and northerly winds. It is about 2 miles above Stand-in Point on the western shore of North Haven Island. There is a rock with 9 feet over it in the middle of the entrance; it has deep water close-to around it.

Pulpit Harbor is on the northwest side of North Haven Island, 4 miles northeastward of Stand-in Point and 2.5 miles southwestward of **Webster Head,** the high, partly wooded head at the north end of the island. The entrance has a clear width of over 100 yards, and the harbor is a secure anchorage for small vessels of about 13-foot or less draft. **Pulpit Rock,** high and pointed, is near the end of the reef, which extends 250 yards northeastward from the western point at the entrance, and is a good mark.

To enter, give the north side of Pulpit Rock and the eastern shore just northward of the entrance a berth of over 100 yards, and enter in midchannel eastward of Pulpit Rock on a 191° true course. Keep in midharbor and anchor in its broad part in 4 to 5½ fathoms. The village of Pulpit Harbor is on the northeast side of the harbor. In 1940 there was no post office and no supplies were available in Pulpit Harbor.

Pilots for these waters can usually be obtained at Rockland, North Haven, or Vinalhaven, or from local fishing boats.

North of North Haven Island are numerous islands and reefs, extending to Cape Rosier. The most of them are described on page 153. The most westerly of them is **Egg Rock,** which is small and grass-covered. **Egg Rock Ledge** is 0.3 mile southwest of Egg Rock, has a least depth of 2 feet, and is marked on its northeast side by a horizontally striped buoy.

Compass Island Ledge, 1.4 miles east of Egg Rock, has 8 feet of water over it and is marked by a horizontally striped buoy.

Resolution Island, the northwesterly island of the group between North Haven Island and Cape Rosier, is 60 feet high, and wooded.

The passage through these islands, just north of North Haven Island, is described on page 153.

LONG ISLAND (ISLESBORO)

(CHART 310)

Long Island and the adjacent islands and shoals, 15 miles long, separate East and West Penobscot Bays near their heads. The main island is nearly divided in the middle. A chain of islands and rocks, through which several channels lead, extends for 5 miles southward from the larger island. The island is an important summer resort, and is frequented by many pleasure boats in summer. Dark Harbor, Islesboro, North Islesboro, and Pripet, are villages on the island. An automobile ferry is operated between Lincolnville and **Grindel Point.**

McIntosh Ledge, the most southerly of the dangers, lying about 0.7 mile southeastward of Robinson Rock, is awash at low water and marked by a black buoy on its southeast side.

Robinson Rock, the most southerly visible danger, is a grassy rock with several smaller bare rocks around it. Unmarked ledges extend for a greatest distance of 0.6 mile north-northeast and south-southwest of the rock. There is a whistle buoy south of the southern end of these ledges.

Mark Island,* the most southerly wooded island, is high, rounded, and prominent. A spindle marks the reef extending southward from it.

Goose Rock, 0.5 mile north-northeastward of Mark Island, is about 15 feet high and grassy. **Saddle Island** is thickly wooded and **Lasell Island** is high and wooded except at its north end. **Goose** and **Mouse Islands,** eastward of Saddle and Lasell Islands, are rocky islets with grass on top, and there are several bare and submerged rocks between them. A spindle marks a ledge northeastward of Mouse Island.

Lime Island, 0.2 mile northeastward of Lasell Island, is low and generally wooded, and there is a bare rock 0.2 mile northeastward of it. **Job Island** is thickly wooded. The southerly **Ensign Island** is wooded, and the northerly is wooded in the center and has a house on the west side. There is a landing on the east side.

The channel between Mark, Lasell, and Lime Islands on the west, and Saddle, Goose, and Mouse Islands on the east is used by some vessels bound from Rockland or westward to Eggemoggin Reach or points in the northern part of East Penobscot Bay. The least depth found by an examination with a wire drag was 29 feet. The principal dangers are marked.

Dark Harbor is a summer resort occupying the southern part of South Isleboro. The cove, called Dark Harbor, is crossed by a dam, just inside the entrance, and is seldom used by boats. Small craft frequenting the resort land at numerous float landings on Gilkey Harbor. The old steamer wharf on the eastern side of the island

*Lat. 44°10′.4, Long. 68°59′.0: Charts 310, 1203.

was in fair condition in 1940 and had 15 feet of water alongside at mean low tide. Gasoline and Diesel oil are landed on this dock. A launch carries mail, passengers, and freight to Belfast, Pripet, and Castine. A large hotel and a house on the wharf are prominent.

Gilkey Harbor, on the western side of South Islesboro, between it and **Seven Hundred Acre, Warren,** and **Spruce Islands,** is a secure anchorage with good holding ground, and is frequented by many yachts in summer. There are numerous wharves for small craft in the southern part but no commercial wharves. The harbor is frequently closed by ice during the winter. The **Tarritine Yacht Club** is located on the east side of Ames Cove. There is a clubhouse with float landing which has 5 feet of water alongside at mean low water. Water is piped onto the float. Supplies are delivered from Dark Harbor. On the north side of **Ames Cove** there is a float landing, bare at mean low water, where gasoline, fuel oil, fresh water, and supplies are available. There is a marine railway for small craft, capable of hauling out boats up to 50 feet in length and 6-foot draft. There is no machine shop.

Cradle Cove is a shallow indentation on the northeast side of **Seven Hundred Acre Island.** There is a small boat yard in Cradle Cove, with a marine railway and machine shop. Boats up to 50 feet in length and 6 feet draft can be hauled out. Water and gasoline are available.

The main entrance to Gilkey Harbor is from southwestward, between Job Island and Ensign Islands, and has a least depth of about 27 feet in midchannel, with unmarked rocks of less depth near the sides. It is partially buoyed and easily entered. The entrance from northward has **Grindel Point Light,** 21 feet high, visible 9 miles, shown from a black skeleton tower close to the old abandoned light on the north side. There is a red bell buoy west of the entrance. The channel inside the entrance was marked by a spar buoy and by small private buoys in 1940.

Small craft can enter Gilkey Harbor by a narrow crooked channel **(Bracketts Channel)** westward of the south end of **South Ilesboro** and eastward of Job and **Minot Islands.** The channel is said to be good for a depth of about 6 feet at low water with local knowledge. The best water favors the east side of the thoroughfare. In 1940 the yacht club maintained private buoys during the summer.

Directions, Gilkey Harbor.—The following courses lead through Gilkey Harbor, entering by the main channel from southward and leaving through the northern channel: Pass about 0.5 mile northwestward of Mark Island and steer 28° true for the eastern end of Seven Hundred Acre Island for 4.6 miles, passing nearly 0.5 mile westward of Job Island, 400 yards eastward of Ensign Islands, and to a position 100 yards northwestward of **Minot Ledge** red buoy. Then steer 39° true to a position 300 yards southeastward of the eastern end of Seven Hundred Acre Island. Then steer 6° true and pass over 100 yards westward of Thrumcap Ledge black buoy and 200 yards eastward of Spruce Island. When the north end of **Warren Island** opens northward of **Spruce Island,** steer 327° true to pass 50 yards northeast of the red buoy across the channel from Lobster Rock. When this buoy is abeam, steer 273° true and pass about 25 yards northward of a red buoy 250 yards northward of the north end of

Spruce Island. From this buoy, steer 288° true to pass northward of the bell buoy at the entrance.

Gooseberry Point, about 0.5 mile northeast of Grindel Point, is low and flat, with a clump of trees at its outer end and a landing on the east side.

Crow Cove is an anchorage for small craft only.

Seal Harbor, at the southwestern end of **North Islesboro** and about 3 miles north of Grindel Point Lighthouse,* is a good anchorage, sheltered from all but southwest winds. This harbor is used by vessels bound up or down the bay as an anchorage for the night, and is easy of access. Some yachts go to a pier inside the harbor. Vessels of any size can anchor with ample swinging room about 0.5 mile eastward of Flat Island, in 9 to 11 fathoms. Anchorage can be had nearer the head of the harbor, keeping the southern shore aboard distant about 500 yards, in 8 to 10 fathoms. The northern side of the harbor is foul. The entrance from northwestward is 400 yards wide, with depths of 18 to 29 feet, between Seal Island and a shelving ledge which extends 500 yards northward from **Flat Island.** The latter is grassy, and **Seal Island** is wooded and has a white summer residence, with a red roof, on its western side.

Hog Island, 0.2 mile north-northeastward of Seal Island, is wooded. The ledge extending 0.3 mile north-northeastward from it has three rocks bare at half tide.

Islesboro Harbor is an open bight in the northeastern side of South Islesboro, west-northwestward of the south side of Cape Rosier. It affords good shelter in westerly winds, and has a depth of 7 fathoms. Off the southern point at the entrance is **Hewes Ledge** partly bare at half tide and marked by two buoys. Vessels can pass on either side of the ledge, being guided by the buoys. Foul ground extends over 0.2 mile from the western shore, and will be avoided by keeping the knoll northward of the harbor open from the north point of the harbor. There is a wharf and a village (Islesboro) on the south side. In 1940 the wharf was in poor condition and had 8 feet of water alongside at mean low tide.

Sabbathday Harbor is a small cove in the southeastern side of North Islesboro, and a little over 2 miles northward of **Hewes Point,** the high point on the south side at the entrance to Islesboro Harbor. It is open southward and affords anchorage for small vessels in 6 to 18 feet. There is a village **(North Islesboro)** on the west side and a large private wharf and float landing on the east side.

LONG ISLAND (ISLESBORO), NORTH END

(CHART 311)

Sprague Ledge, 0.5 mile north-northeastward of Hog Island, has a least depth of 2 feet and **Barley Ledge,** a little farther northward, is bare at low water.

Marshall Point, near the north end of the island, is marked by prominent yellowish bluffs.

Turtle Head Cove is a broad bight in the north end of North Islesboro. It is sheltered from southerly and easterly winds, and

*Lat. 44°16′.9, Long. 68°56′.3; Charts 310, 1203.

has good anchorage in 18 to 40 feet, soft bottom. The anchorage has a clear width of about 700 yards and is in the eastern part of the cove. The eastern shore must be given a berth of 250 yards, and the south end of the cove 500 yards. In the western half of the cove a shoal, bare in one spot at low water and with 9 feet near its north edge, extends 600 yards from shore. The north end of Turtle Head bearing anything eastward of 62° true clears the shoal. **Turtle Head,** the north end of North Islesboro, is a prominent wooded head joined to North Islesboro by a long narrow wooded neck.

A submarine power cable is laid from **Coombs Point,** north of Parker Cove, to Dice Head.

Parker Cove, on the east side of North Islesboro, is a shallow cove, used only as an anchorage by small local craft. **Long Island Ledge,** eastward of the entrance, is distinguished by a wreck awash at about half tide. The ledge is marked by a buoy on its southeast side.

TWO BUSH CHANNEL AND MUSCLE RIDGE CHANNEL

(CHART 312)

These are entrances to West Penobscot Bay from westward, the former leading southward and the latter northward of an extensive group of islands and shoals.

Two Bush Channel is broad and deep and has been examined by means of a wire drag. The principal dangers are buoyed and it is used in preference to Muscle Ridge Channel by large vessels and tows, and is generally used at night by all except small local vessels.

Two Bush Island Lighthouse,* a white square tower on Two Bush Island on the north side, is the principal guide to the channel. The light is obscured when bearing between 61° true and 196° true. It is 65 feet above the water and visible 14 miles. The fog signal is a horn.

Halibut Rock, marked by a red buoy 1.6 miles northeastward of Two Bush Island Lighthouse, and **Northeast Pond Ledge,** 0.6 mile northeastward of **Andrews Island,** are bare at half tide.

The larger islands between Two Bush Channel and Muscle Ridge Channel are generally wooded and of little importance. The smaller islands are bare and grassy and there are many bare and submerged rocks. **Dix Island** is wooded and **High Island** has an abandoned quarry on it. **Fisherman Island** is grassy and **Marblehead Island** is bare.

The following information concerning the dangers close to the sailing line through Muscle Ridge Channel is given to identify the dangers.

South Breaker, 0.4 mile southward of Whitehead Lighthouse, is awash at low water and marked at the southwest end by a red buoy. **Yellow Ledge** is awash at high water and marked by a spindle. **Hurricane Ledge** is bare at lowest tides and marked on its northwest side by a red buoy. **Garden Island** is bare, with a little grass on top, and **Garden Island Ledge** is bare at half tide and marked by a spindle. **High Clam Ledge** is bare and grassy at its south end and bare at low water at its north end. **Channel Rock** is awash at high

*Lat. 43°57'.8, Long. 69°04'.5: Charts 312, 1203, 70, 1106.

water and unmarked. **Otter Island Ledge** is bare at half tide and marked by a spindle. **Otter Island** is wooded and marked on the northwest end by a tripod beacon.

Muscle Ridge Channel is much used by vessels in daylight and clear weather on account of its being sheltered and affording anchorage in case of bad weather. The channel has been examined by means of the wire drag, and is good for a depth of 4 fathoms, but it is narrow in places, especially to the westward of Sheep Island. From its entrance at Whitehead it extends in a northeasterly direction about 6 miles to Sheep Island, and the channel passes between numerous rocks and ledges. These dangers are well marked and in daylight and clear weather no difficulty should be experienced.

Whitehead Lighthouse, a gray tower attached to a red house on the southeast end of **Whitehead Island,** is the principal guide to the entrance of Muscle Ridge Channel. The light is 75 feet above the water, and visible 14 miles. The fog signal is a horn. There is a **storm-warning display** station and lookout tower near the lighthouse and a **Coast Guard station** on the southwest side of the island. There is a small wharf in the cove on the northeast side of the island 300 yards northward from the light.

The narrow channel between **Whitehead** and **Norton Islands** is blocked by a reef with only 3 feet of water over it at high tide. There is an overhead wire crossing this channel between the towers shown on the chart. The clearance is estimated at about 25 feet.

Seal Harbor is an anchorage much used by coasters, on the western side of Muscle Ridge Channel, between Whitehead and Sprucehead Islands; it has 18 to 43 feet of water, with soft bottom. The post village of **Spruce Head** is on the north side of Seal Harbor. The principal dangers are buoyed, and the harbor is easy of access in the daytime. **Long Ledge** shows in two places at high water. **Burnt Island Ledge,** marked by a black buoy, is bare at low water. There is a wharf on the south side of **Sprucehead Island,** northwest of Burnt Island.

Directions, Seal Harbor.—Enter between the two black buoys which lie about 250 yards southward of **Burnt Island** and nearly 500 yards northwestward of **Lower Gangway Ledge red buoy,** and steer **304°** true. Pass between a red buoy and Long Ledge black buoy, and anchor in 3 to 4 fathoms, 300 to 400 yards westward of the red buoy, or anchor in 3 to 7 fathoms, southwest of Burnt Island. Avoid a 16-foot spot which lies a short distance westward of Burnt Island Ledge black buoy.

Dix Island Harbor is an anchorage on the south side of Muscle Ridge Channel between **Andrews, Birch,** and **Dix Islands;** it is reached from southwestward through a narrow and crooked channel leading between the ledges north of **Hewell Island;** it is unsafe for strangers to enter.

On the west side of **The Neck,** just westward of Andrews Island is a wharf with 2 feet of water alongside at mean low water. Gasoline and some stores are available.

Weskeag River empties into the western side of Muscle Ridge Channel at the head of the bight westward of **Ash Island.** This river has a narrow and crooked unmarked channel, unsafe for strangers. The village of **South Thomaston** is at the head of

navigation, 2 miles above its mouth; the greatest draft taken to the village is 9 feet at high water. Vessels seldom enter.

Fisherman Island Passage leads from Muscle Ridge Channel to Penobscot Bay, between Fisherman Island and Sheep Island. Several dangers lie in this passage, but the principal ones are marked by buoys and can be easily avoided in the daytime in clear weather.

WEST PENOBSCOT BAY, WEST SIDE

(CHART 310)

OWLS HEAD BAY

(CHART 320)

Owls Head Bay lies between **Sheep** and **Monroe Islands** on the east and the mainland on the west, and is a continuation of Muscle Ridge Channel northward of Fisherman Island Passage. The channel through Owls Head Bay is very narrow on the western side of Sheep Island, where it is marked by two buoys. Vessels can anchor in the middle of the bay abreast **Monroe Island,** in 8 to 10 fathoms, and small vessels can anchor in the entrance to **Owls Head Harbor** between **Dodge Point** and the bare ledge southwestward, in 2 to 4 fathoms. There is a fish wharf bare at low water. Gasoline is available.

Owls Head is a prominent hill marked by a lighthouse on the top. **Owls Head Light*** is 100 feet above the water and is visible 16 miles. It is shown from a white tower and is obscured by Monroe Island between the bearings (from seaward) of 324° to 234°. The fog signal is a bell.

Naval Trial Course.—A measured mile has been established off Monroe Island. The targets marking the one-mile course are shown on charts 320, 310, 312 and 1203. The entire course is about 7 miles long and marked by a line of white reflector buoys. The two middle buoys are 1 nautical mile apart and placed opposite and in line with prominent beacons on shore. The course to be steered is ½° or 180½° true. Vessels must keep clear of the course while trials are in progress.

The rock 350 yards eastward of **Emery Islands** is bare at low water and marked by a spindle. **Dodge Point Ledge,** eastward of Dodge Point, is bare at half tide and marked by a spindle. **Owls Head Ledge,** southeastward of Owls Head, is bare at low water and marked by a black buoy.

Monroe Island Light, 32 feet above high water visible 10 miles, is shown from a white skeleton tower, located on the easten extremity of Monroe Island.

ROCKLAND HARBOR

(CHART 320)

This harbor, one of the most important in Penobscot Bay, is on the west shore of West Penobscot Bay between Owls Head on the south and Jameson Point on the north. It affords anchorage for the largest vessels, but is somewhat exposed to easterly winds. North-

*Lat. 44°05′.5, Long. 69°02′.7: Charts 310, 312, 320, 1203, 1106.

easterly winds raise a heavy sea in the southwestern part, but shelter may be found behind the breakwater, which extends 0.7 mile in a southerly direction from Jameson Point and is about 4 feet above high water. Rockland Breakwater Lighthouse marks the end of the breakwater. The principal dangers are marked, and the harbor is easy of access both day and night.

Rockland Breakwater Light is 39 feet above high water and is visible for 12 miles. It is shown from a white square tower on corner of fog signal house on granite pier. The fog signal is a horn.

There are several rocks and ledges in the harbor. The chart is the guide for avoiding them. Those visible are **Shag Rock,** a cluster of bare rocks near Owls Head and marked by a black tripod beacon; **Lowell Ledge,** a cluster of rocks bare at low water and having a black buoy 300 yards northeastward, marking **Spears Rock,** with 3 feet over it; and **Seal Ledge,** bare at half tide and marked by a spindle.

A wreck, bare at mean low water, lies about 200 yards southwest of Seal Ledge Spindle.

Rockland, the city on the western shore of the harbor, has some trade by water in lime, coal, and petroleum products. A number of small steamers ply to the islands in the bay. During the summer season there is seaplane service with the various island towns in the bay.

There is a public landing at the Rockland Community Yacht Club, with 7 feet of water at mean low water. In 1940 a locally maintained lighted range led to the landing, lights visible about 1 mile, and a fog bell was rung in answer to a boat's whistle.

There is a depth of 15 feet at Tilsons Wharf, and less at the other wharves, many of which are nearly dry at low water. The bottom is soft mud and vessels frequently lie aground at low water while loading and unloading. Float landings are available near Tilsons Wharf. The following depths were reported in 1940 at mean low tide: Oil dock with prominent tanks, 12 feet; coal wharf with prominent tower, 13 feet; shipyard, 12 feet; railroad wharf, 10 to 15 feet, with rail siding.

Rockland is the terminus of a branch of the Maine Central Railroad which connects with the main line at Bath. The outer end of the Maine Central wharf was in ruins in 1940.

Captain of the Port.—A Coast Guard officer has been designated as Captain of the Port for this locality and is located at Rockland. See page 328.

A chart sales agency of the U. S. Coast and Geodetic Survey is located here.

The harbormaster can be reached through the Snow shipyard.

A channel dredged to a depth of 14 feet and marked by buoys leads to the lime works in the northwestern part of the harbor. The owners guarantee a least depth of 11 feet at low water at the wharf here. The channel is reported to have shoaled to about 12 feet.

Prominent features.—The most prominent features in approaching Rockland Harbor are the high elevated tank and the large yellow hotel on **Jameson Point. Owls Head** marked by a lighthouse, and the lighthouse at the end of the breakwater are also prominent.

The two high cement chimneys of the cement works between Rockland and Thomaston, are very prominent from off Rockland Harbor.

Anchorages.—Vessels anchor anywhere in the harbor where the depth and bottom are suitable, taking care to keep 300 yards from the end of Tilsons Wharf, and leaving a clear channel for the steamboats landing at this wharf. Deep-draft vessels entering for the night usually anchor just inside the breakwater and 0.5 mile from the south shore of the harbor. Standing westward in the harbor the water shoals gradually toward the wharves. There are depths of 12 to 14 feet in the harbor eastward of Tilsons Wharf and less water in the bight in the northern part of the harbor between Tilsons Wharf and Jameson Point; only small vessels or small craft anchor in this part of the harbor.

Pilots are not necessary. Pilots for Penobscot Bay may be obtained here.

Towboats can be had at Rockland.

Port of entry.—Rockland is a port of entry and marine documents are issued. The customs office is in the Federal Building.

Supplies.—Coal can be obtained alongside the wharves and water at the principal wharves and from the towboats. Provisions, fuel and diesel oil, gasoline, and some ship-chandler's stores can be had in the city.

Repairs.—There is a shipyard equipped to make ordinary repairs to coasting and fishing vessels. The marine railway can handle vessels up to about 600 tons dead weight, and 13-foot draft aft, and 9-foot forward. There are several boat yards where small craft can be hauled out and repaired. The nearest place where large vessels can be dry-docked is Boston. Lighters and some wrecking equipment are available.

Tide.—The mean rise and fall of the tide is about 9.5 feet.

Directions.—Approaching Rockland Harbor, Rockland Breakwater Lighthouse may be steered for on any course between 287° true through west to 205° true. The first course leads 500 yards northward of Owls Head Lighthouse and the second leads about 0.3 mile eastward of The Graves light. Enter the harbor southward of the lighthouse, giving it a berth of 100 yards or more.

Clam Cove, on the west side of West Penobscot Bay, about 2 miles northward of Rockland Harbor, is shoal at the head and not a good anchorage. There is a private pier with float landing on the north side of Brewster Point. **Brewster Point Ledge,** extending 700 yards southeastward from Brewster Point, on the south side at the entrance is covered at its highest point at high water and marked by a black buoy. **Ram Islet** is a grass-covered rock 500 yards northeastward of Brewster Point; a black buoy marks the end of the shoal extending northeastward from it.

ROCKPORT AND CAMDEN

(CHART 321)

Rockport Harbor.—This harbor, on the western side of West Penobscot Bay, about 4 miles northward of Rockland Harbor, is a good anchorage for vessels of any size, sheltered from all but southerly winds, and is easy of access. Vessels can anchor anywhere between

the entrance and a point 1 mile southward of the head, in 7 to 10 fathoms, soft bottom. Small vessels and motor boats can find anchorage nearer the head. The head of the harbor to the entrances of the two coves near the head has been dredged to a depth of 12 feet. A public landing is maintained by the town of Rockport at the east side of the entrance to the **Goose River.** In 1940 there was no shipping and no facilities for supplies. There are a few private piers and float landings.

Porterfield Ledge, in the middle of the entrance, is bare several feet at low water and marked by a stone beacon and spindle.

On the eastern side at the entrance the prominent marks are Indian Island beacon (formerly the lighthouse) on **Indian Island** (grassy), **Lowell Rock** (bare) southward of the beacon, and a spindle on a stone beacon a little southward of Lowell Rock.

Vessels can enter Rockport Harbor anywhere between the black buoys off Brewster Point and **Lowell Rock spindle,** giving the spindle and Porterfield Ledge stone beacon a berth of at least 150 yards, and then stand northward in mid-harbor until 0.3 mile from the head, then slightly favor the eastern side.

The Graves,* about 1 mile offshore about midway between the entrances to Rockport and Camden Harbors, is a ledge showing bare rocky heads at high water and a large area bare at low water. It is marked by a spindle and an unwatched light 26 feet above the water, visible 9 miles, shown from a white skeleton tower. A bell buoy is placed just eastward of the Graves.

Camden Harbor.—This harbor, on the west side of West Penobscot Bay, is the approach to the town of Camden. It is frequented by many yachts and small craft and has some trade by water. The outer harbor is easy of access and affords good anchorage in 14 to 30 feet, soft bottom. The anchorage is eastward of a line from the steamboat wharf on Eaton Point to the black buoy northward of Curtis Island. The depths in the outer harbor shoal gradually northward to 12 feet about 500 yards from the head of **Sherman Cove,** above which the cove is shoal.

The greater part of the inner harbor has been dredged and is occupied as an anchorage by small pleasure craft in summer; the entrance is through a dredged channel. In 1940 the general depth was reported to be about 8 feet at mean low water. A shoal extends 80 yards from the north shore between the steamboat wharf and the shipyard at the entrance of the inner harbor.

Ice sometimes forms in the harbor from January to March, but is not dangerous for vessels in the outer harbor. Westerly winds clear the harbor of ice if it is broken up.

Camden, the town on the inner harbor, is an important yachting center. Camden is not on the railroad, the nearest railway point being Rockland. The steamer wharf (abandoned), on Eaton Point has a depth of 10 feet alongside. The wharves on the inner harbor have depths of 7 feet and less. Some coal is received by water. The **Camden Yacht Club,** with its wharf and float landings, is on the western side of the inner harbor. The harbormaster can be reached through the yacht club.

*Lat. 44°10'.9, Long. 69°02'.1 : Charts 310, 321, 1203.

Supplies.—Coal in limited quantities, water, diesel oil, and gasoline may be obtained on the wharves. Provisions and marine supplies may be obtained in the town. There are several float landings with 5 to 6 feet of water at mean low water, at which supplies may be received.

Repairs.—There is a shipyard with a marine railway capable of taking vessels up to 225 feet in length and with a capacity of 700 tons. Ordinary repairs to machinery can be made. There are small boat yards at which small craft up to about 50 feet in length are hauled out and repaired.

A chart sales agency of the U. S. Coast and Geodetic Survey is located here.

Prominent objects.—The most prominent feature in entering Camden Harbor is **Mount Battie,** 800 feet in elevation. A small stone memorial tower has been erected on the summit, which shows as a long ridge from off the harbor. **Curtis Island,** with a lighthouse on its southeastern end, is also prominent.

Curtis Island Light, 52 feet high and visible 9 miles, is shown from a white skeleton tower on the southeast end of Curtis Island. The fog signal is a bell rung by hand in answer to boat signals.

Northeast Ledges (inner and outer) lie southward of **Northeast Point** and contract the main entrance to Camden Harbor to about 400 yards. The higher parts of both ledges are bare at half tide. A red buoy is placed off the south end of **Outer Ledge,** and the southwest end of **Inner Ledge** is marked by another red buoy. Northeast Point is marked by a light on the ledge just south of the point.

Northeast Point Light, 20 feet high and visible 7 miles is shown from a red skeleton tower.

Dillingham Ledge, marked on its east side by a black buoy, lies 0.5 mile offshore a little over a mile north of Camden Harbor.

Northeast Passage is a narrow channel, with depths of 12 to 18 feet, leading into Camden Harbor between Northeast Point and Inner Ledge. It is marked by a red skeleton tower with a light on the end of the ledge extending 50 yards southward from Northeast Point and a black spindle on Inner Ledge; the deeper water favors the light. At the eastern end of Northeast Passage a black buoy is placed to mark the north end of Outer Ledge and a black and white bell buoy is placed 0.3 mile northeastward of the spar buoy. This channel is used by local vessels, but should be used with great caution by strangers.

Directions, Camden Harbor.—Entering by the main channel, vessels can steer for Curtis Island Lighthouse on any course between 234° true and 354° true, taking care to avoid The Graves. Pass 200 to 300 yards eastward of Curtis Island and steer 320° true and select anchorage in the outer harbor, eastward of a line joining the steamboat wharf and the black buoy northward of Curtis Island. If going to the inner harbor, pass 100 yards northeastward of the black buoy and steer 285° true for the entrance of the inner harbor, pass southward of the pile marking the shoal on the north side at the entrance to the inner harbor, and haul northward in mid-harbor.

To enter by Northeast Channel, from the bell buoy steer 230° true for the north end of Curtis Island until close to the black buoy at

the northerly end of Outer Ledge. Pass northward of this buoy and steer westward between Northeast Point Lt. and Inner Ledge spindle, favoring the light.

CAMDEN TO SATURDAY COVE

(CHART 310)

Mount Megunticook, 1,380 feet high, lies 2 miles northward from Camden. It shows as a flat-topped peak with a steep shoulder on its southern side.

Duck Trap Harbor is a broad, open bight in the west shore of the bay, 5 miles northeastward of Camden Harbor. Good anchorage, sheltered from northerly and westerly winds, will be found about 600 yards from the north shore of the harbor, in 6 to 8 fathoms, bottom soft in places. **Haddock Ledge,** the only outlying danger, is a rock with 4 feet over it lying a little over 0.5 mile from the western shore and the same distance southwestward of **Spruce Head,** the northeast point of the harbor; the rock is marked on its southwest side by a red buoy. With this exception, danger will be avoided by giving the shore of the harbor a berth of about 500 yards.

Lincolnville is a village at the southwest end of Duck Trap Harbor. It has a crib shelter for small boats, but it is available at high tide only. An automobile ferry operates between Lincolnville and Grindel Point, Gilkey Harbor. The ferry wharf and shed are prominent from offshore.

A church with a white spire located 0.5 mile northward of Lincolnville is prominent from the bay.

Great Spruce Head is bold and has a large whitewash mark just above high-water mark by which it may often be identified in fog.

Saturday Cove is a small cove on the west side of West Penobscot Bay, 9 miles northeastward of Camden Harbor. The village of **Northport** is on the south side. There are float landings at the entrance.

DIRECTIONS, WEST PENOBSCOT BAY

Muscle Ridge Channel, Two Bush Channel, and the main part of West Penobscot Bay from the vicinity of Matinicus Island to the entrance of Penobscot River have been examined by means of a wire drag, and the dangers are shown on the charts.

Directions through Fox Islands Thorofare are given on page 57 and through Eggemoggin Reach on page 59.

Large vessels and the larger tows, approaching Penobscot Bay from southward, either from Boston or Cape Cod Canal, or passing eastward of Cape Cod, usually make the whistling buoy off Cape Ann, and then shape the course for Manana Island lighted whistling buoy, and then enter through Two Bush or Muscle Ridge Channels. Approaching from westward along the coast, they usually make Bantam Rock lighted whistling buoy. Two Bush Channel is used by most large vessels and tows, and by all except small local vessels when the visibility is not good.

Entering from the eastward, vessels of the deepest draft should pass southward of Bay Ledge and follow directions on page 174.

Muscle Ridge Channel is good for a depth of 4 fathoms, but it is narrow in places and is not recommended for a greater draft than 15

feet at low water, except with local knowledge. Directions through the channel are given on page 56.

The directions of sections 2 and 2A for standing up the bay are good for vessels of the deepest draft.

1. Entering from eastward, passing southward of Bay Ledge (chart 1203).—From Roaring Bull Ledge whistling buoy, 1.8 miles southward of Isle au Haut, steer **260°** true for 10 miles to a position 1 mile southward of Bay Ledge bell buoy. Pass 1 mile southwestward of the bell buoy and steer **307°** true for about 5.7 miles, passing 1.1 miles northeastward of Junken Ledge buoy and to a position 0.5 mile westward of a red buoy; this course leads 0.5 mile southwestward of rocky shoals with depths of 31 feet. From a position 0.5 mile westward of the red buoy, steer **339°** true for 4.7 miles to a position 0.3 mile eastward of the bell buoy off the eastern side of Monroe Island. Then follow the directions in section 2 or 2A.

1A. Entering from eastward, passing northward of Bay Ledge (chart 1203).—The directions of this section are good for vessels of 18 feet or less draft.

From Roaring Bull Ledge whistling buoy, lying 1.8 miles southward of Isle au Haut, steer **274°** true for 11.5 miles, passing 1.8 miles southward of Saddleback Ledge Lighthouse and nearly 1 mile southward of the islands and rocks westward.

When 0.5 mile southward of the whistle buoy off Green Island, change course to **286°** true and continue for 4 miles to a position 0.5 mile westward from a red buoy. From here follow directions given in section 1.

1B. Entering from westward through Two Bush Channel (charts 1204 and 1203).—From a position 0.5 mile southward of Bantam Rock lighted whistling buoy, steer **59°** true for 16.5 miles to a position about 0.3 mile southward of Old Man Ledge lighted whistling buoy. Then steer **48°** true for 6 miles to a position 300 yards northwest of a lighted whistling buoy. When up to this buoy, steer **62°** true for 6.5 miles to a position close south of the red buoy 0.7 mile southwestward of Two Bush Island Lighthouse. From this buoy, steer **49°** true for 2.9 miles to a position 0.5 mile northward of a red buoy. Then steer **16°** true for 2.8 miles to a position eastward of a black buoy. A **356°** true course then leads to a position 0.3 mile east of the bell buoy off Monroe Island. Then follow directions in section 2 or 2A.

2. Monroe Island to Fort Point (charts 310 and 311 or 1203).—From a position 0.3 mile eastward of the bell buoy lying 0.3 mile eastward of Monroe Island steer **10°** true for 11 miles, passing 0.5 mile westward of Mark Island, and to a position 0.5 mile westward of the knoll near the middle of the northwest side of Seven Hundred Acre Island. Then steer **16°** true for 7.4 miles, passing the western shore at Great Spruce Head at a distance of about 0.3 mile. When Turtle Head bears **67°** true, and the lighted bell buoy is on the starboard beam, steer **47°** true, for 3.2 miles, to a position 200 yards southward of the black buoy marking the 25-foot spot, 0.6 mile south of Sears Island. From this position steer **42°** true for 4.2 miles, passing midway between Fort Point and Fort Point Ledge Beacon, to a position about 400 yards eastward of Fort Point, and then follow the directions for Penobscot River on page 182.

2A. Monroe Island to Cape Rosier (chart 310).—From a position 0.3 mile eastward of the bell buoy lying 0.3 mile eastward of Monroe Island, steer 35° true for 5 miles to a position 0.5 mile southeastward of McIntosh Ledge buoy. Then steer 27° true for 10.8 miles passing 0.5 mile westward of Resolution Island to a position 0.4 mile westward of Cape Rosier. Then, if bound up Penobscot River, steer 2° true and follow a part of the directions in section 2, page 174.

Bound to Eggemoggin Reach.—See directions given on p. 59.

PENOBSCOT BAY, NORTH END

CHART 311

About 5 miles south of Belfast on the west shore is located **Temple Heights,** a small summer settlement which is 0.5 mile northward of Saturday Cove.

Northport Camp Ground (Bayside post office) is a summer settlement on the west side of West Penobscot Bay 2½ miles northward of Temple Heights. A water tank on the hill back of the village is prominent. The wharf was in good condition in 1940 and two float landings are maintained by the **Northport Yacht Club.**

BELFAST BAY AND PASSAGASAWAKEAG RIVER

(CHART 319)

These empty into the head of Penobscot Bay from northwestward and form the approach to the town of Belfast and the village of Citypoint, about 2 miles above Belfast. The bay affords good anchorage, exposed to southeasterly winds, and is easy of access. The depth in the river is about 12 feet to Belfast, and there is a small trade to this point. The channel from Belfast to Citypoint is narrow, crooked, and unmarked, is bare at low water and can be used by a draft of about 6 feet at high water, but is little used except by small craft. Ice obstructs navigation throughout the river and bay in severe winters. The bay has been frozen over to Islesboro. During an average winter, the harbor is frozen during February.

Steels Ledge, on the north side of Belfast Bay, is an extensive ledge with a least depth of 3 feet. It is marked near its south end by a light on a stone base, and by a bell buoy a little farther south. There is a channel between the ledge and the north shore, but it is narrow and little used.

Belfast, on the southwest side of Passagasawakeag River, at the mouth, has several factories and some trade by water.

The town float landing is located on the north side of the old steamer wharf. There is a depth of 8 feet at mean low water at the Consumers Coal Co. wharf, where coal, gasoline, diesel oil, kerosene, and water are available, and there is a float landing. Marshall Wharf, with a depth of 6 feet at mean low water, is the principal wharf used for loading supplies.

The Standard Oil Co. has a large wharf with storage tanks on the north side of the harbor just west of the mouth of the Goose River.

A depth of 12 feet at low water can be taken through the first bridge. Minor repairs to machinery can be made. Belfast is on

the Belfast, Moosehead Lake Railroad. A towboat may be had from Bucksport or Rockland.

Belfast is a customs port of entry and marine documents are issued.

Bridges.—Two highway bridges cross Passagasawakeag River near Belfast. The lower one, a swing bridge at the upper end of Belfast, has an opening 48 feet wide, and a headroom of 6.5 feet at high water. The second, 0.8 mile above, is a fixed bridge, has a single opening 28 feet wide, and a headroom of 7 feet at high water.

About 3 miles above its mouth the river is crossed by two bridges with fixed spans and 7 feet headroom at high water. The least horizontal clearance is 40 feet.

Anchorage.—Good anchorage can be had in the entrance westward of Steels Ledge, in 3 to 5 fathoms; also in the river below the old steamboat wharf, in mid-channel, or favoring the western shore, in 12 to 16 feet, soft bottom. Above this wharf shoals extend halfway across the harbor from the northeast side, and for a short distance below the bridge extend two thirds of the distance across. Small vessels can anchor about 75 yards off the upper wharves of the city in 10 to 20 feet.

Tide.—The mean rise and fall of tide at Belfast is about 9.5 feet.

Directions, Belfast Bay and Passagasawakeag River.—Vessels entering Belfast Bay can shape the course to pass anywhere between the bell buoy southward of Steels Ledge and the western shore, then head north-northwestward in midchannel.

SEARSPORT AND STOCKTON HARBORS

(CHART 311)

These harbors are at the head of Penobscot Bay westward of the entrance to Penobscot River.

Searsport Harbor is about 4 miles east of Belfast. It is a broad bight, open southward, but it affords good anchorage in 18 to 30 feet soft bottom, sheltered from northerly winds, and is used by all classes of vessels. **Searsport** is a town at the head of the harbor. There is a float landing, with 5 feet at mean low water.

The commercial development of Searsport Harbor is at **Mack Point,** about 1 mile east of Searsport. There are 4 wharves, the 2 westerly ones being built out from fertilizer factories. The easterly one is the Bangor and Aroostook Railroad wharf and the other is the Penobscot Coal Company Wharf.

The most easterly one is a long wharf with rail connections. The depth on the east side is 25 feet. On the west side the depths are 30 feet at the outer end and 27 feet at the inner end. There is a depth of 25 feet at the end of the wharf. An approach has been dredged to this wharf.

Close westward is the coal wharf, on the east side of which the berth was dredged to 27 feet, and on the west side to 20 feet in 1939. The maximum draft coming here is 26 feet, while the usual draft is 22 feet. There is a modern coal-discharging plant with 3 towers and good rail connections.

The depths at the two fertilizer wharves vary. They range downward from about 22 feet at both wharves.

Pilotage is not compulsory but pilots may be obtained at Rockland or Bucksport. Towboats may be obtained from Rockland or Bucksport.

Quarantine.—There is a quarantine station at Searsport.

Customs.—The port of entry is Belfast, but a local officer is maintained at Searsport.

Supplies.—Coal in large quantities is available. There are no facilities for obtaining other supplies.

Immigration.—The immigration office is at Bangor.

The approach to Mack Point is between Sears Island and the black buoy off the southeast end of Long Cove Ledge. From the western shore of the south half of Sears Island, ledges make off 0.3 mile, one of which, **Sears Island Ledge,** is bare at low water. The south end of the ledgs is marked by a red bell buoy, which lies nearly 0.5 mile southwestward of Sears Island. The limits of the ledges making westward of Sears Island are marked by two red buoys.

Long Cove Ledge, awash at lowest tides near its south end, lies 400 to 800 yards southward of the western end of Mack Point, and is marked off its southwest side by a red buoy and off its southeast end by a black buoy.

Long Cove is eastward of Searsport Harbor, between the northwestern shore of Sears Island and Mack Point. The greater part of the cove is shoal, but good anchorage can be selected just inside the entrance in 2 to 4 fathoms, sheltered from all but southwesterly winds.

Stockton Harbor is between Cape Jellison and Sears Island, westward of the entrance to Penobscot River. It is a secure harbor for vessels of about 22-foot or less draft, and is easy of access. The depths shoal gradually from about 4 fathoms at its southern end to 12 feet about 0.3 mile above the old wharves on the east side, above which the harbor is shoal. The lead is a good guide.

Stockton Springs is a village at the head of the harbor. The wharf at the village is bare at low water.

The extensive wharves on the western side of **Cape Jellison** have fallen into ruins.

On **Kidder Point,** on the western side of the harbor, is a wharf which was being rebuilt in 1940. There was a depth of 15 feet at mean low water at the middle on the southwest side. Some red buildings are prominent here.

Sears Island,* on the western side of Stockton Harbor, at the entrance, is high and thickly wooded, and has a small clearing on the south end. A ledge, the outer part bare at half tide, extends 0.4 mile south-southeastward from **Squaw Point** on the eastern side of Stockton Harbor at the entrance. It has a wooded islet in the middle and is marked by a red buoy off its southern end. The shoal making westward from Cape Jellison is marked by a red buoy.

Directions, Stockton Harbor.—To enter, pass 300 yards eastward of the black can buoy off the southeast side of Sears Island and steer 354° true passing in midchannel through the entrance and westward of two red buoys. When inside the harbor the course can be shaped as desired.

*Lat. 42°26′.5, Long. 68°53′.0; Charts 311, 1203.

BAGADUCE RIVER AND CASTINE HARBOR

(CHART 311)

Bagaduce River empties into the eastern side of East Penobscot Bay near its head. It is the approach to the town of Castine, on the north side, just inside the entrance, and to several smaller settlements farther up. The entrance, known as Castine Harbor, has ample depth and is easily entered; there is some business by water and much yachting. **Dice Head Lighthouse** (white skeleton steel tower) is on the north side at the entrance. The light is unwatched.

The channel for 6 miles above Castine is buoyed and is used by small craft and local vessels of 6 to 8 foot draft, carrying wood products, but is narrow and so contracted by rocks in places that navigation is possible at slack water only, on account of the current. It is unsafe for strangers.

Castine is an important summer resort town situated 1 mile eastward of Dice Head Lighthouse. The locality is rich in historical interest, and there are many tablets about the town marking spots of special interest. Castine has small power boat mail service with Belfast. There are numerous hotels which are kept open during the summer season only.

Gasoline, diesel oil, and water are piped onto wharf with a float landing with 10 feet of water alongside at mean low water. Yacht supplies are available. There is a public landing with 10 feet of water alongside. There is a small coal wharf.

West Brooksville is a village on the south side 1.5 miles above Castine, and **North Castine** is a village on the north side 2 miles above Castine.

North Brooksville is a village on the southern branch of Bagaduce River, about 6 miles above Castine. At high water small vessels sometimes go to the bridge crossing the river at the village, but the channel is unmarked and unsafe for strangers.

Penobscot is a village at the head of navigation on the north branch of Bagaduce River, 6.5 miles above Castine. The approach to the village is bare at mean low water.

Anchorage.—The best anchorage for vessels is in Smith Cove, southward of Castine, in 4 to 11 fathoms, soft bottom, sheltered from all winds. The holding ground abreast the town is not good and the general depth is about 12 fathoms.

Ice.—The river is usually free from ice at Castine and for some distance above, but in very severe winters the river is entirely closed.

Tides.—The mean rise and fall of tides is about 10 feet from Castine to the head.

Directions, Castine Harbor.—The eastern shore northward and southward of the entrance is bold, and can be followed at a distance of 0.3 mile. There is a vertically striped bell buoy in the entrance. Pass close to this on either side, and steer 57° true into the harbor to abreast the wharves at Castine, passing about 100 yards southward of Otter Rock Shoal black buoy. If going to an anchorage, from the wharves steer 101° true for Henry Point* and anchor in 5 to 10

*Lat. 44°23'.1, Long. 68°46'.8: Charts 311, 1203.

fathoms, 200 to 500 yards southward of the point. There is also good anchorage for small crafts south of Sheep Island near the head of the cove.

PENOBSCOT RIVER

(CHART 311)

Penboscot River, emptying into the head of Penobscot Bay, forms the approach to the towns of Bucksport, Winterport, and the city of Bangor, the latter situated at the head of navigation, about 24 miles above Fort Point Lighthouse at the entrance. The deepest draft ordinarily trading to Bangor is about 18 feet.

Channel.—The main channel in Penobscot River was dredged as necessary in 1938 to provide a 22-foot channel at mean low water to Crosby Narrows, 3.5 miles below Bangor, and 14 feet to Bangor. It is practically certain that some shoaling has occurred in places since that time. Unmarked shoals with less depth lie close to the channel in places.

Fort Point, on the west side at the entrance to Penobscot River, is partly wooded and marked on the end by **Fort Point Lighthouse,** a white tower connected with dwelling. The fog signal is a bell. There are several houses farther back and a wharf, in ruin, on the north side of the point.

Fort Point Ledge, 0.3 to 0.6 mile southward of Fort Point Lighthouse, is bare at half tide and marked near the north end by a spindle on a stone beacon.

Fort Point Cove, on the west side of the river northward of Fort Point, is frequently used as an anchorage. The depths are 6 to 24 feet, shoaling gradually westward.

About 2 miles above Fort Point the river is divided by **Verona Island** into two channels, the principal one leading on the west side of the island and the **Eastern Channel (Eastern River)** on the east side; they unite north of Verona Island, near the town of Bucksport. Flowing into Eastern Channel from a northeasterly direction is **Orland River,** a shallow stream navigable for small boats and fishermen at high water to the village of **Orland,** about 2.2 miles above its mouth; the channel is crooked and unmarked and bare at low water a little below Orland. There are several brick factories on the east side of the Orland River and it is reported that pulpwood is hauled by boats drawing as much as 8 feet.

Sandypoint is a village on the west bank of the river 2.5 miles above Fort Point. About 0.5 mile northward of Sandy Point there is a large coal wharf built out to deep water. The face of the wharf has a depth of 17 feet. It is equipped with an overhead conveyor for discharging coal.

Odom Ledge, in the middle of the main channel 3 miles above Fort Point, is marked by a spindle on a stone beacon and a red buoy southwest of it.

Verona Park is a small summer settlement on the west side of Verona Island about 1 mile below Bucksport.

Bridge.—The river is crossed by a highway suspension bridge at a point about 0.8 mile below the town of Bucksport. It has a vertical clearance of 135 feet above high water for a 400-foot width and a horizontal clearance of 750 feet between piers.

Bucksport, a town on the east bank of the river, 6.5 miles above Fort Point, is the terminus of a branch line of the Maine Central Railroad. The principal industry is a large pulp and paper works located on the point just northwest of the town.

A high tension line crossing the river at the paper mill has a vertical clearance of 157 feet at mean high water at 60° F.

The paper loading wharf has 25 feet at its southeast side. Between this wharf and the old Maine Central wharf there is a berth for vessels discharging pulpwood into a pond behind a boom. The old Maine Central wharf has a depth of 22 feet at its end.

The Eastern Steamship Co. wharf, in poor condition in 1940, has a depth of 23 feet along its face. The central wharf has 11 feet alongside, and the others less water.

Bucksport is connected to **Verona Island** by a fixed highway bridge which crosses Eastern Channel eastward of the wharves. There is only small boat traffic in this channel. The center span has a horizontal clearance of 65 feet and a vertical clearance of 17 feet at high water.

Gasoline and supplies of all kinds may be obtained here but there are no waterfront facilities for supplying boats. A towboat will be found at Bucksport. Pilotage is not compulsory. **Pilots** live on the south end of **Verona Island** and board vessels between that point and **Sandy Point** on a flag signal being shown.

Fort Knox* is an abandoned fort of imposing appearance across the river from Bucksport.

Prospect Ferry,—just above Fort Knox, had an old wharf with a gasoline pump on it in 1940.

Caution.—In January 1941 the master of a vessel drawing 20 feet reported striking a shoal at half tide off **Lawrence Cove** about 1 mile above Fort Knox and obtaining a sounding of 14½ feet, bottom coarse mud like sawdust. In March 1941 the controlling depth in the channel abreast of Lawrence Cove was 14 feet.

Harriman Cove is on the east side of the river, 1.3 miles above Bucksport. There is a coal wharf with a depth of 21 feet just south of the cove. It has a prominent high crane and a conveyor up the hill to coal piles and a white cylindrical sulphur storage tank.

Frankfort Forts, marked by two red buoys, are located 3 miles above Buckport. The channel crosses from the east side of the river to the west side at this point, and it is difficult to carry the best water. Frequent changes occur here.

Marsh River is a shallow stream flowing into Penobscot River from a southerly direction. A depth of about 2 feet can be carried to a large granite works on the west bank of the river about 1 mile from the entrance. A wharf here has a depth of about 5 feet at mean low water. **Frankfort** is a small village on the north fork of the river. The channel is bare at low water a little below the village.

Winterport is a town on the west bank of the river, 12 miles above Fort Point; it is at the head of winter navigation, as ice closes the river 10 to 12 miles below Bangor. There is 16 feet at low water at the wharf.

*Lat. 44°34′.0, Long. 68°48′.2 : Chart 311.

Hampden, a small town on the west bank of the river, is 19 miles above Fort Point. The village of **Orrington** is on the east bank opposite Hampden. It has no wharves.

Bangor is an important city on the west bank of Penobscot River at the head of navigation. Most of the river in front of the city has been dredged where necessary to obtain a depth of 14 feet. The bottom is rocky and there are a few rocks with a little less than 14 feet.

The Penobscot River is crossed by a dam a short way above the railroad bridge. In 1940 the river was not used above the railroad bridge.

The old steamship company wharf now operated as an oil wharf has a depth of 16 feet alongside. Other wharves have various depths alongside. The city wharf and public landing at the western side of the entrance to the Kenduskeag River has 9 feet at mean low water. The coal wharves have 18 to 25 feet. The railroad coal elevator wharves have about 20 feet. One of the oil docks has 16 feet.

Kenduskeag River empties into Penobscot River from westward at the north end of Bangor. Some dredging has been done in the entrance to a depth of 5 feet. A drawbridge crosses the river at the entrance. A fixed bridge has been built just above the drawbridge. There is no navigation above the bridges.

Brewer is a town on the east side of Penobscot River opposite Bangor. It is connected with Bangor by a fixed highway bridge.

The **Penobscot Yacht Club** has a float landing with gasoline and water piped on it a little south of the highway bridge. There is 10 feet alongside.

There is a large pulp works at **South Brewer** with a wharf having a depth of about 20 feet alongside. Two high brick stacks are prominent from down river. An oil dock at Brewer has 18 feet alongside at mean low water. About 0.5 mile north of South Brewer is an oil wharf with 29 feet alongside. There are shoals reported in the river below this point.

Anchorage.—The usual anchorage for vessels waiting at the entrance of the river for a towboat or favorable wind and tide is northward of Fort Point on the west side of the channel. Vessels bound up the river anchor anywhere in the channel where soft bottom is found. Vessels towing to Bangor, if the tide does not serve, often anchor off Winterport. On account of the strong currents on ebb tide it is better for vessels going to Bangor, particularly large ones, to anchor north of Fort Point and start up the river on about 3 hours of flood tide.

Pilotage is not compulsory. Pilots for Penobscot River may be had off the south end of Verona Island, just above the mouth of the river, by making a flag signal. Penobscot Bay pilots can be obtained at Rockland.

Customs.—Bangor is a port of entry and marine documents are issued. The customs office is in the Federal Building.

Quarantine and Health.—The quarantine station is at Searsport. The U. S. Public Health Service maintains a 3d-class relief station at Bangor.

Immigration.—Immigration and Naturalization Offices are located in the Federal Building.

540825 O - 43 - 13

Local Inspectors.—Local inspectors of the Bureau of Marine Inspection and Navigation are located in the Federal Building.

Towboats are usually taken by large vessels bound up the river. There is one at Bucksport, and another at Stonington, which can be telephoned for from Fort Point or any part of Penobscot Bay. There is a smaller tug used for towing pulpwood barges, etc., stationed at Bangor.

Supplies.—Coal, water, and petroleum products can be had alongside the wharves at Bangor. Provisions and ship chandler's stores can be obtained at Bangor.

Repairs.—There were no large marine railways in operation on the river. Bangor is the only place on the river at which repairs to the machinery of steamers can be made. There is a boat yard available at which repairs to small craft can be made. Boats up to about 50 feet in length can be hauled on a marine railway.

Freshets occur in the river during March and April; they are at times dangerous to vessels.

Tides.—The mean rise and fall of tides varies from 10.5 feet at the entrance to 13 feet at Bangor.

Ice obstructs navigation above Winterport for nearly 5 months each year, beginning about December. During extreme winters the river is closed to the mouth. The most difficult place below Winterport is abreast Fort Knox, where ice jams occur. If vessels can pass this point they can usually go to Winterport. The river is usually opened up in March by an ice breaker which prevents much of the damage that might otherwise be caused by ice and freshets.

Directions, Penobscot River (chart 311).—Directions to the entrance of Penobscot River through East Penobscot Bay are given on page 154, and through West Penobscot Bay on page 173.

The channel was dredged to 22 feet in 1938 to Crosby Narrows, 3.5 miles below Bangor, and 14 feet to Bangor, but shoaling is reported, and there are numerous unmarked shoals with less depths close to the sailing lines; the channel is crooked and narrow in places, and strangers should not attempt to carry a greater draft than 10 feet to Bangor, and with this draft care is necessary and the use of the lead advisable in places. With a deeper draft a pilot or towboat should be employed. The safest time is on a rising tide. The river is not safe for strangers to run at night.

Fort Point* to Bucksport.—From a position 600 yards eastward of Fort Point, steer 6° true for 2.8 miles, passing about 100 yards eastward of the black buoy at the end of the ledge which extends 600 yards southeastward from Sandy Point, and to a position about 400 yards eastward of **Odom Ledge** stone beacon; then steer 332° true for 0.5 mile to midriver and then follow a midriver course until westward of Bucksport. This course leads under the suspension bridge which has a vertical clearance of 135 feet above mean high water.

Bucksport to Winterport.—Give the western side of the point (marked by the paper works) northwestward of Bucksport a berth of over 200 yards in rounding it, steer about 355° true to pass about 50

*Lat. 44°28′.1, Long. 68°48′.6: Charts 311, 1203.

yards east of the black buoy northwest of **Indian Point.** Then steer **345°** true to pass 50 yards east of the black buoy off **Luce Cove;** this course leads through a dredged channel, has unmarked shoals on either side, and care is necessary. Pass over 150 yards westward of the south point of Luce Cove and steer **331°** true for 1 mile, heading about for this tangent to Drachm Point. Then haul westward and pass about 50 yards southward of a red buoy. Frequent changes occur at this cross-over, and caution is required. The chart and buoys must be carefully followed.

When the wharves of Winterport are open just clear of Drachm Point, steer about **337°** true and pass 50 yards westward of a second red buoy. From this buoy steer **355°** true with the summit of Mount Heagan astern for 0.6 mile, until about 250 yards from the western shore. Then steer about **28°** true in midchannel past Winterport.

Winterport to Crosby Narrows.—Follow a midriver course for 2 miles above Winterport to **Oak Point,** and pass southward and eastward of the latter, rounding it at a distance of 250 yards; the cove westward of Oak Point is shoal. A shelving reef extends a greatest distance of 150 yards off the southeast side of Oak Point, and the bight in the eastern shore opposite is shoal. Keep in midriver, passing about 75 yards south and east of Oak Point black buoy, and when about 0.7 mile above Oak Point, pass westward of a ledge, covered at high water and marked by a spindle, lying 125 yards from the eastern bank, Round the point on the western bank above the spindle at a distance of about 150 yards, and follow the southern bank at this distance until southward of a red buoy southward of **Bald Hill.**

Then haul northward, pass 50 to 100 yards westward of the buoy and round the shore of Bald Hill, at a distance of 150 to 200 yards. Then steer **0°** true for 0.3 mile to a position 150 yards eastward of the next point on the western shore. Then steer **341°** true for 0.5 mile, following the western bank and giving it a berth of 100 yards. Then keep in midriver for 2.8 miles, about 0.5 mile below Orrington favor the west shore to avoid a 10-foot spot nearly in midchannel, and at the south end of Crosby Narrows avoid at high water the ruins of the wharf making out from the mouth of the stream on the west side.

Crosby Narrows to Bangor.—Pass in midchannel through Crosby Narrows until the narrowest point is reached, then follow the northwest bank at a distance of 75 yards in the bight west of Seven Pine Point (marked by the ruins of some cribs off the point), passing westward of a shoal in midchannel. Follow the west bank at this distance until abreast the ruins of a crib wharf on the west side, and then keep in midchannel to abreast the old sawmill on the northwest side 0.3 mile above. The best water then favors the southeast side, 75 to 100 yards off, for 0.5 mile to the point where the river bends northward, then crosses over and follows the west side, 75 to 100 yards off, for 0.4 mile, to abreast a crib landing in ruins. The channel then follows the southeast bank at a distance of 75 to 100 yards for 0.4 mile, and then is in midriver or slightly favoring the northwestern side to the bridge at Bangor.

COAST FROM MUSCLE RIDGE CHANNEL TO GEORGES ISLANDS

(CHART 312)

Muscle Ridge Channel and Seal Harbor are described with Penobscot Bay on pages 166 and 167.

Norton Island Ledges lie 0.5 to 1 miles westward of Whitehead Island. There is a bare rock near the middle of the south side of the ledge, and rocks bare at low water lie 600 yards east-southeastward and west-southwestward of the bare rock.

Seavey Ledges, westward of Norton Island Ledges, has two rocks awash at high water; there is a depth of 5 feet at the southern end of the ledges, lying 300 yards southwestward of the southern one of the two bare rocks.

Wheeler Bay and **Clark Cove,** north-northeastward of the tower of abandoned Tenants Harbor Lighthouse, are foul. **Clark Island** is a post village on the northwest side of Clark Cove.

There are several granite quarries in these coves some of which are abandoned. Depth at their wharves generally vary from 5 to 8 feet.

Tenants Harbor.—This is an excellent anchorage, frequently used as a harbor of refuge by small vessels, and is easy of access. It lies 3 miles westward of Whitehead Lighthouse, and its entrance is marked by Tenants Harbor lighted bell buoy and abandoned Lighthouse tower on the eastern end of Southern Island. It is open eastward and an easterly gale raises a choppy sea in the harbor, but vessels with good ground tackle can ride in safety. Ice obstructs the harbor often during February during extremely cold weather it is sometimes frozen to Southern Island.

Tenants Harbor village is on the northern shore near the head of the harbor. A float landing is available eastward of the government wharf.

The anchorage with most swinging room in Tenants Harbor is halfway from the western ends of Northern and Southern Islands to the short stone pier on the north side. Small craft anchor more toward the head of the harbor. The bottom is mostly soft mud and good holding ground, and shoals gradually westward. The north side of the harbor eastward of the stone pier is clear, while westward of it are spots with 4 to 9 feet over them. The south side of the harbor abreast the western point of Long Cove should be given a berth of 250 yards.

Tenants Harbor Beacon is a white tower of the abandoned lighthouse connected with dwelling.

Tenants Harbor Lighted Bell Buoy is black and is about 200 yards off the eastern end of the island.

Vessels entering Tenants Harbor can pass midway between Southern and Northern Islands, and steer 268° true into the harbor, slightly favoring the northern side.

Long Cove, making northward from the entrance of Tenants Harbor, has several stone quarries where vessels load granite; 10 feet is their usual loaded draft. The entrance is 150 to 200 yards westward of Northern Island, between reefs partly bare at low water. There is a bare rock on the eastern part of the reef on the western side of the entrance.

Hart Ledge extends nearly 500 yards from shore 0.8 mile southwestward of Tenants Harbor Beacon. There is a rock covered at high water near its northeast end, and one bare at low water near its southwest end. The ledge is marked off its northeast side by a black buoy.

Mosquito Harbor, 1.8 miles eastward of Marshall Point Lighthouse, is shoal and little used. **Martinsville** is a settlement at the head. **Mosquito Head,** on the eastern side at the entrance, is high and wooded and looks like an island from a distance.

Mosquito Island, off the entrance to Mosquito Harbor, is wooded. The islets westward of Mosquito Island, including **Hay Ledge, The Brothers,** and **Gunning Rocks,** are rocky, with grass on top, and **Black Rock** is a bare rock. **Hart Bar,** extending ½ mile northward of **Hart Island,** is partly bare at low water. There are many unmarked submerged ledges in this vicinity.

The passage south of Mosquito Island and north of these islands and rocks is part of the inside route used by many vessels of 12 feet or less draft. The principal dangers are buoyed, but there are unmarked rocks with 15 and 16 feet. Directions through the passage are given on page 56.

Old Cilley Ledge, 1.5 miles east-northeastward of Burnt Island, is about 0.5 mile long; its eastern end is awash at low water and its western end is awash at high water. There is a red bell buoy 0.3 mile east-southeastward of the eastern end.

Marshall Point Lighthouse,* on the eastern side of the entrance to Port Clyde, is a white tower. The light is 30 feet above the water, and visible 9 miles. The fog signal is a bell. Storm warnings are displayed from a skeleton tower near the lighthouse.

Port Clyde (Herring Gut).—This is an excellent, though small harbor and anchorage, lying between Marshall Point and Hooper Island, and about 9 miles north-northeastward of Monhegan Island; it is used as a harbor of refuge by fishermen and coasters. A bar (covered with boulders) with a depth of about 8 feet obstructs the northern entrance; vessels of 15-foot draft have been taken over this bar at high water by local pilots, but strangers should not attempt to cross it. Ice does not usually interfere with navigation. In very severe winters the harbor may be frozen over for a short time. The anchorage is anywhere in the channel inside of Marshall Point, in 4 to 6 fathoms, good holding ground, and has a clear width of 200 to 250 yards.

Port Clyde village is on the eastern side of the harbor. It has no rail connection, but there is a highway to Thomaston. It is the headquarters of many fishing boats and has a fish wharf with depths of 12 to 15 feet. There is a depth of about 9 feet at the steamer wharf. There is steamer service with Thomaston and Monhegan Island. Gasoline and water are piped on the wharf. There is a general store and ice is available.

There is a small boat yard with marine railway and machine shop. Small craft of a length up to 40 feet and draft of 6 feet can be hauled out.

*Lat. 43°55′.9, Long. 69°15′.7; Charts 312, 1203, 1106.

Directions, Port Clyde.—Vessels can approach the entrance from eastward, between Mosquito Island and The Brothers; or from westward, through Davis Straits. Directions through these passages are given on page 56.

5 **Entering from southward,** vessels should pass close eastward of Old Cilley Ledge red bell buoy and steer for Marshall Point Lighthouse on a 335° true course passing 0.3 mile eastward of Black Rock and 200 yards westward of Gunning Rocks. Pass 200 to 300 yards westward of Marshall Point Lighthouse and enter the harbor in mid-
10 channel, passing westward of a red buoy and eastward of a black buoy. Anchorage may be had 125 yards off the wharves at Port Clyde, in 3½ to 5 fathoms, soft bottom.

Entering from northward.—There are entrances from northward on either side of Raspberry Island, both having a depth of about 8 feet,
15 but they are narrow and difficult and should not be used by strangers except in small craft. The easterly channel is the best for strangers in small craft. The best water follows the eastern shore at a distance of about 70 yards and passes eastward of a reef which makes eastward from a small islet. Care should be taken to avoid the submerged ruins
20 of a marine railway on the east side just north of the wharves.

ST. GEORGE RIVER AND THOMASTON

(CHART 312)

25 The entrance to this river lies about 9 miles southwestward of Whitehead and north-northeastward of Monhegan; Marshall Point Lighthouse marks the eastern and Franklin Island Lighthouse the western approach. A group of islands, known as the Georges Islands, extends 6 miles south-southwestward from the middle of the entrance,
30 which is also obstructed by numerous ledges and rocks, the most prominent of which are marked by buoys or spindles. Several channels with deep water lead into the river between these islands and ledges. St. George River extends 10 miles in a northeasterly direction to the town of Thomaston, above which it is a shallow stream of no commer-
35 cial importance.

Georges Islands.—These are a group of islands and rocks extending about 6½ miles south-southwestward from the middle of the entrance to St. George River. The larger islands are generally wooded, and the smaller ones grassy or rocky, and there are few prominent
40 marks. Several channels lead between the islands; the most important are Davis Straits, the channel between McGee and Seavey Islands, and the channel northwestward of Caldwell Island.

Old Man Ledge, the most southerly of the dangers, is marked by a beacon; there is a lighted whistle buoy 500 yards south-southwest-
45 ward of it. **Old Woman Ledge,** 0.6 mile northward of Old Man Ledge is bare at half tide.

Burnt Island, the eastern large island at the south end of the group, is 160 feet high, wooded and marked on its summit by a prominent Coast Guard Lookout tower. There is a **Coast Guard**
50 **station** on the north side.

Georges Harbor is between **Allen** and **Benner Islands.** There is a small settlement of fishermen, and small craft sometimes anchor

here. The best water is in midchannel in entering the thoroughfare from northeastward. Entering from southwestward the south side should be favored.

Davis Straits is the passage between Davis Island on the south and Thompson Island and other small islands on the north. It is part of the through route, used by many vessels of 12-foot or less draft. It is reported that barges drawing 16 feet use this Strait. It has ample depth, but **Griffin Ledge,** in midchannel, has a depth of 10 feet over it. There is a red buoy on the south side of the ledge; the channel is south of the red buoy, and is only 75 yards wide.

Davis Island is grassy and has two knolls with a saddle between. The two southernmost islets on the north side of Davis Straits are grassy and the others are wooded.

Between **Thompson** and **Hooper Islands** the bottom is very broken and there are numerous dangers, most of them marked or visible at some stage of the tide. **The Sisters** are two small ledges awash at low water and marked on the northwest side by a black buoy. **Old Horse Ledge** is bare at low water and marked by a spindle. **Outer Shag Ledge** is bare at half tide and **Inner Shag Ledge** is awash at high water. **Kelp Ledges** has a small part bare at low water. **Gig Rock,** with 5 feet over it, is marked, on its northern side, by a bell buoy.

The channel between **Bar** and **Seavey Islands** on the east and **McGee Island** on the west has ample depth, and some of the dangers are buoyed, but there are unmarked dangers close to the channel. It is used by the steamers of 10-foot draft. Bar Island is low and grassy, with a few trees and Seavey Island is grassy and has a house in the center. **Jenks Ledge,** the most westerly danger, is bare at low water and marked by a buoy.

Port Clyde is on the eastern side of the entrance to the river. (See p. 185). There is good anchorage in the middle of the northern entrance of Port Clyde, northward of Hooper Island, in 4 fathoms. The entrance is clear northward of **Blubber Island.**

Deep Cove, on the eastern shore, just north of the northern entrance to Port Clyde, has good anchorage in 4 to 7 fathoms, soft bottom.

Gay Cove is a shallow and unimportant cove in the eastern shore of **Gay Island,** the western point at the entrance of the river.

Pleasant Point Gut separates Gay Island from the mainland. Its western part is bare at low water. There is a village of fishermen on the north and south sides. There are several fish wharves and sheds and one private wharf with float landing on the south side. Gasoline is available at a wharf which bares at low water on the north side.

Turkey Cove, on the eastern shore, about 1.5 miles above **Caldwell Island,** has good anchorage in 3 to 4 fathoms, soft bottom, about midway between the points at the entrance.

Maple Juice Cove is a long, shallow cove on the west shore about 2 miles above Caldwell Island; good anchorage is found in the entrance in 2 to 4 fathoms.

Otis Cove is a broad cove, shallow at its head, on the eastern shore, about 1 mile above Maple Juice Cove. There is good anchorage off the entrance in 3 to 5 fathoms but no wharves. A bare rock lies 150 yards off the south side of the entrance, and a ledge covered at three

quarters flood, extends 350 yards off the shore 500 yards northeastward of the entrance.

Broad Cove is a shallow cove on the western shore about 4 miles above Caldwell Island; the village of **Cushing** is situated near its northern shore. There are no wharves. **Bailey Ledge** is bare at low water and marked on the southeast side by a black buoy.

Watts Cove and **Cutler Cove,** at its head, are shallow coves on the eastern shore opposite Broad Cove. The village of St. George is at the head of Cutler Cove.

There are two high radio towers on the west side of the river, opposite Fort St. George, an abandoned fort. Red lights are shown from the towers, at the tops, at the ⅓ and at ⅔ of their height.

Thomaston is a town on the railroad at the head of St. George River. The deepest draft of vessels entering here is 16 feet. There are shipards where small wooden vessels are built. A small vessel runs to Port Clyde and Monhegan. There is only a small amount of water-borne trade here. A pilot for Thomaston can usually be obtained at Port Clyde.

Channel.—There is a channel in St. George River up to Broad Cove, which has 10 fathoms, or more water; above this the depth gradually decreases and it narrows to a small stream through extensive flats which show bare at low water. There is a depth of 19 feet in the channel to 1 mile below Thomaston. From this point a narrow channel, which is liable to shoal, has been dredged 16 feet deep and 90 to 220 feet wide to Thomaston. In 1940 it was reported locally that the channel had probably shoaled to about 14 feet, south of the beacon.

The channel in the upper river is marked by buoys, and the sharp bend in the dredged channel near Thomaston is marked by a wooden spindle on a stone base.

Bridges.—The river is crossed at Thomaston (above the wharves) by a drawbridge with a horizontal clearance of 43 feet and a vertical clearance of 5.9 feet above mean high water. A short distance above Thomaston there are three bridges with fixed spans.

Anchorages.—Good anchorage for the deepest draft vessels is found eastward of Caldwell Island* in 6 to 8 fathoms, soft bottom; above this vessels anchor anwhere in the channel where the depth is not great or in Turkey Cove, Maple Juice Cove, or Otis Cove.

Supplies.—Gasoline and provisions are obtainable at Port Clyde or Thomaston. Coal in limited quantities, Diesel oil, ice, and water are obtainable at Thomaston. Commercial wharf has 15 feet of water alongside at mean low water. Some marine hardware is available.

Ice closes the river to navigation from December to March in severe winters. In ordinary winters it is not usually entirely closed more than 1 month, although ice sufficient to interfere with navigation may be encountered at any time for a period of 3 months.

Tides.—The mean rise and fall of tides is about 9.5 feet.

DIRECTIONS, ST. GEORGE RIVER

(CHARTS 312 AND 313)

The approach to the entrance of St. George River has very broken and irregular bottom, with numerous ledges, bare and submerged,

*Lat. 43°56′.2, Long. 69°17′.8; Charts 312, 1203.

and has not been examined by means of a wire drag. Strangers should therefore proceed with caution and avoid crossing broken areas where the charted depth does not greatly exceed the draft.

From eastward (Chart 312).—Follow the directions on page 56 to a position 50 yards northwestward of Allen Ledge black buoy. Then steer **242°** true, pass 150 yards southward of Hooper Rocks buoy, and round the buoy at this distance. Then steer **326°** true for the western end of Teal Island, and when 400 yards eastward of the northern end of Bar Island, steer **37°** true for about 1 mile, heading for Hooper Point. Pass midway between **Hooper Point** and Channel Rock buoy, and steer **340°** true for the black buoy off Pleasant Point Gut, passing 500 yards westward of **Howard Point,** and 200 yards westward of a red buoy off the point.

Pass 150 yards eastward of the black buoy and steer **36°** true for 2.5 miles, passing through the middle of the Narrows. Above the Narrows there is excellent anchorage near the middle of the river off Otis Cove, in 4 to 5 fathoms. Above this point be guided by chart 312 and the buoys; the safest time is at low water, when the flats are bare, or on a rising tide.

From westward (Charts 313 and 312).—When Franklin Island Lighthouse (Chart 313) is distant 4 miles or more, steer for it on any bearing between **28°** true and **51°** true. Pass about 300 yards northwestward of Franklin Island and steer **51°** true, heading just clear of the northern end of Caldwell Island. (This course runs onto Chart 312.) On this course pass about 0.3 mile northwestward of Gangway Ledge (bare rock), 200 yards northwestward of Jenks Ledge buoy, and midway between Goose Rock (high and rugged) and Goose Rock Ledge buoy. Keep the northwest side of Caldwell Island aboard, distant 200 to 250 yards, steer **36°** true, and pass about 150 yards eastward of two block buoys. Continue the course and follow the directions in the paragraph preceding

Chapter 10.—MUSCONGUS BAY TO CAPE ELIZABETH

(CHART 1204)

MUSCONGUS BAY

(CHART 313)

This bay lies between the Georges Islands on the east and Pemaquid Neck on the west, and forms the approach to Meduncook and Medomak Rivers and Muscongus Sound, the villages of Friendship, Round Pond, and Medomak, and the town of Waldoboro. It is obstructed by numerous islands and ledges and much foul ground, and is seldom entered by vessels seeking shelter in heavy weather. Tenants Harbor and Port Clyde, eastward; and Boothbay Harbor, westward, are easier of access and more convenient. Many of the dangers are marked by buoys. The bay is frequented by many yachts and fishing boats.

Meduncook River is an estuary making in a general northeast direction, just westward of St. George River; the entrance forms an approach to Friendship Harbor, and is a good anchorage with 4 to 5 fathoms. The approaches to the entrance are the same as for St. George River, and the anchorage is marked by buoys. The river above the anchorage is unimportant, has a narrow, crooked channel, and is obstructed by numerous unmarked rocks and ledges, so that local knowledge is necessary for its navigation.

Friendship Harbor.*—This harbor lies west of Meduncook River, and is separated from it by **Friendship** and **Garrison Islands,** between which a channel leads from the anchorage in Meduncook River into the harbor. The harbor is about 1 mile long and has good anchorage in 4 to 6 fathoms. It is used by fishermen and yachtsmen.

Ice may close the harbor proper from December to March.

A ledge extends 300 yards southwestward from **Jameson Point.** A rock bare at low water at the south end of the ledge is marked by a spindle. Above the wharf the northern and eastern sides of the harbor should be given a berth of over 200 yards. The southeast side of the harbor should be given a berth of over 200 yards. **Murphy Ledge** is a rock bare at half tide and marked by a spindle, lying 200 yards from the southeast side of the harbor abreast Jameson Point. In the eastern part of the harbor a shoal extends 350 yards northeastward from the northeast end of Friendship Island, and is marked at its end by a black buoy.

Friendship is a town on the north shore of the harbor. There are depths of 9 feet at two wharves. Gasoline and water are piped to a wharf and float. Provisions are obtainable. There are two boat

*Lat. 43°58′.1, Long. 69°20′.5; Charts 313, 1203, 1204, 1106.

yards with machine shops and with marine railways capable of hauling out small crafts 35 feet long with a draft of 5 feet.

Directions from southward in Muscongus Bay are given on page 193.

Hatchet Cove is a shallow cove making northward at the western end of Friendship Harbor. A narrow channel, with a least depth of 15 feet, leads northeastward into the cove near the western point at its entrance. It is of no importance as an anchorage. There is a boat yard at the head of the cove where some construction of wooden small craft is done. There is equipment for hauling out and repairing boats up to a length of about 40 feet and a draft of 7 feet.

Gull Rock, in the western entrance to Friendship Harbor, has two rocks bare at high water.

Medomak River.—This river enters the head of Muscongus Bay westward of **Martin Point,** the western point at the entrance to Friendship Harbor. Strangers wishing to enter the river in vessels should take a local pilot on account of the many unmarked dangers, narrow and crooked channels, and strong tidal currents which require local knowledge.

The lower part of the river is about 2 miles wide, but is separated by several islands into two approaches, which have three narrow and crooked channels by which the river proper is entered. The approaches to these channels are through Muscongus Bay or Muscongus Sound. The eastern approach is 0.5 mile wide and comparatively clear of dangers; at its upper end are two passages leading into the river, one through **Back River Cove** and the other **Flying Passage.** Both have good water, but are very narrow in places, with strong tidal currents. **Hockomock Channel,** the western entrance, is narrow in places and has strong tidal currents. The current in the vicinity of **Clam Island** is reported to reach a velocity of about 5 knots.

The channel in Medomak River has ample depth for 5 miles above the entrance, and some of the dangers are marked, but there are unmarked dangers close to the channel. For the next 2.5 miles to within 1.6 miles of Waldoboro, the channel leads between flats bare or nearly so at low water, and shoals gradually to 5 feet. From that point to Waldoboro the channel has been dredged 75 feet wide and 5 feet deep between flats bare at low water. This channel was reported to have filled to about 3½ feet in 1940. The channel for 3 miles below Waldoboro is marked by bush stakes. It can best be followed at low water when the flats are visible, or on a rising tide. Ice closes the river from December to April above the narrows.

Currents in the Narrows, between **Locust Island** and **Havener Ledge** are reported to be very strong.

Medomak is a post village on the western side of Hockomock Channel. There is a town wharf and float landing and several private landings at the village and a cannery wharf 0.5 mile southwestward. Both wharves have about 3 feet alongside at low water.

Broad Cove, on the west side of Medomak River, is used by a few fishermen. The channels are unmarked.

Waldoboro is a town on the railroad at the head of navigation on Medomak River. At present there is no traffic by water. There is one wharf and float landing with 2 feet alongside.

WEST SIDE OF MUSCONGUS BAY

(CHART 313)

Pemaquid Neck, on the west side of Muscongus Bay, is wooded. Pemaquid Point, the south end, is marked by **Pemaquid Point Lighthouse,** a white tower connected with dwelling. The light is 79 feet above the water, and visible 12 miles.

A red gong buoy is located 500 yards south of Pemaquid Point, and **Pemaquid Ledge** nearly 1 mile south of the point, with 11 feet on it is marked by a horizontally striped buoy on its southeast side.

Pumpkin Cove Ledge, 1 mile east-northeastward of Pemaquid Point Lighthouse, is unmarked and has a least found depth of 18 feet; the sea breaks on it in heavy weather.

Moser Ledge, 4 miles southeast of Pemaquid Joint, has 17 feet at low water and is marked by a buoy.

New Harbor Dry Ledges lie 2 miles northeastward of Pemaquid Point Lighthouse and extend 0.3 mile from the western shore. The ledges are 0.3 mile long, with a bare rock near each end and there is no safe passage for strangers between them and the shore. **Little Island,** with a clump of trees, lies 200 yards from the shore 0.2 mile southward of New Harbor. It is the highest part of a ledge about 0.3 mile long.

New Harbor is a cove on the western shore of Muscongus Bay, about 2.5 miles northeastward of Pemaquid Point Lighthouse; it is used as an anchorage by small craft only, and open eastward. The channel is narrow between a shelving ledge extending northeastward from the south point at the entrance, and a ledge just inside it which extends halfway across from the north side and is marked at its end by a red buoy. The channel, with a width of about 150 feet, then leads northward of a black spindle. There is a rock reported to have 6 feet over it and to lie in mid-channel one-third the way from the black spindle to the old steamer wharf. In entering pass close to the steamer wharf. The harbor was once dredged, but has shoaled until the upper part now bares at low water.

The old steamer wharf has a depth of about 8 feet and the other wharves have 4 to 9 feet. There are several fish plants and the harbor nas a large fleet of fishing boats. Gasoline is obtainable from the wharves. Water is piped onto the old steamer wharf.

Ice.—It is reported that ice does not prevent navigation in the winter.

Muscongus Sound.—This sound is on the western side of Muscongus Bay, between **Muscongus** and **Hog Islands** on the east and the mainland on the west. It is about 0.5 mile wide and 5 miles long, and has several rocks and ledges near its southern entrance, the most prominent of which are marked by buoys. Above **Poland Ledges** to abreast Muscongus Harbor the depths in the sound shoal gradually from 8 to 4 fathoms, and anchorage can be selected with the aid of the chart.

Islands and ledges extend 3 miles southward from Muscongus Island. **Haddock Island** is wooded, and **Ross Island** is grassy. **Haddock Island Kelp Ledge** has a horizontally striped buoy on its south side. **Webber Dry Ledge** is awash at high water. **Browns Head Ledge,** with 13 feet on it, is marked by a red buoy. **Bar Island Ledge**

is 0.2 mile long and bare in one place at low water; it is marked on the south end by a red buoy. **Bar Island** is grassy, with a cottage in the center. The most southern of these ledges are **New Harbor Sunken Ledges,** which are marked by a red buoy at their southern end. The reef extending 0.3 mile eastward of **Western Egg Rock** is marked by a black buoy.

Marsh Harbor, on the southeast side of Muscongus Island, between it and **Marsh Island,** is seldom used as an anchorage.

Poland South Ledge has a depth of 9 feet, and **Poland North Ledge** is bare at low water. Both are marked on the east side by black buoys. The better channel leads eastward of them.

Round Pond is a small landlocked harbor with 12 to 18 feet in its middle on the west shore of Muscongus Sound, about 2 miles above the southern end of Muscongus Island; it affords good anchorage for small vessels. There is an abandoned granite quarry on the north side of the entrance, and Round Pond, a village and landing, is at the head of the harbor. The northeast and southwest ends of the harbor should be given a berth of 350 yards and the west side 200 yards. The best water in entering favors the north side, northward of a black buoy marking the end of a reef making northward from the point on the south side of the entrance. There is a float landing at the village with about 4 feet alongside at low water. Gasoline, ice, and some stores are available.

Muscongus Harbor is a small cove and village on the west shore of the sound about 1.5 miles above Round Pond. There is a landing (about 1 mile from the village) for small craft with about 8 feet alongside at low water.

Greenland Cove is the extreme northern end of the sound; it is shallow and of no importance. **Bremen** is a small village at the head of the cove.

Lower (Keene) Narrows, leading into the head of Muscongus Sound north of Hog Island, has a depth of about 13 feet and is used by steamers drawing 10 feet, and sometimes by vessels bound into Medomak River. The principal dangers are marked, but local knowledge is necessary to carry the best water.

Tides.—The mean range of tides is about 9 feet.

DIRECTIONS, MUSCONGUS BAY

(CHART 313)

This region is an area of rocks and ledges and very broken bottom and has not been examined by means of a wire drag. The existing surveys are far from being complete. Vessels should therefore proceed with extreme caution and should avoid broken bottom where abrupt changes in depth are indicated by the chart to depths less than 10 fathoms.

Directions through the bay from Davis Straits to Pemaquid Point are given on page 55. The following directions lead into the bay from seaward.

From eastward.—Passing southward of **Old Man Ledge** lighted whistling buoy, steer about 276° true for 3.7 miles, passing 0.3 mile southward of **Shark Island,** and to a position 1.3 miles southwestward of **Eastern Egg Rock** and with **Franklin Island Lighthouse** bearing 20° true. Then steer 5° true for **Jones Garden Island,** passing 0.7

mile westward of Eastern Egg Rock tripod, 0.5 mile eastward of Western Egg Rock Breakers buoy, 0.8 mile westward of Franklin Island Lighthouse, and to a position 100 yards westward of **Harbor Island Rock** buoy. Then steer **34°** true for the summit of **Black Island,** and keep the northwest side of **Harbor Island** aboard, distant 300 to 400 yards. On this course take care to avoid the **15**-foot rock which lies 0.3 mile eastward of **Wreck Island.**

Change course to pass 300 to 400 yards westward of Black Island and when northwest of that island change course to **23°** true and pass about 300 yards northwestward of the southwest end of Friendship Island. When Gull Rock bears 262° true, steer **57°** true and select anchorage near the middle of Friendship Harbor below the black buoy, in 4 to 6 fathoms.

Bound to Medomak River, follow the directions preceding to a position 300 to 400 yards westward of Black Island. Then steer **3°** true and pass over 300 yards westward of Gull Rock. Anchor near midchannel, about 1.8 miles above Gull Rock, and 0.4 mile below **Hungry Island.** Above Gull Rock dangers will be avoided by giving the shores a berth of 400 yards. If desiring to enter the river, or if bound to Waldoboro, take a pilot; or if in small craft, be guided by the chart.

From westward.—When Franklin Island Lighthouse is distant 4 miles or more, bring it on any bearing between **28°** true and **51°** true and steer for it. When Jones Garden Island bears **6°** true, steer for it and proceed as directed above.

Or from a position 0.3 mile northward of Pemaquid Ledge Buoy, steer **61°** true for 3.7 miles, passing 0.5 mile southward of Pemaquid Point Lighthouse,* and to a position 0.3 mile southward of New Harbor Sunken Ledges red buoy. Then steer **51°** true for 2.7 miles, heading for Franklin Island Lighthouse, and pass 0.2 mile southeastward of the black buoy eastward of Western Egg Rock. When Jones Garden Island bears **6°** true, steer for it and proceed as directed above.

Directions, Muscongus Sound, from eastward.—Having come from Davis Straits as directed on page 55, pass 200 yards northward of Eastern Egg Rock beacon and steer **284°** true, passing 0.4 mile southward of Western Egg Rock and to a position 0.5 mile westward of **Haddock Island Kelp Ledge** horizontally striped buoy. Then steer **329°** true and pass about 0.4 mile southwestward of **Webber Sunken Ledge** red buoy.

When about 600 yards from the western shore, steer **18°** true, pass midway between Browns Head Ledge buoy and the western shore, about 300 yards off **Browns Head,** and to a position 100 to 200 yards eastward of Poland South Ledge black buoy. Then steer **355°** true and pass about 250 yards eastward of Poland North Ledge black buoy. When Round Pond is opened, pass close northward of the black buoy on a **253°** true course, and keep the north point at the entrance aboard distance about 75 yards. Anchor in the middle of Round Pond in 14 to 18 feet.

From southward or westward.—Follow the eastern shore of Pemaquid Neck at a distance of about 0.7 mile or more, passing 0.4 mile eastward of New Harbor Dry Ledges on a **17°** true course until abreast

*Lat. 43°50′.2, Long. 69°30′.4: Charts 318, 1204, 1106, 70.

Long Cove. Continue the course, pass midway between Browns Head Ledge buoy and the western shore, and proceed as directed in the preceding paragraph.

JOHNS BAY

(CHART 313)

Johns Bay lies westward of Pemaquid Neck, between it and **Rutherford Island.** It is about 1.4 miles wide at its entrance and 2 miles long to Johns Island, above which the Pemaquid River empties into its northeastern end and Johns River into its northwestern. The depths in the bay are very irregular, and there are several ledges and rocks.

The bay is of no commercial importance; a number of summer resorts are located on its shores, and it is used as an anchorage by fishermen and yachts. The holding ground is poor, except in a few places near the head of the bay and in the coves. Port Clyde, eastward, and Boothbay Harbor, westward, are preferable at all times.

Pemaquid Harbor is at the entrance to Pemaquid River, northeastward of Johns Island; the bottom is rocky and irregular, but there is a fair anchorage for small vessels in the eastern part of the harbor between **Fish Point** and the entrance of Pemaquid River, in 6 fathoms. The preferred anchorage for small craft is said to be north of the Fort where the bottom is soft in places. **Pemaquid River** extends northeastward about 2 miles to the village of **Pemaquid.** The river is dry at low water near its head and has a narrow, crooked, and unmarked channel. On the point marking the southern entrance to Pemaquid River there is a *prominent stone tower* marking the position of a former fort.

Pemaquid Beach is a post village on the south side of Pemaquid River at the entrance. There is a fish wharf and float at the fort and another a short distance to the eastward. Gasoline is available at both places. Depths at the wharves are about 10 feet. There is a reef bare at low water extending offshore between the two wharves on which a number of boats have grounded when it was covered. There is a fish wharf between **Fish Point** and **the Fort** at which some marine hardware may be obtained.

On the western side of the inner harbor the piling of an old wharf should be avoided.

Thurston Ledges are mostly bare rocks which extend 300 yards southward from the north side at the entrance of Pemaquid Harbor, their south edge lying 300 yards northward of Beaver Island.

Pemaquid Harbor can be entered from westward by passing 125 to 150 yards northward of **Beaver Island,** the high, round islet with some trees lying 300 yards northward of Johns Island. Or, when 0.5 mile or more southward of Johns Island, steer 355° true so as to pass 150 yards eastward of Johns Island and 125 yards westward of the western bare rocks of **Knowles Rocks.** A ledge, partly bare at half tide, extends 225 yards northeastward from the north end of **Johns Island.***

*Lat. 43°52′.0, Long. 69°32′.1; Charts 313, 1204

McFarlands Cove is in the northwestern side of the bay northward and northwestward of **Davis Island;** a steep hill about 150 feet high is on the western shore of the cove. There is good anchorage for a small vessel about 300 yards northward, or in midchannel northwestward, from the north end of Davis Island, in 4 to 6 fathoms.

In entering the cove take care to avoid the rock (awash at mean low water) lying about 200 feet off the northwest point of Davis Island.

McFarlands Ledges lie 450 to 800 yards northward of Davis Island and 300 to 500 yards from the western shore. At the north end is a rock covered at half tide, and at the west end is a rock bare at low water. A red buoy marks the south end.

The Gut (described with Damariscotta River) is a thoroughfare connecting McFarlands Cove with Damariscotta River. It has a depth of 2 feet at low water and is crossed by a bridge with a draw.

Johns River extends northward about 2 miles above McFarlands Cove, and separates into two branches, the eastern, **Foster Cove,** the western, **Western Branch. Robinson Cove** makes into the western shore of Johns River above **High Island.** There is good anchorage in the river southeastward and eastward of **Clarke Point,** in 3 to 4 fathoms. The river is little used.

Thread of Life is a narrow, deep channel lying between Thread of Life Ledges and Crow Island on the east and the southern part of **Rutherford Island** and **Turnip Island** on the west. It is used by small local vessels entering Johns Bay from westward or from Damariscotta River. **Thrumcap Island** is partly wooded in its northern part and has a prominent house. **Thread of Life Ledges** are bare or grassy islets, **Turnip Island,** partly wooded, has a house on it, and **Crow Island** has a few trees. A shelving ledge, awash at low water at its south end, extends 300 yards southward from **Hay Island;** the latter has some trees on its south end.

Directions.—To pass through Thread of Life from westward, steer **61°** true for the north end of Thrumcap Island with Ram Island Lighthouse astern and pass 400 yards southward of **The Bulldog** (bare at half tide) and 500 yards southward of the rock covered at high water lying 300 yards eastward of the south end of Inner Heron Island. When about 400 yards from Thrumcap Island, steer **15°** true and pass 200 yards westward of Thread of Life Ledges and 100 yards eastward of Turnip Island. Then keep in midchannel and pass into Johns Bay about 100 yards westward and northward of a red buoy lying about 200 yards northward of Crow Island, between it and a black buoy northward of it.

Directions, Johns Bay.—Stand up the middle of the bay on a **349°** true course, heading for the eastern shoulder of High Island, and pass 300 yards westward of Johns Island and the same distance off the eastern shore northward of Pemaquid Harbor. Then keep in midchannel until abreast High Island, and then pass about 50 yards westward of a red buoy. Anchor near midriver, about 400 yards northward of the buoy, in 3 to 4 fathoms.

DAMARISCOTTA RIVER

(CHART 313)

The entrance to this river is about 3 miles westward of Pemaquid Point Lighthouse and 1 mile northeastward of Ram Island Light-

house. From its mouth the river trends in a general north-northeast direction for 14 miles to the towns of Damariscotta and Newcastle, at the head of navigation. It has been navigable to these towns for vessels of 18-foot draft at high water, but the tidal currents are strong, and, although some of the dangers are marked by buoys, strangers should not pass above The Narrows without a pilot.

The channel of the river is crooked, and in many places, owing to islands and ledges, very narrow; for a distance of 11 miles above the mouth of the river a least depth of 5 fathoms may be carried in the channel; above this the water shoals gradually to 9 feet at low water just below the town of Damariscotta. In 1940 it was reported that the channel at the town had shoaled to about 7 feet at low tide, but no reliable information was available.

The islands and shoals southwestward of the entrance are described on page 200.

Little River, on the west side of the entrance, has some cottages and float landings; the channel is narrow and unmarked and suitable only for small craft. There is a fish wharf, with float landing having about 9 feet of water alongside at low tide, on the west side at the entrance, but no supplies are available.

Inner Heron Island,* on the eastern side of the entrance to Damariscotta River, is thickly wooded. There is a post village **(Heron Island)** on the island and a private float landing on the northeast side with a depth of about 12 feet at the end. Boats going to the landing must avoid the reef, bare at half tide, extending northward from the island to a red buoy.

Inner Heron Island Ledge, 0.2 mile southwestward of the south end of Inner Heron Island, is bare at extreme low water and marked on the southwest side by a red buoy. **The Bulldog,** 300 yards southward of the island, is bare at half tide. The rock, 350 yards eastward of the island, is bare a little after high water. There are other unmarked dangers between Inner Heron Island and the eastern shore, and this passage should not be used by strangers.

Christmas Cove is an anchorage for small craft or a very small vessel on the eastern side of the entrance, 0.7 mile north-northeastward of Inner Heron Island. The narrow entrance to the cove proper is midway between two bare rocks, the one on the southeast side being marked by a white tripod beacon. A black spindle marks the north side of the channel and a red spindle marks the point of a ledge near the south side westward of the wharf. The anchorage with best swinging room is in the middle of the cove off the landing in 4 fathoms.

Christmas Cove is a post village and summer resort on the eastern side of the cove. There is a small wharf with about 10 feet of water alongside at mean low water on the point east of the red spindle and during the season there is launch service with neighboring localities. Gasoline is available and there is a general store in town.

To enter Christmas Cove, enter in midharbor, pass midway between the tripod beacon and the outer spindle and northward of the inner spindle.

*Lat. 43°49'.7, Long. 69°33'.9: Charts 313, 1204.

Landmarks.—About 1 mile north-northeast of Christmas Cove there is a high, square gray observatory tower which forms an excellent landmark. Two hotel buildings in Christmas Cove west of the center of Hay Island are very prominent from the soltheast.

5 **South Bristol** is a village and summer resort on the east side of Damariscotta River 2.5 miles above the entrance. There are several landings with 10 to 12 feet alongside. Gasoline and supplies are available.

There is a yacht-building plant on the north side of the Gut with 10 a marine railway and machine shop. Fresh water is available.

The Gut is a thoroughfare connecting Damariscotta River at South Bristol with McFarlands Cove and Johns Bay. The channel has been improved by dredging to a width of 25 feet and depth of 2 feet at low water in the vicinity of the drawbridge, where the channel 15 has its least depth. The bridge has a single draw opening 31 feet wide and a vertical clearance of 3.9 feet at mean high water when closed. Boats after passing through the bridge from eastward must haul southward to avoid a ledge on the north side just westward of the bridge.

20 **East Boothbay** is a village on the west bank of the river, about 3 miles above its mouth; vessels bound up the river and waiting for a favorable wind or tide usually anchor here, and strangers take a pilot if one has not been taken off the entrance. The large buildings of several boat works are prominent. There is a coal wharf and another 25 wharf for general use with 3 to 5 feet alongside at low water. Railways are available for hauling out small craft. **Kelp Ledge,** just south of the approach to the wharves and 150 yards from the eastern shore, is bare at low water and unmarked. Gasoline, water, and supplies are available. Steel or wooden vessels up to 300 feet long are 30 built at the iron works.

At the **Narrows,** 1.3 miles above East Boothbay, the channel is contracted to a width of 100 to 150 yards, and the tidal currents are strong with swirls. **Eastern Ledge,** extending 100 yards from the eastern shore, is a rock with 3 feet over it, and is marked at its south-35 west end by a red buoy. It is reported that this buoy tows under during the strength of the current. On the west side of the Narrows is a ledge, mostly sunken, extending 250 yards southwestward and 75 yards eastward from **Fort Point.** There are other submerged ledges in this vicinity.

40 **Seal Cove** and **Long Cove,** on the east side, just above the Narrows, have many unmarked dangers and are seldom entered. An overhead power line is suspended across Seal Cove about 400 yards south of Plummer Island. It is estimated to be about 25 feet above high water.

45 **Clark Cove,** on the east side, 2.5 miles above the Narrows, is a broad bight, shoal near the shores.

Pleasant Cove is on the western shore of the river, opposite Clark Cove, and makes in nearly 1.5 miles southwestward. There is good anchorage in the mouth of this cove just northwestward of **Carlisle** 50 **Point,** in 2½ to 5 fathoms, soft bottom. **Pleasant Cove Ledges,** northward of the cove, are covered at high water and are marked by a black buoy placed just to the northward. There are no wharves in the cove.

Damariscotta, on the east bank, and **Newcastle,** on the west bank of the river, 14 miles above its mouth, are connected by a fixed bridge. They are on a branch of the Maine Central Railroad.

There is very little traffic by water. The old wharves are mostly in ruins and there are no facilities for supplying vessels. Small wooden vessels are built at Damariscotta but there are no facilities for hauling or repairing boats.

Anchorages.—Vessels bound into the river usually go as far as Meadow Cove, just above East Boothbay, where there is good anchorage in 5 to 8 fathoms, keeping 150 yards from the shore. This is as far as a stranger should attempt to go in a vessel without a pilot. Above the Narrows vessels can anchor anywhere in the channel where the bottom and depth are suitable.

Pilots.—May be obtained from among the fishermen at South Bristol or East Boothbay.

Ice closes the river for a distance of 4 miles below Damariscotta during January, February, and March.

Currents.—The tidal currents have considerable velocity (estimated 5 knots). The ebb lasts about 2 hours after low water, in the upper part of the river, and is usually stronger than the flood. The currents follow the general direction of the channel.

Tides.—The mean rise and fall of tides is about 9 feet.

The **White Islands,** lying about 1.5 miles south of the entrance to the Damariscotta River, are prominent landmarks. The northern island is grassy. The southern island is heavily wooded on the northern two-thirds and is bare rock on the southern one-third. There is one cottage. Southward and southwestward of the White Islands, **Outer Heron Island** (wooded), and **Pumpkin Island,** with their offlying ledges, extend for about 2.5 miles.

DIRECTIONS, DAMARISCOTTA RIVER

(CHART 313)

This region has many rocks and ledges, and very broken bottom, and has not been examined by means of a wire drag. Extreme caution is necessary.

Directions for approaching from eastward are given on page 55.

Approaching from southward, pass eastward of Pumpkin Island and the islands off the entrance, giving them a berth of 1.3 miles. Pass 0.3 mile southwestward of Thrumcap Island, steer 299° true and pass about 400 yards southward and westward of Inner Heron Island Ledge red buoy. Or, coming from Fisherman Island Passage, steer 51° true for the south end of Inner Heron Island, with Ram Island Lighthouse* astern, and pass about 400 yards southward and eastward of the black buoy off Little River.

Enter the river about midway between the black buoy and Inner Heron Island Ledge red buoy, and steer 6° true in mid-river for 1.5 miles above Inner Heron Island. Pass westward of the red buoy off the entrance to South Bristol, give Farnum Point on the west side a berth of 300 yards, and when it is abeam change the course to 327° true keeping about the middle of the river. Pass eastward of Montgomery Point black buoy and haul in for the western side of the chan-

*Lat. 43°48′.2, Long. 69°36′.0: Charts 313, 314, 1204, 1106, 70.

nel off Meadow Cove; anchor in 5 to 8 fathoms. Small craft should have no trouble in going to the head of navigation with the aid of chart 313. The best time is on a rising tide. It is reported that the red buoy at the entrance to the Narrows tows under during the strength of the current.

BOOTH BAY AND LINEKIN BAY

(CHART 314)

These bays are included between Linekin Neck and Fisherman Island on the east and Southport Island on the West. They form the approach to the town of Boothbay Harbor and numerous smaller summer resorts. They are frequented by many vessels, and by a large number of fishing boats and pleasure craft in summer.

Islands and rocks off Booth Bay.—Islands and rocks extend 4 miles south-southeastward and 7 miles southwestward from the southwest end of Linekin Neck. The ground is very broken, rocks rising abruptly from deep water, and has not been examined by the means of a wire drag. Vessels should therefore avoid crossing this area. A lighted whistle buoy is placed at the southwest end of the broken ground, and deep-draft vessels passing along the coast should pass outside of it.

Bantam Rock, the most southerly visible danger, is 1.4 miles southwestward of the south end of Damariscove Island. It is bare at low water, and marked on the southwest side by a red buoy.

Damariscove Island is 1.7 miles long, bare, and nearly divided in the middle. Damariscove Harbor, at the south end, is used as a small-boat harbor by local fishermen. There is a Coast Guard station on the west side of the harbor and a small lookout tower on the highest part of the southern part of the island. **The Motions,** extending 0.3 mile south-southwestward of the southwest end of Damariscove Island, is nearly awash at low water, and marked off the end by a black buoy.

Fisherman Island, northeastward of Damariscove Island, is bare. A stone house on the highest part of the north end of the island shows up prominently from all directions.

Ram Island, on the south side of Fisherman Island Passage, is a grassy island, marked on the northwest side by **Ram Island Lighthouse.** The lighthouse is a tower with a gray base and white top connected to the shore by a bridge. The light is 36 feet above the water and visible 9 miles. The fog signal is a bell. See light list or chart for limits of the different sectors of the light.

The Hypocrites are two low, bare rocks eastward of Fisherman Island. **Smedrick Ledge,** extending 0.3 mile south-southwestward from the Hypocrites is marked by a red beacon near its southern end.

The Cuckolds are two bare islets off Cape Newagen, on the west side of the entrance of Booth Bay. The easterly islet is marked by **The Cuckolds Lighthouse,** a white tower on a dwelling. The light is 59 feet above the water, and visible 13 miles. The fog signal is a horn.

Cape Harbor is a harbor for small craft between **Cape Island** (wooded in the center) and **Cape Newagen.** It is used mostly by yachts and local fishermen. **Newagen** is a post village on the harbor.

There are landings for small craft. There are two entrances to the harbor; the easterly, leading between **The Ark** and Cape Newagen, is said to have a depth of only about 2 feet at low water. The main entrance is from westward, and has a depth of about 10 feet. Pass north of **Hunting Island** as the passage between it and Cape Island is reported foul. The depths inside are 6 to 16 feet. Gasoline is available.

Squirrel Island, in the middle of the entrance of Booth Bay, is an important summer resort. It is wooded and has many large homes visible. There is a steamer landing (depth 15 feet or more) and landings for small craft in the northerly of two coves on the west side. **Squirrel Cove,** the southerly, is sometimes used as an anchorage by small craft. A beacon marks the ledge at the south side of the entrance.

Linekin Bay.—This bay lies northeastward of Squirrel Island, between **Linekin Neck** and Spruce Point. The principal dangers are buoyed, and good anchorage can be selected, the depths being 10 to 12 fathoms in the lower part of the bay and 5 to 6 in the upper. There are several private float landings. **Spruce Point Ledges,** bare at low water, lie on the northern side of the entrance, and are marked by two buoys, a black at the south end and a red at the north end. The better entrance is between the black buoy and **Negro Island.** In the narrow entrance between the red buoy and Spruce Point, give the point a berth of over 150 yards. A 26° true course with the southeast point of Squirrel Island astern will lead to the head of Linekin Bay.

Ocean Point* is at the southern entrance to Linekin Bay. There are many summer homes and hotels in the vicinity. South and southwest of this point, **Card Ledge, Dictator Ledge,** and **Gangway Ledge,** the principal dangers in **Fisherman Island Passage,** are buoyed. The broken bottom extending southwest of Dictator Ledge to **Wylie Rock** should be avoided.

The visible dangers of Linekin Bay inside Spruce Point Ledges are as follows: **Independence Island,** wooded and with a house in the center; **Holbrook Ledge** bare at one-third tide and marked on its west side by a red buoy; **Seal Rocks,** bare at half tide and marked on its east side by a black buoy; a ledge on the east side surrounding **Perch Island,** with several trees, and marked at the southwest end by a red buoy; and **Fishhawk Islet,** having several trees and a ledge bare at half tide, extending southward. The narrow channel westward of Seal Rocks should be used with caution. There are numerous unmarked rocks at the head, in the vicinity of **Bayville** and **Murray Hill. Spruce Point** is wooded.

There is a small boat yard east of Tibbits Ledge where small boats are repaired. There is no machine shop.

Capitol Island, on the west side of Booth Bay, is a summer resort with a post office **(Capitol).** Many cottages are visible. There is a steamer wharf at the north end with a depth of about 10 feet.

Burnt Island is partly wooded and marked on the southeast side by a lighthouse (white tower with covered way to a dwelling).

Mouse Island, wooded, northward of Burnt Island, has a private float landing on the north side with a depth of about 12 feet.

*Lat. 43°48′.9, Long. 69°36′.3: Charts 313, 314, 1204.

BOOTHBAY HARBOR

(CHART 230)

Boothbay Harbor is the inner basin of Booth Bay and on it is located the town of Boothbay Harbor. The wharves have various depths up to about 19 feet. The deepest draft using this port, in 1940, was 22 feet. The coal wharf on the east side of the harbor has a depth of 15 feet. There are several public float landings on the northwest side. The anchorage for small craft is on the northwest side, inside of McFarland Island, and has been dredged to a depth of about 10 feet. **McFarland Island** has several wharves and a prominent circular building resembling a lighthouse. A footbridge, with a small draw, crosses the head of the harbor. The opening has a horizontal clearance of 32 feet and a vertical clearance of 4.5 feet at mean high water when closed.

The **Boothbay Harbor Yacht Club** has a pier and float landing on the northwest side of the harbor, with 10 feet of water alongside at mean low water. Boothbay Harbor is an important yachting center and is one of the best anchorages on the coast of Maine. During the summer season there is a daily steamer service with Bath on the Kennebec River.

A **chart Sales Agency** of the U. S. Coast and Geodetic Survey is located here.

The **harbormaster** can be reached through the harbor police boat.

Anchorages.—The usual and best anchorage is northward of **Tumbler Island** and to the head of the harbor; there are 4 to 7 fathoms good holding ground, anywhere in the channel above the island, the depth shoaling gradually toward the head of the harbor. The passage east of **Tumbler Island** should not be used by strangers. The anchorage in the inner harbor off the town has a depth of 4 to 5 fathoms, but is limited in area and usually occupied by small craft and fishermen. The motorboat anchorage on the northwest side of the inner harbor has a depth of 11 feet.

Supplies.—Coal in any quantity can be had. Water can be taken alongside the wharves. Gasoline, diesel oil, provisions, and some ship chandlers stores can be obtained in the town. Gasoline may be obtained from floats anchored in the inner harbor.

Repairs.—There is a marine railway with a capacity of 600 tons. The cradle has a length of 200 feet, and the maximum draft that can be accommodated is about 12 feet aft. There are facilities for repairing wooden vessels, and ordinary repairs to machinery can be made. There are several boat yards where small craft can be repaired.

The largest marine railway is reported to be an approved seaplane base.

Storm warnings are displayed from a steel tower on the hill on the north side of the town.

Ice occasionally, in severe winters, obstructs navigation above Tumbler Island during February and March. In normal winters the harbor is free of ice to the footbridge.

The tidal currents have little velocity in the harbor. The mean rise and fall of tides is about 9 feet.

DIRECTIONS, BOOTHBAY HARBOR

This region is an area of very broken ground, shoals rising abruptly in places from deep water, and has not been examined by means of a wire drag. Vessels should therefor proceed with caution and should avoid crossing broken ground where the charted depth does not greatly exceed the draft. The harbor is one of the best anchorages on the coast of Maine and is much used as a harbor of refuge by all classes of vessels.

From eastward, through Fisherman Island Passage (charts 313, 314, and 230).—Directions from Davis Strait to Fisherman Island Passage are given on page 55. Coming from any other point eastward the course can be shaped to a position 0.5 mile southward of Thrumcap Island, taking care to avoid Moser Ledge and Pemaquid Ledge.

Passing 0.5 mile southward of Thrumcap Island, steer **268°** true, pass northward of the bell buoy marking the Hypocrites and the black buoy northeastward of Ram Island Lighthouse, and about 350 yards northward of Ram Island Lighthouse, and pass southward of the red buoys marking Gangway and Dictator Ledges.

Pass about 200 yards southward and westward of Dictator Ledge Buoy and steer **321°** true for 1.6 miles to a position 200 yards westward of the red buoy 0.5 mile eastward of Burnt Island Lighthouse. Then steer **332°** true and pass about 150 yards westward of Tumbler Island lighted buoy. Then steer about **17°** true and anchor in the middle of the harbor in 5 to 7 fathoms.

From westward (charts 314 and 230).—The directions on page 55 will lead northward of Seguin Island and to Cuckolds black bell buoy. Pass eastward of the buoy and about 0.3 mile eastward of the Cuckolds Lighthouse and steer **2°** true for Burnt Island Lighthouse, passing about 500 yards westward of Squirrel Island. When about 0.5 mile from the lighthouse and 300 yards westward of Squirrel Island Ledge red buoy, steer **23°** true, passing 250 yards southeastward of a black buoy and to a position with Burnt Island Lighthouse* abeam. Then steer **351°** true to a position 400 yards westward of Tumbler Island. Then steer about **17°** true and anchor in the middle of the harbor in from 5 to 7 fathoms. These courses lead close to depths of 20 and 21 feet between Burnt and Squirrel Islands.

From southward.—Pass about 0.5 mile westward of Bantam Rock lighted whistling buoy and steer **2°** true for Burnt Island Lighthouse and follow the directions in the preceding paragraph. This course passes 1 mile westward of Bantam Rock and 0.6 mile westward of an unmarked 11-foot rock.

From westward, eastward of Squirrel Island.—Pass eastward of Cuckolds black bell buoy and about 0.3 mile southeastward of the lighthouse and steer **33°** true. Follow the eastern side of Squirrel Island, giving it a berth of about 500 yards and when its northeast corner bears about 270° true change course to **332°** true and pass about 200 yards westward of Tumbler Island Ledge lighted buoy. Then steer **17°** true and anchor in the middle of the harbor in 5 to 7 fathoms.

To enter the inner harbor off the town (chart 230).—Pass about 200 yards northwestward of Tumbler Island and steer **29°** true for

*Lat. 43°49′.5, Long. 69°38′.5: Charts 314, 1204, 1106.

McFarland Island until Clam Rock, a large bare ledge near the eastern shore, is abeam distant about 250 yards. Then steer about 62° true into the inner harbor, passing southeastward of the black buoy southward of McFarland Island and another black buoy eastward of the island. The course can then be shaped to the wharves, or small craft may select anchorage on the northwest side northward of the inner black buoy in 10 to 13 feet.

INSIDE PASSAGE FROM BOOTHBAY HARBOR TO BATH

(CHART 230)

This passage is about 11 miles long and leads between the island lying between Boothbay Harbor and the Kennebec River, forming an inland passage from Boothbay Harbor to Bath. The vessels using this passage are the steamers of 10-foot or less draft running from Boothbay Harbor to the Kennebec River. It is used considerably by yachts.

The channel is very narrow in places, has strong tidal currents, is much obstructed by rocks and shoals, and, although most of the dangers are marked, strangers with a draft of 8 feet or over should not attempt to pass through in vessels without an able navigator or pilot. The passage leads through Townsend Gut, across Sheepscot River, and through Goose Rock Passage into Sasanoa River; about midway through Sasanoa River the channel crosses the southern part of Hockomock Bay and then continues through the Sasanoa River, coming out in the Kennebec River opposite the city of Bath. The least depth in the channel is about 10 feet but local knowledge is necessary to carry the best water.

There are several summer resorts and other landings along the thoroughfare, at which the steamer running between Boothbay Harbor and Kennebec River points makes landings.

Bridges.—Two bridges with draws cross the thoroughfare. The one crossing Townsend Gut is a center pier draw with openings 52 feet wide and a vertical clearance of 10.2 feet at mean high water. The one crossing Sasanoa River near its outlet into Kennebec River has one opening 39 feet wide, with a vertical clearance of about 4.5 feet at mean high water.

The signal for the Townsend Gut bridge is 3 blasts of the whistle or horn, or shouting with the voice. The signal for the Sasanoa River bridge is 2 blasts.

The speed limit while passing through Townsend Gut is 5 knots.

Ice.—The thoroughfare is usually closed by ice for about 2 months, but in mild winters has been known to be open all winter.

Townsend Gut is a narrow, crooked thoroughfare connecting Boothbay Harbor with Sheepscot River. There are unmarked rocks with little depth close to the channel.

Southport is a village and summer resort on the west side of Townsend Gut. There is a wharf at which steamers land 0.4 mile northwestward of the bridge. There is about 25 feet of water at the wharf. Gasoline is available and there is a general store.

Thompson Cove.—There is a fixed bridge across this cove. East of the bridge is a wharf (17 feet alongside) and amusement park on one side, while on the other is a small boat yard and a fish wharf.

Isle of Springs is a summer resort on Isle of Springs, at the north end of Townsend Gut. The steamer landing, on the northeast side, has a depth of about 10 feet. Isle of Springs is wooded and has an elevated tank at its summit.

Sawyer Island.—This settlement was nearly abandoned in 1940. Sawyer Island is connected to the mainland by a fixed highway bridge at its southeast corner. The opening of the bridge is 17 feet wide, with a vertical clearance of about 2 feet at high water. The current is strong in this locality.

Goose Rock Passage leads from Sheepscot River into Sasanoa River northward of MacMahan Island, and forms a part of the inside route. It has ample depth but is narrow in places; the principal dangers are marked.

Little Sheepscot River is a narrow passage leading from Sheepscot River into Sasanoa River westward of MacMahan Island. There is a rock with a depth of about 1 foot at low water 100 yards westward of a red buoy marking the end of a ledge. The channel leads between the buoy and the rock. A steamer wharf on the east side of the channel at MacMahan has a depth of about 10 feet.

MacMahan is a summer resort town on the west side of MacMahan Island. There is communication with Bath and Boothbay Harbor by boat, and with Robinhood by small boat.

Sasanoa River is an estuary leading from Sheepscot River to Kennebec River, north of Georgetown and Arrowsic Islands. It has numerous coves and bays making off northward and southward, but none of them are of commercial importance. Near its western end the river is crossed by a drawbridge (see page 204). The principal coves and bays making southward are **Robinhood Cove, Riggs Cove, Hall Bay,** and **Back River,** the latter separating **Georgetown** and **Arrowsic Islands.** Northward is **Heal Cove** and **Hockomock Bay;** from the latter **Montsweag** and **Brooking Bays** lead northward; the former separates Westport Island from the mainland, and joins the Sheepscot River at Wiscasset, through Back River. **Knubble Bay** is the broadest part of the river, after passing Robinhood Cove and the Knubble, before entering Hockomock Bay when coming from eastward. **Great (Lower) Hell Gate** is the crooked passage from Knubble Bay into Hockomock Bay. **Upper Hell Gate** is about 2 miles from the western entrance to the river; this is the narrowest part, and is only about 60 yards wide.

Robinhood (Riggsville) is a post village on the south side of Riggs Cove. The wharf with a float landing has about 11 feet alongside. Limited amounts of supplies, gasoline, and water are available. There is telephone connection to Bath. The Bath-Boothbay Harbor boat sometimes stops here and a small boat runs to MacMahan.

Directions, Inside Passage, Boothbay Harbor to Bath.—This passage is narrow and crooked, has strong tidal currents, and local knowledge is necessary to carry the best water. Strangers in the larger vessels or yachts should take a pilot at Boothbay Harbor or Bath. With the aid of chart 230, strangers in small craft of 8 feet or less draft should be able to go through. The best time is on a rising tide. The channel is well marked but careful navigation is required.

Caution.—At the strength of the current in the narrow places the buoys are often run under for short periods.

SHEEPSCOT RIVER

(CHART 314)

Sheepscot River having its entrance about 5 miles northeastward of Seguin Island, between the Cuckolds and Griffith Head, is the approach to several small villages in the lower end and to the town of Wiscasset, 14 miles above the entrance. The channel has a depth of about 30 feet to Wiscasset and is navigable for small vessels at high water for about 4 miles above Wiscasset to the village of Sheepscot.

The Cuckolds Lighthouse * and Cape Harbor, on the east side at the entrance, are described on page 200. There are rocks, bare and sunken, extending 0.5 mile westward of the point in this vicinity.

The Sisters, 1.5 miles from the northwestern shore, at the entrance to Sheepscot River, are three small bare rocks with shoals surrounding them. The westerly rock marked by a tripod beacon.

Tom Rock, 0.6 mile south of The Sisters is bare at low water and marked by a red buoy on the southwest side. An 8-foot spot has been reported 200 yards east of the buoy.

The Black Rocks, 1 mile from the northwestern shore of Sheepscot Bay at the entrance, are a group of three bare and several sunken rocks about 0.7 mile long. The southwesterly rock has 13 feet over it and there is a rock awash at high water 250 yards northeastward of it. The middle rock is 15 feet above high water and the northeasterly rock 10 feet above high water. The channel between the Black Rocks and the black buoy, marking **Sloop Ledge** 0.4 mile northwestward, has not been closely examined and should be used with caution. The area between the black buoy and the northern shore is very broken and should not be crossed.

Griffith Head, on the west side, at the entrance of Sheepscot River, is a white, rocky head, with a bare, rocky island 200 yards eastward. There is a horizontally striped buoy 0.4 mile off the island, marking **Griffith Head Ledge.**

Lower Mark Island, on the eastern side, just inside the entrance, is wooded and a good landmark. A ledge, bare at low water, lies 150 to 350 yards eastward of the island. Northwestward of this island broken ground, with 22- and 24-foot spots, extends about 0.8 mile and is marked at its western end by a lighted bell buoy.

Cat Ledges are a group of rocks, the higher ones bare, lying 0.5 to 1 mile northward of Lower Mark Island, the outer ones 0.4 mile from the eastern shore. The coves eastward of the ledges are foul and of no importance.

Herman Harbor is a long, narrow cove making northward on the western side of the river about 1.5 miles above Griffith Head. It has good anchorage in 4 to 7 fathoms, but has a very narrow entrance between a bare ledge near the west shore and a dangerous reef, bare at low water, which extends 275 yards southwestward from the wooded island on the eastern side of the entrance. There is a prominent hotel on the west side near the middle of the harbor, and a small settlement at the head and a fish wharf on the west side. The best water in entering leads 100 yards eastward of the middle of the bare ledge on the west side at the entrance, close to, and westward of, the red buoy.

---

*Lat. 43°46'.8, Long. 69°39'.0 : Charts 314, 1204, 1106, 70.

Five Islands Harbor is a narrow passage between Five Islands and the western shore, forming a secure harbor for small craft, with 3 to 5 fathoms at low water. The main entrance is northward of the largest wooded island (Malden Island), between it and a bare rock. A rock with a depth of 10 feet in the middle of the entrance is marked by a horizontally striped buoy. The buoy can be passed close-to on either side in entering. Boats can also enter the harbor from the northwestward, following the western shore, inside of all islands and shoals. The southern entrance is nearly blocked by rocks and ledges that bare at about half tide, and should not be used without local knowledge.

Five Islands is a post village on the western side of the harbor. It has launch communication with Boothbay Harbor and Bath. The steamer wharf has a depth of about 20 feet. There is a general store, and some gasoline is available.

Hendricks Harbor is a cove on the eastern side of Sheepscot River, the entrance lying 0.4 mile southward of **Hendricks Head (abandoned) Lighthouse Tower.** It is used only by small craft. The entrance, which is well marked, has a depth of about 10 feet between ledges on either side, and the depths inside are 4 to 9 feet. **West Southport** is a post village on the east side of the harbor. There are landings for small craft. There is a fixed bridge connecting **Pratts Island** to Southport Island.

The **Southport Yacht Club** is located at Hendricks Harbor (known locally as **Cozy Harbor**). The club has a pier and float landing with about 4 feet alongside at low water. There are several fish wharves. There is a general store; gasoline and water are available.

SHEEPSCOT RIVER

(CHART 230)

About 3 miles of the river is shown on Chart 230, which is a large scale chart of the inside passage from Boothbay Harbor to Bath. This section of the river is also shown on Chart 314, which is on a scale large enough for navigation of the Sheepscot River. If using Ebenecook Harbor or any of the channels in this section, except the main river channel, Chart 230 should be used.

Ebenecook Harbor is an excellent anchorage for vessels up to 20-foot draft. Its entrance lies about 1 mile above Hendricks Head, on the eastern bank of the river, and leads between Dogfish Head on the south and the Green Islands on the north. It is the first anchorage available for large vessels entering the river; but the entrance is narrow, and large sailing vessels require a fair wind when leaving the anchorage. The village of West Southport is near the southern end of the harbor. This end of the harbor should be avoided by strangers in vessels unless they employ a pilot. There are boat storage sheds.

Directions, Ebenecook Harbor, give the eastern shore of Sheepscot River a berth of over 300 yards for 1 mile above Hendricks Head until up with **Dogfish Head,*** which is rocky and grass covered with a low neck behind it. Pass about 125 yards northward of Dogfish Head, and steer about 96° true between it and Green Islands, favor-

*Lat. 43°59′.8, Long. 69°41′.1 ; Charts 230, 314.

ing, if anything, the southern side, until past the south point of Green Islands. Follow the southeast side of Green Islands at a distance of about 150 yards, and steer 74° true with the south point of the islands astern; anchor on this course near mid-harbor, or favoring the eastern shore, in 4 to 6 fathoms, soft bottom.

Extending northward from Ebenecook Harbor to Sawyer Island is a channel, affording good anchorage in places, which is used by small pleasure craft in summer, and is a part of the inside passage used by local vessels between Boothbay Harbor and Bath. Its northern part, and also the passages between the islands and ledges on its western side, require some local knowledge to insure safety. The principal islands and rocks are:

Green Islands are wooded; a rock, bare at low water, lies 200 yards northeastward of them, and is marked on its southeast side by a black buoy. A bare ledge lies between Green Islands and Boston Island, and a rock with 4 feet over it lies 250 yards westward of the ledge. **Boston Island** is high and partly wooded and has several houses and a boat landing. **Spectacle Islands** are partly wooded and a rock, bare at low water, lies 150 yards westward of their southwest end.

Townsend Gut, Isle of Springs, and Sawyer Island, on the eastern side of Sheepscot River, and Little Sheepscot River and Goose Rock Passage on the western side, are described under the heading **Inside Passage Boothbay Harbor to Bath,** on page 205.

Bull Ledge, 1 mile northward of Hendricks Head, is bare in one place at low water, and marked at the south end by a horizontally striped buoy.

Middle Mark Island, a small, round, bare islet, is in the middle of a ledge 0.3 mile long, and lies 0.3 mile from the western shore and 1.5 miles above Hendricks Head. **Mark Island Ledge,** with 7 feet on it, lies 250 yards southwestward of the island. The main channel leads eastward of the island.

Powderhorn Island, low and grassy, is on the eastern side of the river 2 miles above Hendricks Head. **Powderhorn South Ledge,** awash in places at low water, extends 0.3 mile southward from the island, and is marked at its south end by a red buoy. There is a narrow channel between the buoy and the north end of **Harding Ledge.** The latter is sunken and is marked at its south end by a red buoy.

Powderhorn Ledge, with 4 feet on it, lies 200 to 350 yards northward of Powderhorn Island, and is marked on its north side by a red buoy.

Middle Ledge, lying 600 yards eastward of the southern side of the entrance to Goose Rock Passage, has a least-found depth of 10 feet, although less has been reported; it is marked on its northern side by a black buoy.

Clous Ledge, lying 0.2 mile eastward from **Whittum Island** (wooded) at the entrance to Goose Rock Passage, is awash at half tide and marked by a black spindle on the middle of the ledge and a black bell buoy off its northern end.

Fourfoot Rock, on the west side of the channel about 0.2 mile northward of Clous Ledge spindle, is marked on its southern side by a horizontally striped buoy.

Ram Island Ledge, awash in spots at half tide, is on the east side of the channel and extends 0.3 mile in a north-northeasterly direction from Ram Island to the entrance to Back River. It is marked on its eastern side by a black spindle and a black buoy, which are guides to the narrow channel leading northward from Ebenecook Harbor.

Upper Mark Island is a low grassy ledge, from which a shoal extends 600 yards northward toward Hodgdon Ledge.

Jewett and **Long Coves** are unimportant coves on the west side of Sheepscot River westward of the entrance to Back River.

SHEEPSCOT RIVER, NORTHERN PART

(CHART 314)

Back River is a shallow, narrow, and unmarked stream between Barter Island and the mainland. Its southern entrance is on the eastern side, about 3 miles northward of Hendricks Head; its northern entrance is from Cross River. Local knowledge is necessary for its navigation. It is used only by small craft. There are several private float landings on the south end of Barter Island, just inside the entrance. A drawbridge with an opening 40 feet wide and a headroom of 6 feet at high water crosses the river from **Hodgdon Island** to the south end of **Barter Island.** The entrance to Back River is marked by a buoy placed 350 yards westward from the southern end of Barter Island.

Trevett is a small post village on Hodgdon Island at the end of the drawbridge. There is a general store.

Tarbox Landing is a steamer landing and small settlement just north of Tarbox Cove. **Hodgdon Ledge,** just southward of the wharf, is bare at half tide and marked on the southeast side by a black buoy.

Cross River empties into the east side of Sheepscot River about 6 miles above Hendricks Head. It has a deep channel for over 1 mile to **Oven Mouth** where the river is confined to a narrow channel between high cliffs.

Greenleaf Ledge, on the west side of Sheepscot River, just south of the entrance to Cross River, is bare at half tide and marked by a buoy. Shoals fill the bight from the buoy to the western shore.

Merrill Ledge, 2.4 miles above the entrance to Cross River, is bare at half tide in the middle; it is marked at the south end by a spindle and at the north end by a buoy. The channel leads westward of it.

A rock with 12 feet over it has been reported to exist about 500 yards southwestward of **Clough Point** (Head of Westport). The rock is on the west side of the river and lies a little eastward of a line connecting the buoy off Clough Point and the buoy just above **Hilton Point.**

Montsweag Bay and **Back River** form a thoroughfare from Sasanoa River and Hockomock Bay to Sheepscot River near Wiscasset. The channel is narrow and seldom used except by small local craft. It is marked by spindles and buoys.

In 1940 there was an auto ferry operating across Back River about 0.5 mile south of **Berry Island.**

Wiscasset is a town on the west side of Sheepscot River 14 miles above the entrance. It is on U. S. Highway No. 1, and on a branch of the Maine Central railroad.

The wharves are nearly all in ruins and there is practically no commerce by water. There is a town float landing with about 13 feet alongside but there are no facilities for taking supplies on board.

Sheepscot River above Wiscasset.—There is said to be a depth of about 10 feet at low water for 4 miles above Wiscasset to rapids in the river. Boats of about 4-foot draft can go through the rapids at high-water slack and for about 3 miles above. **Sheepscot** (shown only on chart 1204) is a village just above the rapids. The channel is unmarked above Wiscasset, and local knowledge is necessary for its navigation.

Drawbridges cross the river at Wiscasset, at a point 1 mile above Wiscasset, and at a point 3 miles above Wiscasset. The draw at Wiscasset has an opening 40 feet wide, and a vertical clearance of 10 feet at high water when closed. The second bridge has a draw opening 40 feet wide with a vertical clearance of 8 feet at m. h. w., and the third, a draw opening 28 feet wide.

Anchorages.—Ebenecook Harbor is the first anchorage available for large vessels entering the river. Above Stover Ledge, anchorage can be had in the channel, the depths being generally 12 fathoms or less. Colby Cove, in the west bank about 2¼ miles above Cross River, affords anchorage in 8 to 10 fathoms; Merrill Ledge spindle is northeastward of the anchorage. The anchorage at Wiscasset is below the bridge and near the wharves of the town.

Ice does not usually interfere with navigation below Wiscasset. The river above Wiscasset is usually closed in winter.

Tides.—The mean rise and fall of tides varies from about 8½ feet at the entrance to 9½ feet at Wiscasset.

Currents.—The currents in the river generally set in the direction of the channel and have considerable velocity in the narrow parts. At the entrance of Cross River the flood sets onto Quarry Point. The ebb sets onto Clough Point.

Pilots can be obtained from among the local fishermen at Five Islands or Boothbay Harbor.

DIRECTIONS, SHEEPSCOT RIVER

The channel in Sheepscot River is deep, and the principal dangers are buoyed. It is a region of rocks and ledges, many of them rising abruptly from deep water and has not been examined by means of a wire drag. There are several unmarked rocky shoals with depths of 3¼ to 5 fathoms in the middle of the river from Bull Ledge southward. Other ledges with less depth than charted have been reported, and undoubtedly exists. The river should therefore be navigated by vessels with extreme caution.

1. From eastward (chart 314).—Having come from Boothbay Harbor or Fisherman Island Passage, pass close to Cuckolds black bell buoy and steer 265° true for 1 mile until Lower Mark Island is abeam, distant 1.3 miles. Then steer 331° true for 2 miles and pass 0.5 mile westward of Lower Mark Island and about 100 yards westward of Cat Ledges lighted bell buoy. When about 200 yards northwestward of this buoy, steer 2° true for nearly 1.5 miles and pass 350 yards westward of Hendricks Head.

Or, coming **from southward,** from a position about 0.5 mile westward of Bantam Rock Lighted Whistle Buoy, steer **339°** true for a little over 6 miles until Lower Mark Island bears east true and is distant about 0.9 mile. Then change course to 2° true and pass 100 to 200 yards west of Cat Ledges Lighted Bell Buoy and continue the course to a position westward of Hendricks Head abandoned lighthouse tower. Then follow the directions given in Section 2.

From westward.—Pass 1.5 miles southward of Seguin Lighthouse (0.5 mile southward of Mile Ledge lighted bell buoy) and steer **37°** true for The Cuckolds Lighthouse to a position 0.5 mile southeastward of Tom Rock buoy. Then steer **6°** true for 3.3 miles, heading for Hendricks Head abandoned lighthouse tower until The Cuckolds Lighthouse is abeam, distant 2 miles. Then steer 2° true for nearly 2.4 miles, and pass 100 to 200 yards westward of Cat Ledges lighted bell buoy, and 350 yards westward of Hendricks Head.

2. Hendricks Head to Wiscasset (charts 230 and 314).—Passing 350 yards westward of Hendricks Head abandoned lighthouse tower, steer 2° true for 4.5 miles.

From a midriver position 0.8 mile above Stover Ledge buoy, steer **20°** true for 2 miles to the entrance of the narrow part of the river between Quarry Point and Fowle Point. Then steer more northward and follow a midriver course for 2 miles. Pass westward of the spindle and red buoy marking the southerly and northerly ends of Merrill Ledge, and when about 0.7 mile above the buoy, favor slightly the eastern bank to avoid the shoal on the western side above Hilton Point and another 500 yards south of Clough Point.

Pass about 200 yards eastward and 100 yards northeastward of Clough Point black buoy, and steer **299°** true, passing about 150 yards off the south end of **Davis Island** (marked by earthworks and a blockhouse). Pass southward and about 100 yards westward of Middle Ground red buoy, and steer about **344°** true for the wharf. Anchorage may be had about midway between the buoy and the wharf, in 5 to 7 fathoms.

KENNEBEC RIVER

KENNEBEC RIVER TO BATH

(CHART 314)

The mouth of this river is northward of Seguin Island and 20 miles eastward of the entrance of Portland Harbor. It is the approach to the cities of Bath and Augusta, the towns of Richmond and Gardiner, and smaller villages. The river has considerable trade by vessels, the deepest draft being about 26 feet to Bath and 12 feet to Augusta, the head of navigation.

The least depth is about 28 feet in a natural channel to Bath, 12 miles above the entrance, but there are unmarked rocky shoals with less depth close to the channel. From Bath to Gardiner the **existing project** of the United States Engineer Corps provides for a channel not less than 150 feet wide, with a depth of 16 feet. From Gardiner to Augusta, the project provides for a channel 125 feet wide and 11 feet deep. The principal channel passes Swan Island on the east side. This project has been completed, but depths in the river change and there is occasional shoaling. **In June 1939** the controlling depth

to the Gardiner-Randolph Bridge was 13 feet and 8 feet, thence to Augusta at the head of navigation.

Kennebec River formerly had a large trade in ice, and there were numerous ice houses and wharves on the river. In 1940 the ice houses were gone; and the wharves generally in ruins except at the principal ports. Log booms are found in the river between Gardiner and Augusta.

At present there is considerable traffic in coal, fuel oil, and oil products.

Cape Small is the wooded point about 4 miles westward of the mouth of the river. The distinguishing marks are an elevated tank 1 mile from the end, visible from eastward or westward; **Fuller Rock,** a low, bare islet 0.3 mile southward of the point, which is marked by an unwatched light; **Bald Head,** a bare round knob on the west side of the point; and **Bald Head Ledge,** bare at half tide and marked by a spindle and a bell buoy. There are submerged rocks and very broken ground, not closely examined, in the vicinity of the cape.

Sprague and **Morse Rivers,** between Cape Small and the entrance of Kennebec River, are nearly bare at low water at their entrances, and seldom entered even by local boats.

Islands and rocks off the entrance.—The entrance to the river is somewhat obstructed by an area of islands and rocks and very broken ground, not closely examined, extending southward for a distance of 4.5 miles from the entrance. The most southerly known danger is **Seguin SSW Ledge,** having a least found depth of 6 fathoms and lying 0.5 mile southeastward of Seguin Island red whistling buoy. The other dangers outside of Seguin Island are **Mile Ledge,** having a least found depth of 10 feet and marked by a lighted bell buoy, and **Camel Ground,** lying 1 mile west-southwestward of Seguin Island Lighthouse, and having a least found depth of 3.5 fathoms; Camel Ground is unmarked, and the sea breaks on it in heavy weather.

Seguin Island is 145 feet high, grassy, and marked on the top by a lighthouse; it is the most prominent mark in this vicinity.

Seguin Island Lighthouse* is a white cylindrical tower connected with dwelling. The light is 180 feet above the water, and visible 20 miles. The fog signal is a diaphone.

Ellingwood Rock, 400 yards northward of the north end of Seguin Island, is a bare islet about 20 feet high.

Seguin Ledges, 0.5 mile northeastward of Ellingwood Rock, are about 5 feet high, and have submerged ledges extending 300 yards northeastward and southwestward from the bare ledge.

Pond Island Shoal is the rocky shoal lying southward and southwestward of Pond Island. It has depths ranging from 5 to 21 feet over it, and in heavy gales is covered with breakers. A black gong buoy marks the southeastern end of the shoal and lies 0.7 mile southward of Pond Island Lighthouse. Vessels should not pass between this buoy and Pond Island.

Pond Island, a grassy island on the west side of the entrance to Kennebec River, is about 30 feet high and marked on the top by a lighthouse.

*Lat. 43°42′.5, Long. 69°45′.5: Charts 314, 1204, 1106, 70.

Pond Island Lighthouse is a white tower connected with dwelling. The light is 52 feet above the water, and visible 10 miles. The fog signal is a bell.

Wood Island, 0.3 mile westward of Pond Island, is high and wooded. The channel between Wood and Pond Islands should not be used by strangers.

Whaleback Rock is a bare rock about 8 feet high on the eastern side of the entrance to the river and 0.5 mile eastward of Pond Island. A shoal extends about 100 yards southward from it. **Salter Island,** northward of Whaleback, is wooded. **Stage Island** is wooded.

Stage Island Bay, Sagadahoc Bay, and **Heal Eddy,** on the east side of Kennebec River at the entrance, are shoal inside, have no wharves, and are of little importance.

South and **North Sugarloaf** are high, rounded, bare, rocky islets in the middle of Kennebec River just inside the entrance. A ledge extends 100 yards southward from South Sugarloaf; **Jack Rock,** bare at low water and marked by a spindle, is near the end of a ledge which extends 125 yards northeastward from South Sugarloaf. Ledges marked by a buoy, extend 175 yards southward and another 125 yards northwestward from North Sugarloaf. A rock with 6 feet over it has been reported lying 100 yards 270° true from Jack Rock spindle.

Popham Beach is a summer resort on the west side of Kennebec River just inside the entrance, the landing being westward of Fort Popham. The wharf near the Coast Guard station is in ruins but some offshore piling remained in 1940.

Kennebec River Coast Guard Station is located here.

Fort Popham is an unfinished and abandoned stone fort on Hunniwell Point. A small quantity of gasoline and stores may be obtained southwest of the Fort.

Baypoint is a village on the east side of Kennebec River, east-eastward of Fort Popham. The wharf has a depth of about 13 feet. There is a general store and gasoline is available.

Gilbert Head is high and prominent, wooded except near the end. and marked by a prominent house.

Shag Rock, on the eastern side of the channel, between Gilbert Head and Cox Head, is bare 3 feet at high water and marked by a tripod beacon.

Cox Head is high and prominent and is marked by a flag pole on its summit.

Todd Bay, on the east side of Kennebec River northeastward of Cox Head is almost entirely bare at low water. There is a quarry on the east side.

Perkins Island, on the east side of the main channel 3 miles above the entrance, is wooded on the north end and bare on the south end. Perkins Island lighthouse, on the west side, is a white tower. The fog signal is a bell.

Parker Head is a village on the west side of the river westward of a prominent headland of that name. The approach to the village is by a narrow channel, shoaling gradually to about 3 feet. The channel is sometimes marked by bush stakes and there are a number of old piling along its sides southeast of the dam.

Back River is a narrow, crooked, and unmarked thoroughfare connecting Kennebec River with Sasanoa River and Hockomock Bay. It is bare at low water near the north end, and little used. A fixed bridge crosses the thoroughfare near the middle; it is said to have a headroom of about 6 feet at high tide. **West Georgetown** is a village on the east side of Back River, just inside its southern entrance.

Seal Rock, on the west side of the channel at the upper end of Parker Flats, is bare at half tide. There is a buoy northeastward of it.

Phippsburg is a village on the west side of Kennebec River 5.5 miles above the entrance. A white church spire located at Phippsburg is prominent from the river.

Goat Island,* northeastward of Phippsburg, is wooded, and the smaller islands near it are bare and grassy.

Pettis Rocks, in the middle of the river 6.5 miles above the entrance, are awash in the highest part at extreme high water and marked at the south end by a spindle. **Ram Island,** just northward of Pettis Rocks, is low and bushy, and marked by **Ram Island Light.** A reef, bare at low water, extends nearly 200 yards northwestward of the island. Vessels passing westward of the island sometimes ground on this reef.

BATH

(CHART 230)

Winnegance is a village on **Winnegance Creek,** 0.5 mile from the main channel of Kennebec River. The channel is shoal and navigable only by small craft. Old piling extend across the creek northeast of the highway bridge and are partly covered at high water.

Bath is a city on the west bank of the Kennebec 12 miles above the entrance. It has considerable trade by water consisting mostly of coal and petroleum products. There are depths up to 27 feet at the wharves, the deepest being at a coal wharf. The maximum draft going to Bath is about 26 feet.

Two public float landings are provided—one at the foot of Broad Street and one at the old ferry slip. The city marshal acts as harbor master. In 1940 there was regular launch service with Boothbay.

Bridge.—The Kennebec River at Bath is crossed by a combination highway and railway bridge with a lift span with a clearance of 135 feet above mean high water when up, 10½ feet when closed, and a horizontal clearance of 200 feet. The signal for the bridge is three blasts of the whistle.

Anchorage off Bath.—Regulations have been prescribed for the anchorage of vessels off Bath. The areas for anchorage are shown on Chart 230. The principal requirement is that a 150-foot fairway be left channelward of the harbor lines and that a clear 200-foot fairway be left open between Woolwich and Bath.

Pilots.—A pilot for the river may be had at Bath and another at Popham Beach. Vessels desiring a pilot should make advance arrangements for the pilot to meet them at the entrance. Pilots may also be obtained by signaling the Coast Guard station at Popham.

*Lat. 43°49′.3, Long. 69°48′.3: Chart 814.

Pilotage is not compulsory, but strangers of deep draft should take a pilot.

Towboats.—There is a towboat stationed at Bath.

Repairs.—There is an important shipbuilding plant at Bath and facilities for making above water repairs. There are no marine railways or drydocks. There is a small boat railway at which small craft up to about 40 feet long can be hauled out.

Supplies.—Coal and gasoline can be had at Bath. There are no facilities for fuel oil. Diesel oil is delivered by tank wagon.

Woolwich is a village opposite Bath. The wharves are in poor condition. There is an oil wharf with 14 feet alongside, and a boat shop where boats are built.

KENNEBEC RIVER, BATH TO ABAGADASSET POINT

(CHARTS 314 AND 1204)

Two miles above Bath the channel of Kennebec River is divided by **Lines Island** into two channels, **East Branch** and **West Branch.** East Branch is used by local boats up to 7 feet draft at low water, but the channel is narrow and unmarked, leads between reefs on either side, and is not safe for strangers. West Branch is deep and clear and is generally used. A rock, bare at low water, 50 yards off the southwest end of Lines Island, should be avoided.

Chops is the narrow passage between two headlands 0.7 mile above Lines Island. Two steel towers supporting a power line across the channel are prominent. There is ample headroom under the wires.

Merrymeeting Bay is a shoal bay making westward from Kennebec River 17 miles above the entrance. It is the approach to the towns of Brunswick, on the Androscoggin River and Bowdoinham, on the **Cathance River,** 8 and 4 miles, respectively, above Kennebec River. These two towns and rivers are shown only on chart 1204. Boats of 6-foot draft can go to Brunswick and 12 feet to Bowdoinham at high water. The channels are narrow and unmarked, and local knowledge is necessary for their navigation. The rise and fall of tides varies from 3 to 5 feet at Brunswick, depending on the stage of the river. A fixed railroad bridge with headroom of 20 feet at high water crosses the river just below Brunswick.

KENNEBEC RIVER, ABAGADASSET POINT TO COURTHOUSE POINT

(CHART 288)

The channel west of Swan Island has been dredged to a depth of 12 feet and width of 125 feet, but it is not marked and the channel is not maintained. The principally used channel leads eastward of the island and is dredged to 13 feet.

Richmond is a town on the west bank of the river 23 miles above the entrance. There is a small float landing. Gas and water are available in town.

Bridge.—The river is crossed by a State highway bridge at a point just north of Swan Island. The bridge has a swing draw with openings 69 feet wide on the west side and 61 feet on the east side, and a vertical clearance when closed of 15.8 feet above mean high water. The signal for the bridge is three blasts of the whistle.

KENNEBEC RIVER, COURTHOUSE POINT TO AUGUSTA

(CHART 289)

Dresden Landing (Cedargrove) is a small settlement on the east side 2 miles above the north end of Swan Island.

South Gardiner is a village on the west side of the river 30 miles above the entrance. There is a large lumber mill, with a brick stack, on the river. The wharves are in ruin.

Gardiner is a town on the west side of Kennebec River 33½ miles above the entrance. The deepest draft coming here is 12 feet. The wharves are in good condition, have depths up to 17 feet. Coal and gasoline are shipped here in vessels drawing 11½ feet. The coal wharf is used by vessels desiring to secure gasoline, water, and supplies from town.

Randolph is a village on the east side, opposite Gardiner.

Bridge.—The river is crossed at Gardiner by a highway bridge with a swing draw having openings of 65.7 feet and a vertical clearance of 20.45 feet above mean high water. Use the eastern opening.

About 1.5 miles above Gardiner at **Browns Island,** the river is crossed by two transmission lines supported by high towers.

Hallowell is a town on the west side of the river 37 miles above the entrance. The coal wharf is in good condition. Tankers drawing 11 feet deliver oil to wharves at storage tanks on Oil Cloth Point, about 0.5 mile above Hallowell.

Augusta, at the head of navigation on the Kennebec River, 39 miles above the entrance, is the capital of the State of Maine. The principal wharves are on the western side just below the bridges. There is some traffic in coal by barges which are loaded to a maximum depth of about 12 feet.

Above the two fixed bridges, the river is obstructed by a dam.

Anchorages, Kennebec River.—The holding ground at the entrance below Fort Popham* is poor, and vessels should not anchor unless forced to do so. If obliged to anchor when inside Pond Island, it is advisable to come-to in the channel abreast the wharf (in ruins) just above the Coast Guard station, with a long scope of chain; if not blowing strong, a moderate-sized vessel may ride here if care is taken to keep the anchor clear. Strong tidal currents will be experienced here.

Anchorage can be had on the eastern side of the channel southward of Perkins Island South Ledge buoy in 6 to 8 fathoms. On the eastern edge of the channel at the anchorage the depths shoal abruptly from 5 fathoms to a few feet; drift ice coming down the river generally follows the western shore.

The best and most frequently used anchorage is on the western side of the channel off Parker Flats in 4 to 6 fathoms. Large vessels sometimes anchor on the eastern side in this vicinity. Above Parker Flats vessels anchor wherever they find good holding ground and suitable depth, keeping out of the strength of the current.

Freshets occur in March and April, also after heavy rains in the fall, but they are not dangerous to shipping unless accompanied by ice. A height of 9 feet above mean high water usually occurs sev-

*Lat. 43°45′.3, Long. 69°47′.0: Charts 314, 1204, 1106, 70.

eral times a year at Augusta, but the height diminishes rapidly southward.

Ice usually closes the river to navigation above Bath from December to April. Steamers are rarely delayed by ice below Bath.

The tidal currents are very strong at the entrance and in the narrow parts of the river, especially from Pond Island to Fort Popham, Bluff Head to Fiddler Reach, and Telegraph Point to the Chops; some local knowledge of their set is necessary to insure safety to vessels under sail. The direction of the currents at the entrance is influenced by strong winds, especially easterly gales. During spring tides and freshets the velocity of the ebb current is increased and requires special attention. No complete observations have been made to determine the set and velocity of the currents.

Tides.—The mean rise and fall of tides is about 8½ feet at the entrance, 6½ feet at Bath, 5 feet at Gardiner, and 4 feet at Augusta.

DIRECTIONS, KENNEBEC RIVER

This area is a region of rock and very broken ground and has not been examined by means of a wire drag. Strangers in vessels should therefore proceed with extreme caution, and should avoid crossing broken ground where the charted depth does not greatly exceed the draft.

There are two approaches to the entrance, the eastern between Whaleback and the shoals southwestward, and the western between Pond Island shoal gong buoy and the shoals eastward. The eastern channel has a least found depth of about 4½ fathoms on a small spot easily avoided, and the western a least found depth of 4 to 5 fathoms on the sailing lines. Both are used, but vessels of over 18 feet draft generally enter by the eastern channel. The entrance has strong tidal currents, and if the wind is opposed to the current an ugly chop sea is encountered which is at times dangerous for small craft.

The principal dangers in the river are marked, but the channel is narrow in places. The narrowest place below Bath is eastward of Pettis Rocks, where it is only 75 yards wide. The sections of the dredged channel between the south end of Swan Island and Augusta are not sufficiently well marked to enable strangers to keep in them.

1. From Eastward to Southward.—Having come from Boothbay Harbor or Fisherman Island Passage, pass about 200 yards south of the Cuckolds Bell Buoy, and steer **246°** true to pass midway between "The Black Rocks" and "The Sisters." When the beacon marking The Sisters is abeam, change course to **230°** true, heading to pass just northwestward of the lighted bell buoy marking White Ledge. When about 200 yards northward of this lighted buoy, change course to **300°** true, heading to pass about 100 yards south of the red buoy marking the end of the reef which extends southward from Stage Island. From this buoy proceed as directed in Section 2 of these Directions.

If coming from the eastward and outside the islands, pass about 0.2 mile south of the lighted whistle buoy which lies about 2 miles southward of Bantam Rock, and steer **295°** true to pass about 200 yards northward of White Ledge Lighted Bell Buoy. When northward of this bell buoy change course to **300°** true and proceed as in the preceding paragraph.

1A. If approaching from the westward or from the southward, proceed to a position about 700 yards westward of Seguin Island Light, from which position steer 9° true until Pond Island Light is abeam, then change course to 300° true to pass about 100 yards south of the bell buoy off Stage Island.

2. Entrance to Parker Flats.—From a position about 100 yards south of the red buoy off Stage Island, steer about 330° true to pass about 100 yards north of the black buoy marking the 18-foot spot northeastward of Pond Island. When at this position change course to about 300° true, heading to pass about 50 yards south of the red buoy off North Sugarloaf Island. When abeam of this buoy change course to 337° true and continue this course until the hill on Little Cox Head bears about 270° true. From this position steer about 0° true to pass about 200 yards westward of Shag Rock Beacon. Continue this course until the northeast corner of Cox Head is abeam and then steer about 340° true, heading to pass south and west of Perkins Island Ledge Buoy. Just before getting up to this buoy, change course to 6° true, heading to pass about 100 yards west of Perkins Island Ledge Buoy and midway between Perkins Island Light and the black buoy marking the 7-foot spot westward of it. Continue this course until within about 300 yards of the buoy marking the entrance to the channel into Back River and then change course to 321° true, heading to pass about 200 yards westward of Squirrel Point Light.* When abeam this light, change course to 8° true and continue this course until the south end of Lee Island is abeam, at which position change course to about 40° true, heading to pass about 100 yards eastward of Pettis Rock Beacon. When eastward of this beacon, change course to 15° true, and just before the beacon on Indian Point is abeam, change course to 353° true, heading to pass about 100 yards westward of Bluff Head. From off Bluff Head to the point forming the southern side of Morse Cove, midchannel courses should be steered. When up to this point follow Doubling Point Range, the course on which is 0° true. At this point a change may be made to the larger scale chart, No. 230. This range passes very close to and eastward of Lithgow Rock and Fiddler Ledge, both of which are buoyed. It will be better to steer a little eastward of the range rather than take any chance of the vessel getting to the westward of it. When midway between Fiddler Ledge and the southern range light the course may be set at about 275° true to pass about 200 yards southward of Doubling Point Light. Round Doubling Point and proceed to anchorage either south of or north of the bridge. Anchorages are restricted by rules of the U. S. Engineers Office in the locality of the bridge and cable area. A water pipe line crosses the river between the cable area and the bridge Anchor south of Sasanoa Point or northward of the cable area.

Bridge.—The bridge extending across the Kennebec River at Bath has a horizontal clarance in the center of 200 feet and a vertical clearance of 10.5 feet at mean high water when closed, and 135 feet when lifted, at mean high water. The signal for lifting the bridge is 3 blasts of the whistle.

*Lat. 43°49′.0, Long. 60°48′.1; Charts 314, 1204.

Bath to Augusta.—No directions are given for the river above Bath. Small craft, with the aid of Charts 314, 288, and 289, should have no trouble in reaching Augusta. Vessels with a draft approaching the depth of the channel should employ a pilot. The channel above Bath is reported to be subject to considerable changes annually, caused by freshets.

The main and deeper channel leads eastward of Swan Island. Just northward of Swan Island is a State highway bridge with a draw.

CASCO BAY, EASTERN PART

(CHART 315)

The part of Casco Bay between Cape Small on the east and Halfway Rock Lighthouse and Harpswell Neck on the west is full of small islands, ledges, and rocks, between which narrow but deep channels lead to the bays and sounds at the head. These arms afford good anchorages for small vessels, but are little used except by local fishing boats and pleasure craft. There are several small villages in this part of the bay, but no towns. Small steamers from Portland make landings as far east as Orr Island and Gurnet.

Spoonbowl Ledge, with 6 feet over it, lies 0.2 mile southward from Gooseberry Island Ledge red buoy. Vessels bound from Cape Small to Small Point Harbor should be careful to avoid this ledge.

East Brown Cow, 1.6 miles west-northwestward of Bald Head, is low and bare. **Mark Island,** 0.8 mile northward of East Brown Cow, is high and thickly wooded. **Mark Island Ledge,** 0.3 mile westward of Mark Island, is bare at low water.

White Bull, 1 mile westward of Mark Island, is high, round, and bare. A gong buoy is located about 0.4 mile south of it. **Bold Dick,** 0.7 mile west-southwestward of White Bull, is a bare rock which is covered by extreme high tides.

Small Point Harbor, on the east side of Casco Bay, 1.5 miles northward of Bald Head, is considerably used as an anchorage by local fishermen and yachts. The principal dangers are marked, but the holding ground is poor.

Small Point is a post village on the eastern side of Cape Small Harbor. There is telephone communication and a partly improved highway to Bath, the nearest city.

Cape Small Harbor affords a good anchorage for small craft. It may be entered by passing either northward or southward of **Goose Rock,** but either passage is shoal, there being about 4 feet at mean low water. It is reported that only local fishermen use the channel south of Goose Rock and that larger vessels and strangers use the channel north of Goose Rock.

Small Point Harbor can be entered either southward or northward of **Wood Island*** and **Little Wood Island** in the entrance. Wood Island is rocky and partly wooded, and Little Wood Island is thickly wooded. A rocky shoal with a depth of about 5 feet lies about 0.3 mile off the south point of Wood Island. It is marked by a buoy. **Gooseberry Island Ledge,** on the south side of the southern entrance, is awash at low water and marked by a red buoy.

*Lat. 43°44′.0, Long. 69°52′.2: Charts 314, 315, 1204.

Carrying Place Cove is a thoroughfare, navigable at high water only, on the north side of Small Point Harbor eastward of **Carryingplace Head.** It is reported that 5 feet of water can be carried through Carryingplace Cove at M. H. W.

West Point is a fishing village on the eastern side of the thoroughfare. There are wharves for small craft, and gasoline and some provisions may be obtained. There is a post office and highway connections to Bath.

The thoroughfare leading eastward of **Burnt Coat Island** is marked by buoys. Strangers in small craft should have no trouble in going through it.

Jamison Ledge, 0.5 mile westward of Burnt Coat Island, is 0.4 mile long, bare at low water, and marked at its south end by a spindle. **Flag Island Ledge,** between it and Flag Island, is bare at low water and unmarked. **Flag Island** is high and thickly wooded. **Long Ledge,** 0.4 mile northwestward of Flag Island, is grassy. **Goudy Ledge,** 0.6 mile northward of Flag Island, is bare at half tide and marked by a spindle. **Rogue Island,** in the west side at the entrance to New Meadows River, is low, with scattered trees. The bottom in this vicinity is very broken and has not been closely examined.

Sebasco Harbor is a good anchorage for small vessels eastward and southward of Harbor Island and 3.5 miles northward of Bald Head. **North Blacksnake** is a large bare ledge in the entrance; its northern end should be given a berth of over 100 yards, and the broken ground extending 300 yards eastward from the ledge should be avoided. The entrance is between North Blacksnake and the black buoy lying about 200 yards southward of Harbor Island. Anchorage can be selected 250 to 300 yards off the cove on the eastern side in 5 to 6 fathoms, also in mid-channel off the landing inside Harbor Island in 4 fathoms. The thoroughfare leading northward from Sebasco Harbor, inside Harbor Island, is bare at low water.

Sebasco Estates is a summer resort on the east side of Sebasco Harbor. There is a pier with a float landing having a depth of 8 feet at mean low water. No supplies are available.

The thoroughfare leading northward of **Harbor Island** and eastward of **Malaga Island** is marked by two buoys near the southern end, and is easily navigated by small craft. It is considerably used as an anchorage by small fishing craft. **Sebasco** is a village of fishermen on the east side. A ledge covered at high water extends 350 yards north-northeastward from Bear Island and is marked at its end by a red buoy.

New Meadows River.—This river, at the northeastern end of Casco Bay, is about 8.5 miles long from **Bear Island** at the entrance to a highway and a railway bridge (fixed) at the head of navigation. There is a deep water channel for the first 6 miles and a least depth of about 12 feet can be carried to within 0.5 mile of the head. The principal dangers are buoyed. Above that point the channel is crooked and unmarked and has a depth of about 7 or 8 feet to the head. Local knowledge is necessary to carry the best water above **Foster Point,** 8 miles from the head. The river is seldom used except by local fishing boats and small pleasure craft. Small craft can enter New Meadows River from westward 6 miles above its entrance through Simon Gurnet (described on page 224).

Cundy Harbor is a good anchorage for small vessels on the west side of New Meadows River, 1 mile above its mouth. The harbor is clear and has depths of 4 to 6 fathoms. A black buoy marks the south end of the bare ledges on the northeast side of the harbor. Cundy Harbor is a post village on its western side. There are three fish factories with wharves and float landings. Gasoline and supplies are available. A reef which bears at about half tide lies 75 yards south of the most northerly wharf.

Dingley Island, on the west side of the river about 1 mile above Cundy Harbor, has a large ice house with a wharf on its southeast side. Offshore fishing boats come here for the natural ice. There is about 16 feet of water alongside the wharf at mean low water.

The Basin, a cove on the east shore, about 1.3 miles above Cundy Harbor, has a narrow entrance and is used only by small local craft.

Winnegance Bay, on the east side of New Meadows River, 3 miles above the entrance, is a large bight with secure anchorage in 3 to 4 fathoms. The southeast side of the bay is foul. **Bushy** and **Hen Islets** are near the edge of the foul ground, and **Hen Island Ledge,** bare at its end at low water, extends 500 yards westward from the south islet. The north side of the bay is clear. There is considerable yachting activity in this bay and there is good anchorage in **Brighams Cove** at the head of the bay.

New Meadows (not shown on chart) is a small village at the fixed bridges crossing New Meadows River at the head.

Directions, New Meadows River (chart 315).—Entering from eastward, vessels should pass southward of Fuller Rock and Bill Wallace ground, and westward of Bald Head Ledge spindle. Passing about 0.4 mile westward of the spindle, steer **340°** true for the eastern edge of Flag Island for 2.4 miles. When the north end of Little Wood Island opens from the north end of Wood Island, steer **8°** true for the western edge of Harbor Island, and pass 250 yards eastward of Jamison Ledge spindle. Pass about 300 yards westward of North Blacksnake and, when the north end of the ledge is abeam, steer **335°** true for the entrance of New Meadows River, and pass 350 yards westward of Bear Island.

Entering from westward.—Vessels can enter from southwestward, passing close to the gong buoy 800 yards south of White Bull Island, then between White Bull and Mark Islands, then between Long Ledge and Flag Island, and then between Goudy Ledge spindle and the black buoy northward.

A more protected route, which is suitable for small craft, leads 100 yards east of the bell buoy southward of Jaquish Island, then on a **19°** true course for 2.9 miles, following the eastern side of Bailey Island and passing westward of the red buoys marking Middle Ground and Littlejohn Rock. When the latter buoy and the north end of Ram Island are on range bearing about 95° true, steer **61°** true for 1.3 miles to a position close westward of the red buoy southward of Oak Island (marked by a few pines), taking care to avoid the 7-foot rock which lies southwestward of the buoy. Then steer **91°** true for 1.2 miles, passing close southward of all three red buoys to a position 100 yards south of the third red buoy which marks the end of the reefs extending southward from Ballaststone Ledge. From this position the course is **77°** true to a position 100 yards south of North Jenny Ledge

buoy, and then 48° true to a position 100 yards southeast of Rogue Island buoy. From this position head up the river on a course of about 21° true.

From the entrance to New Meadows.—Keep in midchannel until up with the southern point at the entrance of Cundy Harbor, and then steer 29° true to a midchannel position southeastward of Sheep Island Ledge black buoy. Then steer 7° true for the end of Birch Point* until abreast the southern end of Long Island. If going to an anchorage, head into Winnegance Bay, taking care to keep the northern shore best aboard, distant 500 yards or less. Bound up the river, pass between Birch Point and Long Island, and follow a midchannel course northward for 1 mile. Pass midway between Bragdon Island and the spindle 0.2 mile eastward, and steer north-northwestward in midchannel for 1.3 miles to the south end of Middle Ground.

From this point the chart can be followed for another 1.5 miles, above which point a pilot should be used if you are without local knowledge of conditions.

Ridley Cove is eastward of Yarmouth Island and just westward of the entrance to New Meadows River. It has good anchorage in 5 to 7 fathoms, but is exposed to southerly and southwesterly winds. It should be avoided by strangers on account of numerous unmarked ledges and rocks which lie off the entrance. From its northern end a narrow, deep channel leads close northward of **George Island** into Hen Cove, and a narrow obstructed channel, suitable only for small craft in the absence of local knowledge, leads to Quohog Bay. **Hen Cove** has extensive shoals, but is a good anchorage for small craft.

Of the dangers off the entrance to Ridley Cove, **Jenny Island** is 10 feet high and grassy, **North Jenny Ledge** is bare at lowest tides and marked by a buoy at the south end. **Jenny Ledge** is bare 3 feet at low water. **Ballaststone Ledge** is 5 feet high and grassy, and there are numerous bare spots on **Yarmouth Ledges.**

Quohog Bay is a narrow arm extending about 4 miles in a northeasterly direction; it has good anchorage for small vessels. Numerous unmarked ledges and many small islands lie off its entrance, which is between Yarmouth Island and ledges on the east and Long Point on the west. The buoyed channel from New Meadows River to Orr and Bailey Islands leads across the entrance. There is also a good channel between **Saddleback Ledge** (bare rocks), **Ragged Island** (high and scantily wooded on top), **Blacksnake Ledge** (bare at low water), **Yellow Rock** and **Twobush Ledge** (grassy) on the east, and **Round Rock** (covered at high water), **Middle Ground Rock,** and **Cedar Ledges** (bare) on the west. There are a number of unmarked ledges and sunken rocks in Quohog Bay. **South Ledge** (covered at high water) and **North Ledge** (covered at half tide) extend 0.4 mile southwestward and northeastward, respectively, from Pole Island.

The Gurnet (Gun Pt. Cove) is a narrow unimportant arm making northward on the east side of Orr Island. There are no wharves. The point on the east side is wooded and has a house on the end. There is a passage, with a reported depth of 6 feet, from the north end of the Gurnet into Harpswell Sound. This passage is crossed by a fixed highway bridge with a horizontal clearance of 45 feet and a vertical clearance of 15 feet at mean high water.

*Lat. 43°49′.6, Long. 69°52′.1 : Charts 315, 1204.

Lowell Cove, in the south end of Orr Island, is used as an anchorage by local fishermen. There are several wharves and a post office at the head. Gasoline, water, and some supplies are available. **Water Cove,** in the north end of Bailey Island, is foul near the shores and is little used.

Ram and **Pond Islands,** southeastward of Lowell Cove, are round and grassy. **Pond Island Ledges,** extending 0.6 mile southwestward of Pond Island, have many spots bare at low water.

Halfway Rock, about in the middle of Casco Bay (southern part) is a low, rocky islet, marked by a lighthouse. Ledges extend 0.2 mile southwestward and northward from it. **Webster Rock** at the end of the ledge extending northward is marked by a buoy.

Halfway Rock Lighthouse is a white granite tower attached to a dwelling. The light is 76 feet above the water, and visible 14 miles. The fog signal is an air diaphragm horn.

Drunkers Ledges, 2 miles north-northeastward of Halfway Rock, consists of two ledges 0.3 mile apart. The southeast one has 4 feet over it and is marked at its southwest end by a red buoy; the northwest one is bare at half tide, and is marked near its western end by a spindle. Between Drunkers Ledges and Jaquish Island there is broken ground with depths of 16 to 24 feet and in heavy weather the sea breaks on the shoaler places.

Whale Rock, a bare ledge nearly awash at high water, lies 0.4 mile southwestward of Little Mark Island.

Mericoneag and **Harpswell Sounds** are of little commercial importance, but they are the approach to a good and convenient anchorage, vessels of the deepest draft can enter and find anchorage in 3½ to 10 fathoms, good holding ground.

The entrance lies 3.5 miles north-northeastward of Halfway Rock Lighthouse,* and is marked on its western side by a lighted stone monument on Little Mark Island. The sounds extend in a northeasterly direction 10 miles, and for the first 4 miles the prominent dangers are marked. Above this strangers should not go without a pilot, as the channel is narrow and flats make out some distance from the shore in several places. Directions to the entrance of Mericoneag Sound from eastward and westward are given on page 54.

The Casco Bay steamer (70 tons in 1940) calls at Mackerel Cove, Orr Island (west side of Wills Gut) and at **Gurnet** on Doughty Cove. The channel from Harpswell Sound, northeast to New Meadows River, is also used by yachts and fishermen. A fixed bridge at Gurnet limits the size of the craft using this passage. Approximate clearances at this bridge are, horizontal 36 feet and vertical 8 feet at mean high water. The wharf at Gurnet has about 9 feet of water alongside at mean low water. Gasoline and a limited quantity of stores are available.

Jaquish Island, on the east side of the entrance to Mericoneag Sound, and **Turnip Island,** westward of it, are low and grassy. There is reported to be a controlling depth of 10 feet at mean low water in **Jaquish Gut.**

Charity Ledge, eastward of Jaquish Island, has a charted depth of 11 feet and is marked by a buoy.

---

*Lat. 43°39′.4, Long. 70°02′.1: Charts 315, 1204, 1106, 70.

Little Mark Island, on the west side of Mericoneag Sound at the entrance, is grassy and marked by a pyramidal stone monument from which a light is shown. **Great Mark Island** is bare and grassy.

Mackerel Cove, in the southwestern shore of **Bailey Island,** the eastern point at the entrance to Mericoneag Sound, is a good and frequently used anchorage for small craft, with 5 to 8 fathoms. It is open southwestward, but a heavy sea never enters. The post village of Bailey Island is on the cove; it is connected with Portland by steamer. There are no dangers; the water shoals gradually toward its head. The steamer wharf with about 14 feet of water alongside and the post office are on the east side of the cove. Gasoline and limited supplies are available. Ice seldom obstructs the cove.

The southwestern point of Bailey Island is marked by a house and a windmill.

Orr Island is a village and summer resort on the southwest end of the island of that name. It is connected with Portland by steamer. The steamer wharf has a depth of 10 feet and the fish wharves less. There is a shoal a little southwestward of the steamer wharf which is marked by a private spindle. Gasoline and provisions are obtainable and pilots for any part of Casco Bay. The approach to the wharves is northward of a red buoy and spindle marking the end of a ledge bare at low water, extending from Bailey Island.

About midway between the southern end of Orr Island and the low sand spit westward of it there is a rocky ledge, part of which bares at the lower tides and which extends about 100 yards in a north and south direction. Special care should be taken to avoid this reef.

Wills Strait, also known as Wills Gut, is a thoroughfare between the south end of Orr Island and the north end of Bailey Island. It is used by local fishing boats, but the channel is very narrow and difficult. Strangers should use the channel near low tide when the flats bordering the channel are bare.

The strait is crossed by a fixed stone bridge. The span has a horizontal clearance of 4 feet and a vertical clearance of 10 feet at mean high water. The controlling depth through the strait is reported to be 6 feet at mean low water.

Ram Island, on the west side of Mericoneag Sound northward of the thoroughfare leading into Potts Harbor has one house and is bare and grassy. Ledges, bare and submerged, extend 500 yards southward of the island to a red buoy. There is a channel northwestward of the island having a depth of at least 8 feet at low water. It leads between shoals on each side, and should not be used by strangers.

A submerged cable crosses Mericoneag Sound at the north end of Orr Island. Both ends of the cable are marked by signs.

Harpswell Harbor, on the west side of Harpswell Sound, over 3 miles above Little Mark Island, is a good anchorage in from 3 to 6 fathoms, shoaling gradually to the head. There are private float landings for small craft on the west side, and a small settlement on the main road back of the landing.

There is a thoroughfare from the north end of Harpswell Sound through **Ewin Narrows, Prince Gurnet,** and **Simon Gurnet** to **New Meadows River.** It is used by local boats, but the channel is

narrow and has many dangers, the tidal currents are strong, and the thoroughfare should not be used by strangers. It is marked by bush stakes. Simon Gurnet is crossed by a fixed bridge with an opening 36 feet wide, and a head room of 8 feet at high water. The opening has a depth of about 7 feet at low water and is said to be the shoalest place on the route. The current through Simon Gurnet is very strong at strength (estimated at 7 to 8 knots) and boats go through only at slack water. The current runs eastward on the ebb. Low-water slack occurs a little before low water at Portland.

At the strength of the current there is a difference of elevation of probably 3 feet in the level of the water on either side of the bridge. The flood currents meet in the reach between Prince and Simon Gurnet.

CASCO BAY, WESTERN PART

(CHART 315)

The part of Casco Bay westward of Harpswell Neck has numerous sounds, bays, and rivers, separated by islands lying in a northeasterly and southwesterly direction. Portland Harbor, at the western end of the bay, is the principal port of Maine. There are many summer resorts and landings on the islands and shores of the bay, and small steamers from Portland run as far east as Orr Island and Gurnet, calling at the landings between. There are broad channels into the bay through Broad, Luckse, and Hussey Sounds, and secure anchorage for vessels of any draft can be found. The bay is frequented by many yachts and small pleasure craft and some fishing boats. The steamers running to the landings are of 6 to 10 foot draft, and most of the wharves on the islands are built for vessels of about this draft.

Potts Harbor is a large irregular bight in the southern end of Harpswell Neck and has **Haskell** and **Upper Flag Islands** and the ledges between them on its southern side. It is a good anchorage, with depths of 4 to 5½ fathoms. **South Harpswell** is a village with prominent buildings, and a steamer landing with 16 feet at mean low water and another wharf at a general store on its eastern shore. Gasoline and some supplies are available. There is a post office and a highway to Brunswick. There are two entrances to the harbor; the eastern one, from Mericoneag Sound, is buoyed, but it is narrow and crooked, with strong tidal currents, and is suitable only for small craft, or small vessels with local knowledge; the western entrance, between Upper Flag Island and Horse Island, is straight and about 225 yards wide at its narrowest part, between Horse Island and the edge of the shoal between Upper Flag Island and **Thrumcap,** a grass-covered rock. Upper Flag, **Little Birch,** and **Horse Islands** are grass covered.

Outer Green Island, 4 miles westward of Halfway Rock Lighthouse, is grassy. **Junk of Pork,** a high rock with surrounding bare ledges, lies 250 yards southward of it. **Johnson Rock,** lying 0.2 mile northeastward of Outer Green Island, with foul ground between, has 7 feet over it and is marked on its north side by a black buoy. **Green Island Reef** is about 0.2 mile long and bare at low water, and lies 0.4 mile southwestward of **Inner Green Island** (low and grassy), with foul ground between; it is marked on its southwest

side by a red buoy. **Green Island Passage,** leading between the red and black buoys just described, has a width of 500 yards between the buoys and is used by small vessels.

Jewell Island and **Crotch (Cliff) Island** are partly wooded, and there are numerous houses and landings on the northwest side of the latter. The steamer landing on the west side of Crotch Island has about 22 feet alongside. There are a float landing, post office, and general store which handles gasoline. At a fish wharf on the south central side of the island is a float landing with 6 feet of water. Gasoline is available. **Crotch Island Ledge,** with 3 feet over it in places, extends 0.4 mile southwestward from the southern end of Crotch Island. Its end, with 16 feet, is marked by a buoy. There is no safe passage for vessels between the buoy and the island. Jewell Island has a cove with good anchorage for small craft on the northeast end. There is a landing for small craft at the head of the cove. There is a prominent stone tower on the south end of Jewell Island, and two old wharves and a house on the west side.

Broken Cove is a group of bare rocks and small islets connected by ledges, extending 0.6 mile northeastward from **West Brown Cow,** a grass-covered islet. The beacon on Stockman Island in range with or open eastward of the northeast point of Ministerial Island leads eastward of the ledges.

Eagle Island is high, wooded, and prominent, and has a house and flagstaff on the northeast side. A ledge, bare at one quarter ebb, extends 300 yards westward from it. **Eagle Island Ledge,** awash at high water, lies 300 yards southeastward of the southern end of Eagle Island; ledges with 8 to 10 feet over them extend 300 yards southeastward and 500 yards eastward from the rock that shows bare. Partly bare ledges extend 350 yards northeastward from Eagle Island.

Bates and **Ministerial Islands** are grassy. They are surrounded by extensive ledges. **Stave Island** is sparsely wooded. **Stave Island Ledge** is bare at low water. It is marked by a buoy at its northeast end.

Hope Island,* in Luckse Sound, is wooded and has a prominent house and flagstaff on the southwest end. **Rogues** and **Sand Islands,** northeastward of Hope Island, are low and grassy. The channel between them is marked by two buoys. **Crow Island** has one house in the center and is low and grassy. **Little Bangs** and **Stockman Islands** are bare and grassy, and Stockman Island has a tripod beacon at the southwest end. **Goose Nest** has a grassy islet about 5 feet high, and **Goose Nest Ledge** is bare at a little below high water.

Little Whaleboat Island is wooded. **Whaleboat Island** is wooded on the north end and on the highest part. It is grassy elsewhere.

Middle Bay makes northeastward on the west side of Harpswell Neck. **Harpswell Center** is a post village on the main road. The bay has good anchorage, but is little used. **Lower Goose** and **Upper Goose Islands,** on the west side, are wooded and have no prominent marks.

---

*Lat. 43°42′.4, Long. 70°02′.0: Charts 315, 1204.

Mere Point Bay, shallow and obstructed by flats lies between Birch and White Islands on the east, and **Mere Point Neck** on the west.

On the south side of **Mere Point** are located the pier and float landing of the Mere Point Yacht Club, a post office, general store, and public float landing. The landings have depths of 4 to 5 feet alongside.

Maquoit Bay makes northeastward on the westward side of Mere Point Neck, the entrance lying north of the Goose Islands. It is obstructed by flats, with 1 to 4 feet over them, through which a channel with 19 to 24 feet leads for a distance of 2 miles from its entrance.

The chain of islands between Sister and Bustins Islands are wooded, and there are flats between and northward of them. **Sister Island Ledge,** northward of **Sister Island,** is partly bare at high water. **Bustins Island** has numerous cottages, and there is a steamer landing with about 11 feet at mean low water on its southwestern end. There is a public landing on the southeast side of the island with a post office and store nearby. **Little Bustins Island** is marked by a house and a clump of trees in the center.

Bibber Rocks, southward of Bustins Island, are bare about 4 feet at M. H. W. **French Island** is wooded, and there is a wooded islet on its north side.

In 1940 from about June 25 to September 10, a steamer from Portland stopped at **Cousins, Littlejohn,** and **Bustins Islands, Mere Point** and **Birch Island,** carrying mail passengers and freight.

Freeport River, also known as **Harraseeket River,** is west of Maquoit Bay; the approach lies between Bustins Island on the east and **Great Moshier Island** (wooded) on the west. The entrance of the river is between **Moore Point** on the east and **Stockbridge Point** on the west, and is narrow, with a least depth of 20 feet. From the entrance the channel leads between flats, mostly dry at low water, in a northerly direction, to Weston Point, thence a shoal unmarked channel leads to **Porter Landing,** which is locally caller **Porters Landing** and to which small craft of 6-foot draft are reported to go at high water.

South Freeport, on the west side 0.7 mile above the entrance has several wharves and float landings. Gasoline may be had at the wharf and supplies are available in town. There are several moorings off the wharves. In 1940 there was no steamer service but a small passenger ferry was operated to Bustins Island during the summer season.

A large stone tower located at South Freeport, a standpipe at Yarmouth, and a tank at Falmouth show up prominently from this section of Casco Bay.

Littlejohn, and **Cousins Islands,** northward of Great Chebeag Island, are connected by a trestle and have numerous cottages. There are steamer landings on the southeast side of both islands. Both landings have about 11 feet alongside at low water. There is a post office and store on both islands. On Littlejohn Island gasoline and supplies may be obtained at the wharf.

Royal River is a narrow, crooked stream westward of Freeport River; its approach is westward of Cousins Island, in the northwestern part of Casco Bay. The river, with a controlling depth of about 4 feet at low water, leads to the town of **Yarmouth.** The channel is very crooked, leads between flats bare at low water, and is usually marked by bush stakes. The best time for strangers to enter is on a rising tide. At Yarmouth is a small boat yard but no machine shop. Limited supplies are available. **Cousins River,** a narrow shallow stream, empties into the mouth of Royal River from northward.

At **Drinkwater Point** is a landing at which launch service to Cousins Island may be obtained during the season.

Great Chebeag Island is the largest island in Casco Bay. There are two steamer landings on the east side and a stone wharf on the west side of the north end. Chebeag Island, the post office, is located in the north central part of the island.

Chandler Cove is formed by a bight in the southwestern end of Great Chebeag Island and by Little Chebeag Island; it is a good anchorage with 5 to 10 fathoms, but is little used.

Little Chebeag Island has a patch of woods in its center and a few houses. The steamer landing is on the east side and no supplies were available in 1940.

Long Island, southwestward of Great Chebeag Island, has several landings on its northwest side. **Mariner** and Long Island are post offices near its northern and western ends, respectively. The islands southward are described with Portland Harbor.

Broad Cove is a shallow cove in the northwestern part of Casco Bay. There is good anchorage in the middle of the cove, southwest of Prince Point,* in 15 to 17 feet. It is open southward and eastward.

At **York Landing** about 2½ miles north of Presumpscot River is a landing with 7 feet alongside at which gasoline and water may be obtained. There is a repair yard here with no machine shop but with marine railways on which small craft up to 50 feet long with a draft up to 6 feet can be hauled out.

Sturdivant Island is grassy and bush covered. **Sturdivant Island Ledge** is bare in several places at low water. **Basket Island** is wooded. **Upper Basket Ledge** is bare at low water, **Lower Basket Ledge** is bare at half tide, and both are marked by spindles. **Clapboard Island** is wooded and has a private landing on the west side. It is surrounded by ledges, bare and submerged. Presumpscot River and Back Cove are described with Portland Harbor.

Caution, Rifle Range.—A tall can buoy with black and white horizontal bands and surmounted by a large red flag is maintained 775 yards 263½° true from Basket Island Lower Ledge Beacon during rifle practice at Fort McKinley to mark limit of rifle range. Mariners are warned to avoid passing between this buoy and Great Diamond Island when the buoy is in place.

In approaching Casco Bay or Portland from the south or west Portland Lightship and Cape Elizabeth Light are the most important aids to navigation.

---

*Lat. 43°45′.7, Long. 70°10′.5: Charts 315, 1204.

Portland Lightship, 5.3 miles southeastward of Cape Elizabeth Lighthouse, has a red hull with **"PORTLAND"** on each side, and two masts with circular gratings at the mastheads. The light, shown from the foremast, is 70 feet above the water, and visible 11 miles. The fog signal is an air diaphragm horn.

A radiobeacon is operated at the lightship. The fog signal is synchronized with the radio beacon for distance finding.

Cape Elizabeth Lighthouse* is a white conical tower with covered way to dwelling. The light is 129 feet above the water, and visible 17 miles. The fog signal is an air diaphone. About 308 yards to the southwest there stands a similar tower which is no longer lighted. There is a Coast Guard station and numerous houses near the lighthouse.

A radio direction finder station is located on Cape Elizabeth. Storm signals are flown from a tower at the Coast Guard Station.

Anchorages.—In the eastern part of Casco Bay the best anchorage for strangers is in New Meadows River. Local fishermen and yachtsmen frequently use Sebasco and Cundy Harbors. Potts Harbor, Harpswell Harbor, and Mackerel Cove are good anchorages in the middle of the bay for small vessels and yachts. Mericoneag Sound and Harpswell Sound and the whole of Casco Bay westward of Harpswell Neck afford good anchorage for large vessels, except in heavy northeast gales. Vessels can enter through Broad Sound, Luckse Sound, or Hussey Sound, and select an anchorage under the lee of some of the many islands, a suitable depth and good holding ground being found in most places. Portland Harbor is a secure anchorage on the western side of the bay, and is generally used by vessels.

Ice.—Considerable ice forms at the heads of the numerous arms extending northward in Casco Bay, but the principal anchorages are available at any season of the year.

Currents.—The tidal currents are not strong, but on the flood there is a perceptible set northward and on the ebb southward in the bay and across the entrance.

Tides.—The mean rise and fall of tides in the bay is about 9 feet.

DIRECTIONS, CASCO BAY

This region is an area of rocks and ledges, and, except in the approaches to Portland Harbor, Hussey Sound and the bay bounded on the east by Little Chebeag Island, on the north by Lower Basket Ledge, and on the west by Clapboard Island, has not been examined by means of a wire drag. Vessels should therefore proceed with caution when crossing broken ground where the charted depth does not greatly exceed the draft.

Directions for the usual traveled route from Portland eastward are given on page 53. Several other routes are possible and sometimes used. Most of the dangers are marked and the waters are well charted, so that with the aid of chart 315 no difficulty should be experienced in navigating Casco Bay in clear weather.

*Lat. 43°33′.0, Long. 70°12′.1: Charts 315, 1204, 1106, 70.

540825 O - 43 - 16

PORTLAND HARBOR

(CHART 325)

Portland Harbor, at the western end of Casco Bay, is the most important harbor on the coast of Maine. It has a large coastwise and some foreign trade and is open for commerce throughout the year.

Channels.—The main entrance is from southward, westward of Cushing Island, and has a depth of 6 fathoms or more from the entrance well into the harbor. There are several ledges off the entrance, most of them marked, which makes the approach to the harbor dangerous in thick weather for deep-draft vessels. There is an unmarked 30-foot rock 0.4 mile southeastward of Portland Head. In clear weather vessels can easily avoid the rocks and ledges off and in the entrance.

In addition to the main entrance from southward there are several entrances from eastward between the islands, but these entrances are seldom used except by local vessels familiar with them and by small craft.

The broken ground in the approach to Portland Harbor southeastward and eastward of Cape Elizabeth has been examined by means of a wire drag, and the dangers are shown on the charts. A detailed description of them is not necessary.

The approach to Portland Harbor from southward is marked by Portland Lightship and Cape Elizabeth Lighthouse, and from eastward by Halfway Rock Lighthouse (described on p. 223). The entrance to the harbor is marked by Portland Head Lighthouse on the western side and Ram Island Ledge Lighthouse on the eastern side.

The inner harbor has been dredged to a depth of about 30 feet to the third bridge, 2½ miles above Portland Breakwater Lighthouse, but subsequent shoaling has reduced the available depths somewhat. A large area northwestward of Fort Gorges has been dredged to a depth of 30 feet to form an anchorage. There is (1940) a least depth of about 33 feet leading to the State pier.

Portland Head Lighthouse* is a white conical tower connected to a dwelling. The light is 101 feet above the water, and visible 16 miles. The fog signal is a horn.

Ram Island Ledge Lighthouse is a light gray conical tower on Ram Island Reef (bare at low water). The light is 77 feet above the water, and visible 14 miles. The fog signal is a bell.

Cushing Island, on the east side just inside the entrance to Portland Harbor, is mostly grass covered. **White Head** is a high bluff at its northeastern end. Steamers from Portland land at a wharf on the west side, and there is a U. S. Army wharf in a cove on the northeast side.

Whitehead Passage, between Cushing and Peak Islands, has a depth of about 4 fathoms and is sometimes used by vessels up to about 14 feet draft, entering from eastward. The principal dangers are marked, but the channel is narrow, and strangers in vessels are advised to use the main channel.

*Lat. 43°37′.4, Long. 70°12′.5; Charts 315, 325, 1204, 1106, 70.

House Island, on the east side of the main channel northward of Cushing Island, is the site of the abandoned quarantine station; an old fort on the southwest end is visible. There is a light on each end of the island.

Peak Island is the large island northeastward of Cushing Island. It has communications with Portland by automobile ferry, and steamers. There are several wharves on the west side. **Peak Island** at **Forest City Landing** is a post office on the south end and **Trefethen** is a post office on the north end.

Great and Little Diamond Islands, northward of Peak Island, are connected by a sand bar which covers at high water. Little Diamond Island has many houses visible, and Great Diamond Island has a very prominent elevated water tank. Steamers from Portland make landings at wharves at the south end of Little Diamond Island and the south end of Great Diamond Island Wharves of the U. S. Army are located in **Diamond Cove.**

The channel between Peak Island and Little and Great Diamond Islands has a depth of 15 feet and is used by many small vessels and motor boats bound to points in Casco Bay. The principal dangers are marked.

Diamond Island Roads, between Peak House, and Little Diamond Islands, is a good anchorage for vessels.

Spring Point Ledge Lighthouse is a white conical tower on a black pier on the north end of a ledge, bare in places at low water.

Fort Gorges, 0.65 mile north-northeastward of Spring Point Ledge Lighthouse, is a prominent gray stone structure on the southeast end of **Diamond Island Ledge.** The ledge has a large area bare at low water and a few spots bare at high water. It is marked by a light on the west end and a buoy placed just south of the ledge.

The wreck of a six-masted schooner lies visible at low water about 700 yards 18° true from Fort Gorges.

Portland is on the north side of the inner harbor; it is on several railroads and is a terminus of the Canadian National Railroad. It also has steamer communication during the summer months with New York, and local service to Casco Bay points. Depths of 35 feet are maintained at the State pier and the Canadian National Railroad wharves near the eastern end of the water front. The other wharves have less depth. There are a number of public float landings.

South Portland is a city on the south side of the inner harbor opposite Portland. It has a shipyard with a marine railway. The U. S. Coast Guard has a buoy depot about 0.5 mile northeast of the Portland Bridge. A channel dredged to 16 feet leads to the two mole-type piers.

Fore River is the name given to the part of Portland Inner Harbor above the first bridge. A channel 30 feet deep and 300 feet wide has been dredged in the river to the Portland Terminal bridge, 1.3 miles above the first bridge. There are several wharves on this channel, and the river is used by many vessels. The flats on each side are bare at low water, and this is the best time for strangers to enter. Portland Terminal Bridge is fixed and has a vertical clearance of 5 feet at mean high water. The river above the bridge is used only by small boats with local knowledge.

Bridges—Portland Harbor

Bridge	Width of opening	Headroom at high water when closed
OVER FORE RIVER	*Feet*	*Feet*
1. Portland Bridge, highway	100	31
2. Vaughan Bridge	60	5½
3. Portland Terminal Bridge (Fixed)	40	5
OVER BACK COVE		
4. Canadian National Railroad bridge	88	5½
5. Tukey Bridge, highway	67	5
OVER PRESUMPSCOT RIVER		
6. Martin Point Bridge	43	----------

1. and 2. Signal for opening is 3 blasts. If bridge can be opened at once, the bridge tender answers with 3 blasts. In case of delay he gives 2 blasts. A gauge on each side of the Portland Bridge indicates the headroom clearance under the closed span at all stages of the tide.

4. Use 4 blasts of whistle or fog horn.

5. On week days, October 1 to April 1, draw will be opened from 7:00 a.m. to 5:00 p.m.: during the remainder of the year the draw will be opened from 6:00 a.m. to 6:00 p.m. on week days. At other hours special arrangements can be made with draw tender for opening. Signal is 5 blasts of whistle for steam vessels or towboats and 5 blasts from fog horn for sailing vessels. Speed must be reduced to that necessary for good steerageway.

6. Same signals and speed as for 5.: draw will be opened on week days, from April 1 to November 30, between the hours of 7:00 a.m. and 6:00 p.m.: between December 1 and March 31, and on holidays and Sundays throughout the year, the draw shall be opened only upon timely previous arrangement with the draw tender.

Back Cove is on the north side of Portland. A channel with a least depth of about 20 feet leads to the Canadian National Railroad bridge and 14 feet to the Tukey Bridge. Above the Tukey Bridge a channel dredged to 12 feet leads to the southern end of the cove. Above the bridges the channel is unmarked and leads between flats bare at low water.

Presumpscot River, northward of the entrance to Back Cove, has a narrow, crooked channel with a depth of 8 feet to Martin Point at the entrance and 6 feet for 1 mile above. The channel is unmarked and leads between flats bare at low water. There is little commerce by water. Martin Point,* on the west side at the entrance is marked by a prominent building (marine hospital) flagstaff and stack.

The Port of Portland is under the supervision of the Harbor Commission of the Port of Portland; but an independent body known as the Directors of the Port of Portland Authority, State of Maine, is in charge of the State's affairs, particularly in connection with the State pier.

Pilots.—Pilotage is compulsory for all vessels in foreign trade drawing 9 feet of water or upward except coasting or fishing vessels. The pilot boat meets incoming vessels at the Portland Lightship.

*Lat. 43°41′.3, Long. 70°14′.7: Charts 315, 325, 1204.

Vessels desiring a pilot should telegraph ahead to "Portland Pilots," Portland, Maine, stating time of arrival at the lightship. The customary signals are used when off the lightship.

Towboats are available and are used by most large vessels when docking either above or below the bridges and when passing through the bridges. They meet the vessels at the anchorage as required. There are several small wrecking pumps on the tugs, but in 1940 there was no regular salvage and wrecking company in Portland.

Quarantine.—Quarantine is enforced in accordance with the regulations of the United States Public Health Service. Quarantine anchorage is known as Anchorage B and lies between House Island and Diamond Island Ledge. The old quarantine station on House Island has been abandoned and the present station is at the U. S. Marine Hospital, located on Martin Point, about 2.5 miles northward of House Island. In 1940 the quarantine officials boarded vessels at the dock.

Customs and Immigration.—Portland is a port of entry and marine documents are issued. In 1940 customs and immigration officers boarded vessels at the dock.

Out-patient office of the U. S. Public Health Service is at the Marine Hospital.

U. S. Engineer Office is located in Old Post Office Building.

Local Inspector's Office is maintained at Federal Building.

Weather Bureau Office is located in First National Bank Building. Storm warning displays are made from same building.

A **Coast and Geodetic Survey Sales Agency** is located near the waterfront.

The **Portland Yacht Club** maintains a clubhouse and a float landing on Merchants Wharf.

Anchorages.—Secure anchorage for any vessel is available at all times in this harbor. The anchorage areas have been defined and regulations have been promulgated to control their use by different classes of vessels under various conditions. **The Captain of the Port,** a U. S. Coast Guard officer, is charged with the enforcement of these regulations, including the regulations controlling the use of the explosives' anchorage. See page 328. These **anchorage areas,** together with brief notes defining the type of vessels which may use each, are shown on **Coast and Geodetic Survey Chart No. 325.** For detailed regulations see the Captain of the Port.

Supplies.—Coal can be had in any quantity either from alongside piers or by lighters. Fuel oil is available, but in 1940 there was no barge service. Water may be had from water boats or from the wharves. The city water is considered suitable both for drinking and boiler purposes. Gasoline, provisions, and ship-chandlers' stores are to be had in the city.

Repairs.—There are several marine railways and machine shops available for making repairs to small vessels. The largest marine railway is of 800 tons capacity. The cradle is 135 feet in length and will take vessels up to 15-foot draft.

Weather.—The prevailing winds are southwesterly during the summer and northerly during the winter. At all seasons the heaviest gales are usually from the northeastward or eastward.

Fogs.—Fogs occur most frequently during June, July, and August. At the head of the bays and within rivers it is often comparatively clear when it is thick outside. Winds from the east to the southwest by way of south bring fog; westerly and northerly winds clear it away. During August and September it is sometimes foggy or smoky in the harbor in early morning when it is clear outside.

For hours of operation of fog signals during different months at Portland Lightship and Portland Head see table page 334.

Ice seldom obstructs navigation; when it does it is only for a limited time. The towboats keep a clear channel to the wharves.

Tides.—The mean rise and fall of tides is about 9 feet.

DIRECTIONS, PORTLAND HARBOR

Portland Harbor and approach have been examined by means of a wire drag from Fort Gorges, at the entrance to the inner harbor, out to a depth of about 18 fathoms off the entrance, and a little farther in places. This dragged area covers all of the broken ground eastward and northeastward of Cape Elizabeth, except those dangers within a distance of 0.5 to 1 mile of the shore.

The broken ground off the entrance to Portland Harbor renders the entrance of vessels dangerous in thick weather unless sure of the position. The following courses, if made good, are available for vessels up to 30-foot draft, but lead close to dangers; strangers in deep-draft vessels are advised to take a pilot.

From eastward, chart 315.—Directions good for vessels up to 12-foot draft entering Portland Harbor from eastward inside the islands in Casco Bay are given on page 53. Local vessels up to 12-foot draft sometimes enter through Whitehead Passage. Deep-draft vessels usually make Bantam Rock lighted whistling buoy and Seguin Island whistling buoy, and pass 200 yards off Halfway Rock whistling buoy. From this position 200 yards north or south of the buoy steer **259°** or **261°** true for 6.2 miles to a position 200 yards southward of Witch Rock lighted bell buoy; this course leads 0.5 mile northward of an unmarked ledge with a least depth of 34 feet. Then steer **291°** true for 1.6 miles to a position 200 yards southwestward of the bell buoy off the southwest end of Cushing Island.

From southward, chart 315.—Vessels entering Portland Harbor from southward usually make Portland Lightship. Vessels of not too great draft may round the lightship and bring it astern on a bearing of **141°** true. Then steer **321°** true with the lightship astern for nearly 8 miles, until about 200 yards southwest of the lighted buoy off the south end of Cushing Island. This course leads over a 36-foot spot between Willard Rock and Pine Tree Ledge, where there may be considerable swell, and also passes over the edge of a 30-foot spot southeast of Portland Head.

Deeper draft vessels may carry somewhat better water by clearing Portland Lightship at about 0.5 mile, then heading halfway between the lighted buoys making West Cod Ledge Rock and Corwin Rock, on a course between **310°** true and **328°** true. When halfway between these lighted buoys change course to **343°** true, heading for the east tangent to Peak Island. Continue this course for just over 3 miles, when you will be within about 1 mile of the lighted buoy marking Witch Rock, then change course to **296°** true and pass 400 yards south-

westward of the buoy and continue course for about 1.6 miles beyond that buoy to a position 200 yards southwest of the lighted buoy off the south end of Cushing Island.

Cushing Island to Portland, Chart 325.—Pass 200 yards southwestward of the lighted buoy at the southwest end of Cushing Island and steer 337° true, passing 400 to 500 yards westward of House Island and at least 200 yards eastward of Spring Point Ledge Lighthouse. If going to the anchorage northwestward of Fort Gorges, continue about the same course, pass 250 yards westward of the red buoy southwestward of Fort Gorges (stone structure), and at least 200 yards westward of Diamond Island Ledge Light, and anchor northwestward or north-northwestward of Fort Gorges. If bound to Portland, continue the 337° true course for 0.4 mile past Spring Point Ledge Lighthouse to a position 250 yards southwestward of the red buoy southwestward of Fort Gorges. Then steer 271° true and pass 400 yards northward of Portland Breakwater Lighthouse, and 150 yards northward of the black lighted buoy northward of the lighthouse. The course can then be shaped to the wharves, or they can be followed, 150 to 100 yards off, to the first bridge.

Chapter 11.—CAPE ELIZABETH TO PORTSMOUTH

(CHART 1205)

This stretch of coast extends about 37 miles in a general southwesterly direction from Cape Elizabeth, with but few harbors indenting it, they being principally the resort of fishermen and small coasters seeking shelter in bad weather. Richmond Island Harbor, Wood Island Harbor, and Cape Porpoise Harbor are the only anchorages available for strangers. There are many summer resorts along the coast.

SACO BAY AND VICINITY

(CHART 231)

Cape Elizabeth Lighthouse and Portland Lightship are described on page 229.

Seal Cove is on the southeast side of Cape Elizabeth northeastward of Richmond Island. It has numerous rocks and ledges and there are no wharves. Both **The Sisters** and **Seal Rocks** bare at about half tide. The eastern extremity of the latter is marked by a buoy which facilitates entrance to the anchorage north of Seal Rocks. The holding ground here is sand and poor, but there are a number of moorings and some shelter is obtained in easterly weather.

Richmond Island Harbor, formed by **Richmond Island** (grassy, with a prominent house and barn) and a breakwater (awash at extreme high water) extending to the shore, is sheltered from northerly and westerly winds, but is exposed to southwesterly and southerly winds. Foul ground extends 0.4 mile from the northern side of the harbor. The depths shoal gradually from 8 fathoms at the entrance to 3 fathoms 300 yards from the breakwater at the head. The holding ground is good, sand and mud, and the anchorage is considerably used by yachts and small craft.

Chimney Rock, lying 0.3 mile from the north side of Richmond Island Harbor, is awash at low water and is marked on its southeast side by a black buoy. Vessels must pass southward of the buoy. A rock with 16 feet on it lies 400 yards east-southeastward of Chimney Rock buoy. **Ram Island,** low and grassy, lies 0.2 mile northwestward, and **The Brothers,** three small bare rocks, lie 300 yards north-northeastward of Chimney Rock.

Old Proprietor is a ledge, bare at low water, lying nearly 1 mile from shore and nearly 2 miles westward of the western end of Richmond Island. It is marked on its south side by a buoy. A ledge with 11 feet over it lies nearly 0.5 mile northeastward of Old Proprietor.

Between Richmond Island and Wood Island Lighthouse* a distance of about 6 miles, the shore forms a large open bight, the southern part of which is **Saco Bay.**

*Lat. 43°27′.4, Long. 70°19′.8: Charts 231, 1205, 1106, 70.

Scarboro River, on the north side of the bight, can be entered only by small craft at half tide or higher with a smooth sea. **Higgins Beach,** on the west side at the entrance has many cottages visible.

Prout Neck, a prominent point nearly 3 miles westward of Richmond Island, is the northern point of Saco Bay; it is partly wooded and has many houses and a standpipe visible except from eastward. On the west side of the neck is a yacht club with pier and float landing.

The shore of Saco Bay is known as **Grand Beach, Old Orchard Beach,** and **Ferry Beach,** in the order named from northward. The large hotels, piers, and standpipe at Old Orchard Beach are prominent. **Bar Ledge,** with 11 feet over it, lies 0.9 mile from shore in the northern part of Saco Bay and is marked on its southwestern side by a buoy. About 0.6 mile westward of the buoy and the same distance northeastward of the pier at Old Orchard Beach there is **Little River Rock** with 2 feet over it which extends 0.5 mile from shore.

Scarboro River, on the west side of Prout Neck, is used by local boatmen at half tide or higher. The channel, which leads across a shifting bar, is marked by buoys and a beacon.

Stratten and **Bluff Islands,** grass covered, lie off the northern part of Saco Bay, 1 mile southward of Prout Neck, with deep water between. The islands are joined by ledges, which also extend 0.3 mile eastward from Stratten Island. Stratten Island has one house.

In the southern end of Saco Bay there are islands and ledges which extend 1.5 miles from shore, and inside of them are Wood Island Harbor and the entrance of Saco River. **Eagle** and **Ram Islands** are rocky and grass covered; vessels should pass eastward of them, giving them a berth of at least 0.5 mile.

Saco River, having its entrance in the south end of Saco Bay west-northwestward of Wood Island Lighthouse, is the approach to the cities of **Biddeford** and **Saco,** at the head of navigation, about 5 miles above the entrance.

There is a public float landing and a yacht club with float landing at Saco. Water is piped to the coal wharf and supplies are available. There is a boat yard about 2 miles below Biddeford equipped for building small craft up to about 60 feet in length of wood. There is a steamer wharf just inside the mouth of the river that is used in the summer.

The entrance is between two jetties, the southern one of which, submerged at high water, is marked by piers about 260 yards apart which extend about 10 feet above high water; the northern jetty is partly covered at high water for 0.4 mile from its eastern end; the channel has been improved by dredging, and there was in 1939 a least depth of about 7 feet to the head of navigation. The project provides for a depth of 8 feet to the head of navigation. The mean range of tide is 8.7 feet.

The channel in the river is narrow and crooked, and strangers should employ a pilot. A pilot can be obtained from The Pool southward of the entrance. There are depths of 6 to 8 feet at the wharves at Saco and Biddeford.

Most of the traffic on the Saco River consists of coal barges, which are towed up the river.

Small craft can enter with a smooth sea and on a rising tide by passing between **Ram Island Ledge** and **Negro Ledge** buoys, steering westward and following the route marked by the buoys over the bar, then favoring the south jetty until near its inner end. Ice closes the river from January to April. From March to May the channel depths are liable to be changed by heavy floods, as much as 8 feet above M. H. W. at Saco, which also cause dangerous currents.

Wood Island, eastward of the entrance to Saco River, is grassy except for a few dead trees, and is marked at the east end by **Wood Island Lighthouse** (white tower connected with dwelling). The light is 71 feet above the water, and visible 14 miles. The fog signal is a bell.

Negro Island (low and grassy on top) lies just westward of Wood Island; ledges extend nearly 200 yards northwestward and 300 yards southwestward from Negro Island, and are marked at the southwest end by a red buoy.

Stage Island is marked by a prominent white stone monument. The harbor southwestward of a line joining Philip Rock, Stage Island, and the entrance of Saco River is shoal. **Stage Island Shoal,** partly bare at low water, extends 300 yards east-northeastward from the island and is marked at its end by a black buoy. **Basket Island** is grassy and has several cottages.

The Pool is a shallow bay making southwestward from Wood Island Harbor inside of Fletcher Neck. The entrance is about 50 yards wide, and the tidal currents have considerable velocity. Small craft can anchor just inside the entrance if all the anchorage area is not occupied. **Biddeford Pool** is a post village on the south side of Wood Island Harbor, extending from The Pool nearly to the eastern point of Fletcher Neck. There are small wharves on each side of the entrance. The yacht club is located on the east side.

Directions, Wood Island Harbor.—This is an anchorage for small and moderate sized vessels. There are three parts of the harbor where anchorage may be had according to the direction of the wind or sea. Anchorage in 3 to 6 fathoms is available south of Wood Island. Between Negro Island and Stage Island there is 3 fathoms or more of water in an area about 400 yards across, and it is reported that the larger yachts and coal barges anchor there. Small yachts can proceed to the southwest portion of the harbor and anchor off **Halftide Rock** in 6 to 20 feet of water. The bottom in this inner anchorage is reported to be soft mud.

To enter from the northeast keep about 0.5 mile north of Wood Island, until near the vertically striped bell buoy eastward of Ram Island Ledge. Pass about 100 yards southward of this buoy, heading for the monument on Stage Island, on course 232° true. When Negro Island is abeam, if proceeding to the southwest part of the harbor, change course to 211° true and pass about 100 yards east of the buoy located northeast of Stage Island, and continue course until northwest of Halftide Rock Beacon, in which locality you can anchor at will. This course heads for the eastern side of the passage into The Pool. Or if, when Negro Island is abeam, you wish to anchor between Negro Island and Stage Island, change course to 193° true and continue for about 500 yards to the anchor-

age in about 20 feet of water. Note that while on this course the colors of the buoys are reversed between Wood and Stage Islands. If wishing to proceed to the anchorage south of Wood Island, continue this course of **193°** true until the buoy southwest of Negro Island is just past the beam, then change course to **98°** true and proceed to anchorage east of the cable area.

To enter from the south, bring Wood Island Light to bear **343°** true and head for it on that bearing. Continue until about 300 yards south-southwest of Dansbury Reef Buoy, when the beacon on Washman Rock will bear about **295°** true and then change course to **325°** true, passing halfway between Washman Rock Beacon and the buoy off Dansbury Reef. Continue course and pass about 250 yards east of Gooseberry Island. When that island is abeam, change course to **277°** true and either anchor south of Wood Island or continue that course passing about 50 yards south of the buoy southwest of Negro Island and enter the inner harbor.

Gasoline, water, and some provisions are obtainable. A pilot for the river can be had here.

Landmark.—A water tank on a tall skeleton tower about 2.5 miles 245° true from Wood Island Lighthouse is the most prominent object between Portland and Portsmouth.

Washman Rock, bare at half tide, is near the end of a reef which extends nearly 600 yards southeastward from the eastern point of Fletcher Neck, and is marked by a black spindle with cask.

Dansbury Reef is a small ledge with 5 feet over it, lying 0.5 mile southward of Wood Island Lighthouse. It is marked on its southeast side by a red buoy. There are several shoal spots between the reef and Wood Island, and strangers should not enter betweeen them.

A number of rocks and ledges extend 0.6 mile southeastward of **Fletcher Neck.** Vessels will avoid these dangers by keeping Wood Island Lighthouse bearing northward and westward of 350° true.

There is a **Coast Guard Station** on the east side of Fletcher Neck; see chart 231. The cupola on the building is prominent. A skeleton lookout tower is located about 700 yards 11° true from the station.

SACO BAY TO CAPE NEDDICK HARBOR

(CHART 1205)

Goosefair Bay is a shallow cove, full of rocks and ledges, lying 2 miles northeastward of Goat Island Lighthouse.*

Stage Island Harbor is a small slough, 0.5 mile northeastward of Goat Island Lighthouse, that is used by boats and small local craft. The entrance is about 50 yards wide between reefs, making northward from Cape Island and southward from Little Stage Island and is not safe for strangers.

Cape Porpoise Harbor is an anchorage which has been dredged to a width of 500 to 600 feet, with a depth of 15 feet (reported in 1940 to have shoaled to about 12 feet), lying between the islands and rocks northwestward of Goat Island Lighthouse. The channel at the entrance has been straightened by cutting off the points of ledges and has a width of 190 feet and depths of 18 to 35 feet. Vessels of over

*Lat. 43°21'.5, Long. 70°25'.5: Charts 1205, 1106, 70.

100 tons should not attempt to enter the harbor for refuge on account of the small area of the anchorage; it is advisable for strangers to run either for Portland or Portsmouth if caught in a blow.

There is a wharf on **Bickford Island.** Gasoline is obtainable and provisions can be had at **Cape Porpoise,** a village near the wharf. Water is piped onto the wharf.

The Old Prince is a ledge with 4 feet over it lying 400 to 500 yards southeastward of Goat Island Lighthouse; the ledge is marked by a red bell buoy placed about 200 feet south-southwestward from it, and the buoy should be kept fairly close aboard to avoid the southeast point of the ledge making out from Folly Island. **Folly Island** is grassy and marked by a shanty. Folly Island beacon, a large white tripod, is placed on the partly bare ledge extending eastward from Folly Island; the beacon lies 180 feet from the westerly edge of the dredged channel.

Goat Island Lighthouse is a white tower with a covered way to a dwelling. The light is 38 feet above the water, and visible 11 miles. The fog signal is a bell located in a tower 30 yards northwest of the light.

A red spindle is placed on a ledge bare at low water, and lies 370 feet west-southwestward of Goat Island Lighthouse and 30 feet from the easterly edge of the channel. About 300 yards above the lighthouse the west side of the channel is marked by a black buoy, placed on the northeast side of **Lobster Rock,** which has 4 feet over it. Abreast the buoy is an islet, nearly awash at high water, marked by a beacon (pile of stones), which lies 275 feet northeastward of the easterly edge of the channel.

Directions, Cape Porpoise Harbor (use following courses with caution), give the islands northeastward of the entrance a berth of 0.5 mile and the shore southwestward of the entrance a berth of 1.5 miles. Steer for Goat Island Lighthouse on a **330°** true course until up with The Old Prince bell buoy, which lies 600 yards from the lighthouse. Pass close westward of the bell buoy, steer about **315°** true and pass between the two beacons abreast the lighthouse favoring the Goat Island spindle and 50 to 60 feet eastward of the black buoy lying 300 yards above the lighthouse. From the buoy steer about **340°** true for the wharf on the west side of Bickford Island. Anchor on this line, keeping 200 yards or more southward of the wharf.

Southwestward of Goat Island Lighthouse is an area of broken ground, with depths of 3¼ to 5½ fathoms extending as much as 2 miles offshore in places, which has not been closely examined. The lighthouse bearing 0° true leads eastward of the broken ground.

Kennebunk River, about 2.5 miles westward of Goat Island Lighthouse, is the approach to the summer resort of **Kennebunkport,** just inside its entrance. The beach for 0.8 mile eastward and 1.7 miles westward of the entrance is lined with hotels and summer houses. The entrance to the river is between two stone jetties, the easterly and longer one being marked by a light on the end. In 1940 there was a depth of about 4 feet at low water across the bar at the entrance, and in a narrow channel inside to the wharves just below the bridge, 1 mile above the entrance.

Local knowledge is necessary to carry the best water across the bar and inside. The river is frequented mostly by small pleasure

craft. The bridge 1 mile above the entrance is a drawbridge with a horizontal clearance of 39 feet and a vertical clearance of 5.6 feet at high water when closed. Gasoline and water are piped into several of the wharves near the bridge. In 1940 there was 6 to 8 feet of water alongside some of the wharves and floats. There are several boat yards and small craft up to 50 feet in length and with a draft up to 7 feet can be hauled out.

Small craft can anchor off the yacht club just inside the river entrance but because of the current and limited swinging room it is better to lay alongside one of the club floats if permission can be obtained.

Fishing Rock, bare at half tide and marked by a beacon, lies 0.6 mile southwestward of the entrance of Kennebunk River. About 600 yards eastward of the spindle is a buoy, placed off the east side of rocks that are awash at lowest tides. A reef with 9- and 14-foot spots on it lies 0.5 to 0.7 miles southward of Fishing Rock spindle, and is marked on its southeast side by a buoy.

Oak Reef extends 0.5 mile south-southwestward from the shore west of Kennebunk River entrance. Near the south end of the reef is a black spindle, which lies about 0.5 mile west-northwestward of Fishing Rock spindle.

Kennebunk Beach is a post village extending 1 mile westward of Kennebunk River entrance. Ledges extend 0.8 mile from shore southward of the village. There is a prominent yellow bluff at the western end of Kennebunk Beach.

Wells Beach extends 4 miles southwestward from Kennebunk Beach to **Ogunquit Beach.** Ogunquit Beach, southward of **Webhannet River,** has numerous cottages and hotels and extends to the village of Ogunquit. The principal outlying dangers are **Fishing Rocks,** covered at M. L. W., and **Bibb Rock,** which is bare 6 feet at low water and lies 0.8 mile from shore and 3.6 miles north-northeastward of Bald Head Cliff and marked by a buoy. The principal marks are a standpipe at Kennebunk, the cupola of the town hall and church spire at Wells, a church spire 1.3 miles southwestward of Wells, and a standpipe at Ogunquit. There is an inlet abreast the village of Wells, said to have a depth of 1 foot at low water, across the bar and to be used by small local boats at high tide. It is unsafe for strangers.

Bald Head Cliff is a high, prominent point 3 miles north-northeastward of Cape Neddick. It is marked by a white hotel and outbuildings which are prominent. There is an aviation beacon about 1.5 miles west of Bald Head Cliff.

Mount Agamenticus, the highest and southernmost of three peaks on a ridge, is 673 feet in height, lies 5.5 miles northwestward of Cape Neddick and is a prominent landmark in cruising along this section of the coast.

OFFSHORE DANGERS IN NORTHERN APPROACH TO PORTSMOUTH

(CHART 1205)

Boon Island, lying 5.7 miles southeastward of Cape Neddick, is a small, low, rocky islet marked by Boon Island Lighthouse, an important offshore aid. A black spindle is placed 250 yards westward of

the lighthouse. The island is surrounded by deep water, but there are numerous detached ledges in the vicinity. The easternmost is **Boon Island Ledge,** 2.8 miles eastward of the lighthouse; it is bare at extreme low water and marked at the south end by a lighted whistling buoy. Vessels should not pass between this buoy and the lighthouse; and if passing westward of the lighthouse, should give it a berth of 2 miles or more to insure a depth of over 5 fathoms.

Boon Island Lighthouse is a gray granite conical tower connected with dwelling. The light is 133 feet above the water, and visible 18 miles. The fog signal is a bell, sounded in answer to signals.

Between Cape Neddick and the entrance to Portsmouth Harbor, a distance of 8 miles, the shore has no marked indentations except York River. Lying offshore 2.5 miles are two dangerous ledges: **York Ledge,** the northernmost of these, lies southeastward of York River entrance and is marked by a spindle. **Murray Rock,** 1.5 miles southwestward of York Ledge, has a least depth of 1 fathom and is marked by a buoy. The bottom is very broken between these ledges and the shore, and vessels are advised to pass outside of the lighted whistle buoy 1 mile outside the ledges. Broken ground, with depths of 5¼ to 6½ fathoms extends 2 miles south-southeastward of Murray Rock buoy.

CAPE NEDDICK HARBOR TO YORK RIVER

(CHART 228)

Weare Point is a headland with a number of large homes on it.

Cape Neddick Harbor is a foul bight less than a mile northward of Cape Neddick. It is seldom used as an anchorage by local boats, is exposed, has many dangers, and should not be used by strangers. Buoys mark the entrance, but the dangers inside are unmarked.

Cape Neddick is a prominent brush covered headland extending out about 1 mile from the main shore; off its eastern end is a small, high grassy islet, called **Cape Neddick Nubble,** on which is Cape Neddick Lighthouse.* **York Beach** is a large village and much-frequented summer resort in the bights northward and southward of the cape. There are no wharves.

Cape Neddick Lighthouse is a white conical tower. The light is 88 feet above the water and is visible 14 miles. The fog signal is a bell.

York Harbor, 2.5 miles southwestward of Cape Neddick and 5.5 miles northeastward of Portsmouth Harbor entrance, is the approach to the town and summer resort of York Harbor, on the north side just inside the entrance. It is used by many fishing boats and pleasure craft.

There was reported in 1940 a depth of 12 feet in the channel through the entrance and for nearly 2 miles above, but the entrance is crooked and narrow and leads between rocks, bare and submerged, on either side. The width of the channel, with a depth of 12 feet, is only 100 feet in several places in the entrance. The channel is buoyed

*Lat. 43°09'.9, Long. 70°35'.5: Charts 228, 1205, 1106, 70.

and easily entered by small craft in clear weather with the aid of the chart. Currents are strong and buoys are sometimes run under. Boats drawing 10 feet are said to enter on one quarter flood tide.

The most important landmark in approaching York Harbor is the large brick hotel with two flagstaffs on Stage Neck. A white church spire at York Village, 1 mile inland, also is prominent.

Western Point, at the entrance, is bare and rocky, while **East Point** has houses built out to the end.

Black Rocks are two bare rocks on the north side of York Harbor at the entrance. A buoy lies southward of them and south of a rock with about 5 feet over it lying about 100 yards southwest of Black Rocks. When the water is clear, this rock is plainly visible.

Stage Neck is the name given to the peninsula, 0.3 mile long on the north side, a little inside the entrance. A rock with a depth of 3 feet lies 100 yards southward of Fort Point which is the eastern end of Stage Neck and is marked by a buoy. **Rocks Nose** is a bare ledge extending 150 yards northeastward from the shore on the south side of the channel southward of the middle of Stage Neck.

York Harbor is a town and summer resort on the north side of York River. There are depths of 8 to 13 feet at the wharves and floats in the bend northward of the western end of Stage Neck. The hotel and yacht club landing located on the northwest side of Stage Neck has about 12 feet of water alongside. Gasoline, water, and provisions are obtainable. There is limited anchorage off the wharves in 10 to 20 feet and a number of moorings are maintained there.

York River above York Harbor.—This section of the river is crossed by three bridges, the first two of which have draws which have no facilities for opening. The minimum horizontal clearance is 32 feet. The vertical clearance under the first bridge is 5.4 feet at mean high water. The principal traffic consists of small fishing and pleasure boats.

Directions, York Harbor.—Vessels approaching York River entrance should give the shore northward or southward a berth of at least 0.3 mile, or they can shape the course to the bell buoy 1 mile off the entrance. From off the bell buoy steer 298° true for 1 mile to a position midway between a red and a black buoy at the entrance. Then follow the channel with the assistance of the chart. Care must be exercised in making the sharp turn at the west end of Stage Neck. There is a float landing and several moorings available for visiting yachts.

Chapter 12.—PORTSMOUTH TO GLOUCESTER

(CHART 1206)

Submarine Operating Areas.—On this chart, No. 1206, are outlined in red extensive areas in which submarines operate from time to time. Vessels should proceed with caution within these areas. A prior notice of such operations is customarily given by hydrographic broadcast. See page 31 for distress signals for submarines.

PORTSMOUTH HARBOR

(CHART 329)

Portsmouth Harbor, lying 37 miles southwestward of Cape Elizabeth and about 25 miles northward of Cape Ann lighthouses, is the only harbor of refuge for deep-draft vessels between Portland and Gloucester. The entrance is marked by Whaleback Reef and Portsmouth Harbor Lighthouses, and the principal outlying dangers are marked, so that no difficulty should be experienced when entering in clear weather, either in the daytime or at night. Portsmouth Harbor is formed by the mouth of Piscataqua River, and is the approach to the cities of Portsmouth and Dover and the towns of Newcastle, Kittery, Newmarket, Durham, and Exeter; on the north side of the harbor, opposite Portsmouth, is the United States Navy Yard.

Portsmouth has some trade in large coasting vessels and barges, principally in coal. Creosote and gypsum are imported. The depths in the harbor are sufficient for the largest ships, and the harbor is open throughout the year. The maximum draft entering is about 27 feet but as much as 42-foot draft is known to have been towed into the port.

Prominent objects.—In approaching Portsmouth the large hotel at the west end of Newcastle Island is prominent. Other landmarks are the Naval Prison (stone structure on Seavey Island), the lighthouse, and the white buildings of the Coast Guard station on Wood Island. The four towers of the two Portsmouth-Kittery lift bridges and the tall chimney and tank of the gypsum plant 2 miles up the river are also prominent.

Portsmouth Harbor Lighthouse, on the northeast end of Newcastle Island, is a white tower attached to a fog signal house. The light is 52 feet high and is visible 13 miles. The fog signal is a bell.

A storm warning tower is located near the lighthouse.

Whaleback Lighthouse* is a gray conical tower connected to red fog-signal house. The light is 59 feet above the water, and visible 13 miles. The fog signal is a reed horn.

A number of rocks and ledges, some of them bare at low water, extend about 1.5 miles eastward of Whaleback Lighthouse and to a

*Lat. 43°03′.5, Long. 70°41′.8: Charts 329, 1205, 1106, 70.

distance of 0.8 mile from the shore. They are marked to the southeastward by a buoy outside of West Sister and Phillips Rocks and to the southward by a whistle buoy south of Kitts Rocks.

Little Harbor lies on the west side of the entrance to Portsmouth Harbor, 0.8 mile westward of Whaleback Lighthouse. Vessels should not attempt to enter in bad southeasterly weather, when the sea breaks across the entrance. The entrance is between two breakwaters, the ends of which are marked by lights, and two buoys mark the entrance outside the breakwaters. Inside the breakwaters an anchorage basin has been dredged 2,000 feet long and 600 feet wide. In 1940 it was reported to have shoaled to 6 feet. It is marked on its north side by red buoys. There is room only for very small craft to anchor in the channel above the inner red buoy. The Wentworth is a large white hotel on the north side of the harbor. The hotel maintains a wharf and float landing near the bridge which has a draw span but should be considered a fixed bridge because the draw is so seldom used. (24 hours notice is required for opening.)

A narrow thoroughfare, bare at low water, connects the western end of Little Harbor with Portsmouth Harbor between **Marvin** and **Goat Islands.** It is crossed by two bridges and is little used.

Pepperell Cove is on the eastern side of the harbor, northeastward of Portsmouth Harbor Lighthouse, and on the north side of **Fishing Island** (grassy, with two shanties). It has been dredged to a depth of 12 feet for an anchorage, and is used by many small coasting vessels and yachts. A red buoy marks the south side at the entrance. **Kittery Point** is a village at the head of the cove. There is a wharf, with about 12 feet alongside the float at low water, on the northeast side of the cove abreast the village. This wharf has gas and water piped onto it and it is much used by yachts.

Newcastle is a village on the south side of the harbor and the north end of **Newcastle Island.** It is reached from Portsmouth by a highway which connects the islands on the south side of the harbor.

Portsmouth is a city on the south side of Piscataqua River, about 4 miles above the entrance to the harbor. There are depths from 20 to 30 feet at the wharves. There is no passenger service by water, but there is a small amount of coastwise trade and an occasional foreign arrival. There is a summer passenger ferry service to the Isles of Shoals.

Port Series No. 24 covers the port of Portsmouth.

The United States Navy Yard is on **Seavey Island,** on the north side of the river opposite Portsmouth. It is connected with Kittery, on the north shore, by a fixed bridge. The channel northeastward of Seavey Island has several dangers and is little used except by fishermen.

Kittery is a town on the north side of Piscataqua River opposite Portsmouth. There are landings for small craft and several wharves with depths of 8 to 10 feet of water at low tide. The approach to the wharves is between Badgers and Squash Islands on the northwest and Pumpkin Island Reef on the southeast and requires local knowledge for anything except small craft.

Bridges, Portsmouth to Kittery.—These cities are connected by two bridges. The lower bridge (highway) is from Portsmouth

across the Piscataqua River to Badgers Island. It has a horizontal clearance of 260 feet and a vertical clearance of 19 feet at high water when the span is closed. When the span is lifted there is a clearance of 150 feet above high water.

The second bridge, (highway and railroad) extending across the river from Nobles Island on the south to Kittery on the north, has a vertical clearance of 10.2 feet at high water and a horizontal clearance of 200 feet. When the bridge is lifted there is a vertical clearance of 135 feet above high water.

Gages are provided at both bridges, so placed as to be seen by the operator of the vessel approaching from either upstream or downstream. These gages indicate the headroom clearance under the lower chords of the draw span at all stages of the tide.

Bridge Signals.—The signal for opening the highway bridge is 4 long blasts of the whistle, which shall be answered by 3 blasts of the siren on the bridge provided the draw can be opened immediately. In case of delay in opening, the bridge tender will so indicate by sounding 5 blasts of a whistle or horn, which will be repeated at intervals until answered in like manner by the vessel.

Signals for second bridge (combined highway and railroad).—(1) If the weather conditions are good and sound signals can be heard when a vessel approaches this drawbridge and desires to pass through the draw, two long and two short distinct blasts of a whistle, horn, or megaphone shall be sounded from the vessel when within reasonable hearing distance of the bridge.

When the draw of the bridge can be opened immediately, the draw tender shall reply by two long distinct blasts of a whistle, siren, horn, or megaphone or by two loud and distinct strokes of a bell.

When the draw of the bridge cannot be opened immediately or when the bridge is open and is to be closed immediately, the draw tender shall reply by five short distinct blasts of a whistle, siren, horn, or megaphone or by five loud and distinct strokes of a bell, repeated at intervals until answered in like manner from the approaching vessel.

(2) When weather conditions prevent hearing the sound signals when a vessel approaches this drawbridge and desires to pass through the draw, signals shall be made from the vessel by swinging in circle at arm's length, a lighted lantern at night and a flag by day.

When the draw of the bridge can be opened immediately, the draw tender shall reply by raising and lowering in a vertical plane a number of times, a lighted lantern at night and a flag by day.

When the draw of the bridge cannot be opened immediately or when the bridge is to be closed immediately, the draw tender shall reply by swinging to and fro horizontally a number of times a lighted lantern at night and a flag by day.

(3) When two or more vessels are approaching this bridge at nearly the same time from the same or opposite directions with the draw opened or closed, each of these vessels shall signal independently for the opening of the draw, and the draw tender shall reply as prescribed and in turn to the signal of each vessel.

(4) The draw shall be opened with the least possible delay at all hours upon receiving the prescribed signal for the passage of any vessel or vessels or other water craft not able to pass underneath it: *Provided*, That the drawspan shall not be opened when a train is approaching so closely that it cannot safely be stopped before reaching the railroad signal block in which the drawspan of the bridge is located.

(5) When the draw tender is about to close the draw, he shall sound one distinct blast of a whistle, siren, horn, or megaphone, or one loud and distinct stroke of a bell.

Pilots.—Pilotage into Portsmouth Harbor is compulsory for all vessels engaged in foreign trade, but not for vessels engaged in the domestic trade. There are licensed pilots for Portsmouth Harbor and Piscataqua River; large vessels, if bound to the wharves at

Portsmouth or any of the towns on the Piscataqua River or its branches, usually take a towboat from the anchorage on account of the strong currents. A pilot to the anchorage is not necessary in clear weather when the aids can be seen. The towboat captains are usually licensed pilots. Vessels desiring a pilot wire the Piscataqua Towing Co. or signal the Coast Guard station* at Wood Island.

Towboats are on the lookout for vessels expected to arrive, and if the tide is slack will tow alongside the wharves without any delay. A vessel desiring a towboat while outside Whaleback Lighthouse can obtain one by making the usual signal (flag in rigging). From the anchorage, steamers generally take a towboat when going to the wharves or to the navy yard.

Anchorages.—The anchorage for large vessels is anywhere on the east and north sides of the channel between Wood Island (the island north of Whaleback Lighthouse) and Clark Island (the small island on the north side about 0.8 mile above Fort Point) in 8 to 11 fathoms. With a southerly wind the best anchorage is above Fort Point on the south side of the channel, in 8 to 10 fathoms, bottom generally clay. There is no anchorage above Clark Island. See also the description of Little Harbor and Pepperell Cove preceding. Yachts and small coasting vessels generally anchor in Pepperell Cove.

Caution.—There is a submarine cable extending across the channel in a westerly direction from Wood Island. Vessels should not anchor in the vicinity of the cable.

Supplies.—Coal can be obtained at the wharves at Portsmouth, water (good quality but high in lime and magnesia) from the towboats or alongside the wharves; gasoline, provisions, and a limited supply of ship-chandler's stores are obtainable in Portsmouth. Fuel oil can be obtained from tank cars only and with prior arrangement.

Repairs.—There are no facilities for dry-docking vessels in Portsmouth with the exception of the large graving dock at the navy yard. Vessels requiring repairs usually go to Portland or Boston. There are machine shops in Portsmouth, and minor repairs to machinery can be made. There are several small boat yards capable of hauling boat up to 60 feet long and 6 feet draft.

Storm-warning displays are made at Portsmouth, north of Portsmouth Harbor Light on Fort Point.

Currents.—The tidal currents have great strength and special care is required. The predicted times of slack water and the times and velocities of strength of flood and ebb at Portsmouth Harbor entrance (off Wood Island) for every day in the year are given in the Atlantic Coast Current Tables. Slack water occurs about 2 hours after high and low water at Portland, and the duration of the stand is about 10 minutes. The current attains its maximum velocity about 1¾ hours before high and low water at Portland.

Tides.—The mean rise and fall of tides is about 8 feet at Portsmouth and about 6½ feet at Dover Point.

Captain of the Port.—The Coast Guard officer designated as Captain of the Port has an office here. See page 328.

Customs, Port of Entry.—Portsmouth is a port of entry and marine documents are issued.

---

*Lat. 43°03′.8, Long. 70°41′.9: Charts 329, 1205, 1106.

Hospitals.—There is no marine hospital. Hospitalization or treatment may be arranged through the Deputy Collector of Customs.

Quarantine.—There is no quarantine station. Vessels subject to quarantine will be inspected by the Public Health Service at Boston.

Immigration.—No station. It is handled by local customs officers.

Chart Agency.—The U. S. Coast & Geodetic Survey maintains a chart sales agency at Portsmouth.

Harbor-master.—The operator of the towboat is the harbor-master and also a licensed pilot.

DIRECTIONS, PORTSMOUTH HARBOR

The broken ground off the entrance to Portsmouth Harbor, and the main channel in the harbor as far as Clark Island, have been examined by means of the wire drag. The outer limit of the dragged area off the entrance is about 1.5 miles eastward of Boon Island Ledge lighted whistle buoy and 4 miles eastward of the Isles of Shoals. This area is a part of the dragged section extending, from a point about 6.5 miles southwestward of Isles of Shoals, northward to Cape Elizabeth. The dangers close along the shore were not covered with the wire drag.

From the northeastward (Chart 1206).—The channel westward of York Ledge Spindle and Murray Rock Buoy is safe only for small craft with a smooth sea and all strangers are advised to pass outside of these dangers. Directions for York Ledge lighted whistle buoy from northward are given on page 52. From a position about 0.3 mile eastward of York Ledge lighted whistle buoy, steer **195°** true, heading for the eastern extremity of the Isles of Shoals for 2.4 miles, until Whaleback Reef Light bears 286° true, then change course to **278°** true and make that course good for 4.8 miles to a position about 0.3 mile southward of Kitts Rocks whistle buoy (temporarily lighted). Attention is called to the fact that when halfway in on this last course you should pass about 0.3 mile northward of a 36-foot spot.

From southward (Chart 1206).—This chart shows a small explosives experimental area about five miles south of Portsmouth, which must be avoided when in use. Vessels can approach the entrance of Portsmouth Harbor from southward by keeping about 1.5 miles offshore, running approximately parallel to the beach, and keeping outside the line of buoys which mark the eastern extremities of several ledges that make offshore. Better water and less broken bottom can be had by passing close to White Island whistle buoy located about 1.7 miles southwestward of Isles of Shoals Lighthouse* and steering **340°** true for about 6.8 miles to a position 0.2 to 0.3 mile southwestward of Kitts Rocks whistle buoy.

Kitts Rocks to Portsmouth (Chart 329).—There should be no difficulty, even for the stranger, in clear weather to proceed to anchorage on the east side of the channel above Wood Island by use of the chart, having due regard for the strong current. Strangers and deep draft vessels should not go above the anchorage without a pilot or towboat. Due to the strong currents careful piloting is required.

*Lat. 42°58′.0, Long. 70°37′.4: Charts 330, 1206, 1106, 70.

PORTSMOUTH TO DOVER AND EXETER

(CHART 229)

Piscataqua River above Portsmouth.—The river above Portsmouth forms the approach to Cocheco, Bellamy, Oyster, Lamprey, and Exeter Rivers, the towns of Durham, Newmarket, and Exeter, and the city of Dover, all on the railroad. It has ample depth for 3.5 miles above the bridge at Portsmouth to the fork, and the principal dangers are buoyed to this point. The channels in the several branches are narrow and crooked and shoal at the heads, and local knowledge is necessary to keep in them. Some of them have been improved by dredging. There is little business by water above Portsmouth, except to the oil company wharves 0.8 mile southeast of Dover Point. The tidal currents are very strong. Pilots or towboats can be obtained at Portsmouth. Most of the traffic above Dover Point consists of small motorboats whose operators have local knowledge.

For a description of the bridges over the river at Portsmouth see page 245.

A large steamer equipped as a floating powerhouse is moored on the west side of the river about 1 mile above the railroad bridge. A high transmission line is carried over the river at this point at an estimated height of about 200 feet above the water.

A fixed bridge crosses the western branch of the Piscataqua River at Dover Point. There is a vertical clearance of 33.6 feet at mean high water for a 200-foot section in the middle of the span. The vertical clearance for a 100-foot section in the middle of the span is 46.6 feet at mean high water.

Cocheco River has a depth of about 3 feet in a narrow, crooked, unmarked channel to the city of **Dover,** 10 miles above Portsmouth. In 1940 there was no traffic to Dover by water. Motor boats up to about 40 feet long ran to Dover with local knowledge.

Bellamy River has a reported depth of less than 4 feet in a narrow crooked, and unmarked dredged channel to within 0.3 mile of a woolen mill at Dover, above which it is shoal to the mill. Local knowledge is necessary to keep in the channel. It is seldom used. At its mouth this river is crossed by a highway drawbridge with a horizontal clearance of 40 feet and a vertical clearance of 9.6 feet above mean high water when closed.

Oyster River has a narrow, crooked, and unmarked channel, bare at low water, to the village of **Durham,** 8.5 miles above Portsmouth. It is seldom used.

Lamprey River has a depth of about 4 feet in a narrow crooked, and unmarked channel to the village of **Newmarket,** 12 miles above Portsmouth. It is used by local motorboats.

Exeter River has a depth of about 4 or 5 feet in a narrow, crooked channel, dredged in places, to the town of **Exeter,** 16.5 miles above Portsmouth. The approach to the river is through **Little Bay** and **Great Bay,** and the channel through these bays is partially marked by buoys. Local knowledge is necessary to keep in the channel through these bays and the river above.

ISLES OF SHOALS

(CHART 330)

This group of islands lies from 5 to 6 miles offshore southeastward of Portsmouth Harbor entrance. It comprises seven islands and a number of rocks and ledges. The group is about 3 miles long in a northeasterly direction and is marked at its southwest end by Isles of Shoals Lighthouse. There are several channels between the islands, but they are used only by local fishermen and yachtsmen, who sometimes seek shelter there in easterly winds.

Isles of Shoals are frequented mostly by the people connected with the Coast Guard station and lighthouse, a few fishermen, and summer visitors. In the summer season of 1940 there was a small steamer making daily trips from Portsmouth to the Isles of Shoals. Hotel accommodations during the season.

Storm-warning displays are made at the **Coast Guard station** both night and day.

Gosport Harbor is well protected except from westerly winds and is considerably used as an anchorage by local fishermen and sometimes by small coasting vessels and yachts.

Duck Island, the northernmost of the group, is low, rocky, and surrounded by ledges, and should be given a berth of 0.5 mile.

Mingo Rock is the southernmost of the reefs making off from Duck Island and 550 yards southward of it is a 28-foot spot, known as **Old Henry** which breaks in heavy weather.

Appledore Island, the largest of the group, lies about 1 mile southwestward of Duck Island. It is high and has a few cottages near the middle of the island. The **Coast Guard** boathouse and launchway are on its western side. The channel between Duck and Appledore Islands has depths of 4½ to 15 fathoms, irregular bottom. There is a small 7-foot spot marked by a buoy 300 yards northwestward of the island. On this island is located the **Marine Laboratory of the University of New Hampshire** which is operated for a part of each summer.

Smuttynose Island lies southward of Appledore Island, with a narrow channel between them having a depth of 20 feet. There is a house near the western end of this island and a small cove, **Haley Cove,** where boats lie aground at low water.

Cedar Island is southward of Smuttynose, and is connected with it by a breakwater; westward of this breakwater is **Gosport Harbor,** a small anchorage used by fishermen and others during easterly winds. Another breakwater has been built between Cedar and Star Islands.

Star Island, westward of Cedar Island, has on its northern side a hotel, several houses, and a steamboat landing with a depth of about 18 feet.

Lunging Island is a low, bare, rocky islet, surrounded by ledges and lying 0.3 mile westward of Star Island. The channel between these islands is obstructed by **Halfway Rocks** which are marked by a buoy and by a 6-foot shoal.

White Island is the southernmost of the group and is marked by Isles of Shoals Lighthouse; ledges, which are covered at mean low water, extend 0.2 mile southwestward and westward from the island.

Isles of Shoals Lighthouse is a white conical tower. The light is 82 feet above high water and visible 15 miles. The fog signal is an air horn.

Anderson Ledge, bare at half tide and marked by a spindle, lies 1 mile east-southeastward of Isles of Shoals Lighthouse, and is the farthest outlying danger. The ledge is about 200 yards in diameter and has good water around it.

Cedar Island Ledge shows bare at half tide and lies 0.4 mile southeastward from Cedar Island; it is about 300 yards long east and west.

Remarks on approaching and passing Isles of Shoals.—The islands can be seen a distance of 10 miles on a clear day, the houses being most prominent, and vessels passing westward can avoid all danger by giving the islands a berth of 0.5 mile. Passing eastward, care should be taken to avoid Cedar Island and Anderson Ledges, giving the islands a berth of 1.5 miles leads well clear. Isles of Shoals Lighthouse covers the entire horizon, but the houses on the islands northward shut the light out occasionally when approaching the islands from that direction. A stranger desiring to land on the islands should be guided by chart 330.

COAST FROM PORTSMOUTH TO NEWBURYPORT

(CHART 1206)

From Portsmouth Harbor entrance to Hampton Harbor, a distance of about 10 miles, the coast has a general southwesterly trend, with no marked indentation. It presents the appearance of a succession of sand beaches separated by ledges extending out about 0.5 mile, with occasional hotels and many summerhouses back of the high-water line.

Concord Point, about 3 miles southwestward of Whaleback Reef, may be identified by several prominent buildings and about 0.3 mile northward of the point a cupola of a discontinued Coast Guard Station is prominent. **Foss Ledges,** partly bare at low water, extend 0.5 mile offshore from the point and are marked by a buoy at the outer end.

Rye Harbor is a small cove entirely bare at low water. There is a stone breakwater built southward from **Ragged Neck Point** and another breakwater extends northeastward from the point at the south side of the entrance to Rye Harbor. These breakwaters are about 6 feet above high water. There are three small piers on the south shore of the harbor.

Straw Point is marked by a prominent white flagpole. 1.2 miles southward of Straw Point is **Rye Ledge,** which is partly bare at high water and extends 0.4 mile from shore.

Little Boars Head is a yellow bluff 7 miles southwestward of Whaleback Lighthouse. A summer resort of the same name extends over 0.5 mile northeastward from the bluff. A ledge which covers about 3 feet at mean high water lies 0.4 mile off the bluff.

Great Boars Head is a bluff point making out 0.3 mile at the southern end of Hampton Beach and 9.5 miles southwestward of Whaleback Lighthouse. The summer resort of Hampton Beach extends northward and southward from the point. A yellow dome and

twin cupolas are prominent at Hampton Beach. A Coast Guard Station is located about midway between the Boars Heads.

Landmark.*—Standing on Great Boars Head is a prominent tall standpipe which is the most conspicuous mark on this section of the coast.

Hampton Harbor, or **Hampton River,** a shallow stream used only by very small local craft, lies 1.5 miles southwestward of Great Boars Head. The entrance is buoyed but is dangerous for strangers. In September 1940 there was reported to be a depth of 2½ feet on the bar. There are several float landings inside the river and gasoline is piped to one of them. There is a trestle, with a draw span having a horizontal clearance of 40 feet and a vertical clearance of 10 feet above high water when closed, across the mouth of the river. A bar and ledges make off from the river to **Old Cellar Rock.** The latter is a reef 0.7 mile long and partly awash at high water, the northeast end of which lies 0.9 mile from shore. A gong buoy is located eastward of the northern part of the ledge. **Hampton Shoal Ledge,** with 19 feet over it, lies 2.4 to 2.8 miles from shore off Hampton River and 131° true from Great Boars Head. It is unmarked. The entrance to Hampton Harbor is marked by a lighted bell buoy.

Bridge Regulations, Hampton River.—Following are extracts from the regulations controlling the operation of drawbridge between Seabrook and Hampton Beaches:

On all week days between April 1 and October 31 the draw shall be opened promptly for the passage of vessels during the daylight portions of the periods beginning 3 hours before and ending 3 hours after each high water. At other times the draw shall be opened only upon at least 3 hours' previous notice. A telephone is available at the bridge.

Bridge Signal is three blasts of the whistle.

From Hampton Harbor the coast extends 4.3 miles in a southerly direction to the entrance of Merrimack River and is known as **Salisbury Beach.** A ledge, with a depth of 3 feet over it, lies 0.7 mile offshore and nearly 2 miles south of Hampton River. It is marked at its northeast end by a buoy.

MERRIMACK RIVER AND NEWBURYPORT HARBOR

(CHART 331)

Merrimack River is the largest and most important river in the eastern part of Massachusetts. It is the approach by water to the cities of Newburyport and Haverhill, and the towns of Amesbury, Merrimacport, Groveland, and Bradford, and is used by vessels of 6-foot draft at high water up to Haverhill and about 12-foot draft at high water to Newburyport. The river is seldom entered for refuge, but Newburyport has some coastwise trade. The river is charted to a point 2 miles above Newburyport.

The entrance is obstructed by a shifting bar, with 4 to 15 feet over it (according to the condition of the bar), which is dangerous to cross in heavy weather. Lighthouse tenders cross the bar at high tide. The whole entrance breaks in easterly gales.

*Lat. 42°55'.2, Long. 70°47'.8; Chart 1206.

It is marked by Newburyport Lighthouse on its southern side and two range lights on its northern side, in addition to the buoys. The range does not always lead in the best water across the bar and within the jetties, and the buoys should be followed. Jetties with an opening 1,000 feet wide between the ends have been built from both points at the entrance out to the bar.

Channel.—After crossing the bar, Merrimack River has a controlling depth of about 7 to 8 feet at low water to Newburyport. From that point to Haverhill, about 18 miles above the entrance, the river has been improved by dredging a channel 150 feet wide and 7 feet deep at low water. In 1940 the controlling depth at mean low water to Haverhill was reported to be about 7 feet.

In October 1940 a survey showed a depth of 15 feet over the bar at mean low water.

Newburyport Harbor Lighthouse, on the south side of Merrimack River entrance, is a white conical tower. The light is 50 feet above the water, and visible 12 miles.

Newburyport is a city on the south bank of the river 3 miles above the entrance. It has some trade, mostly in oil. The deepest draft going to the town is about 12 feet. Vessels always enter from half tide to high water. There are depths of 12 to 15 feet at the wharves. It is on the Boston & Maine Railroad. A tall yellow chimney and a water tank are the most prominent marks from the outside.

Amesbury (no chart) is a town on the **Powow River** (no chart), 1 mile above Merrimack River and 7.5 miles above Merrimack River entrance. There are several float landings here and one of them has gasoline and water on it. There is also a marine railway and repair shop. Capacity of marine railway 48-foot length, 6-foot draft.

Merrimacport (no chart) is a village on the north side of Merrimack River about 10 miles above the entrance. There is a marine railway with repair shop. Capacity 50-foot length, 6-foot draft. There is a float landing and water is available at the boat yard.

Groveland (no chart) is a town on the south side of the river 15 miles above the entrance.

Haverhill (no chart) is a city on the north bank of the Merrimack River at the head of navigation, 18 miles above the entrance. Some of the wharves have depths of 10 feet or more. There was no commerce by water in 1940. Gas, water, and supplies are available at a float landing, and repairs to small boats can be made.

Bradford (no chart) is a town on the south bank of the river opposite Haverhill, with which it is connected by a highway bridge. Water is available at the yacht club float.

Bridges.—Merrimack River is crossed by eight bridges between Newburyport and the head of navigation at Haverhill. All except the three upper have draw openings. Details of these bridges are given in the following table:

Bridges over the Merrimack River

Name	Type	Horizontal clearance	Vertical clearance when closed at mean high water
		Feet	*Feet*
Newburyport, highway	Swing	76	13. 2
Boston and Maine, railway	do	69	13. 2
Highway	Suspension	220	28
Do	Swing	56	7. 8
Rocks Village	do	54	17. 3
Groveland	do	64	14. 5
Haverhill, highway	Fixed	75	29. 6
Boston and Maine, railway	do	123	36
County	do	139	30. 7

The draws of all drawbridges will be opened on a signal of two long blasts followed by two short blasts of a whistle or horn, except when a train, car, or other vehicle is passing over the bridge or approaching it so closely that they cannot be safely stopped before reaching the draw. The signal from the bridge shall be three long blasts if the bridge can be opened immediately or two long blasts if it cannot be opened immediately.

The bridges are attended during the day only but the telephone numbers of the tenders are posted on the piers and the tenders can be summoned by telephone at any time.

Prominent objects.—In approaching the entrance of Merrimack River the most prominent objects are the cottages on the south side, at the entrance, the large hotels and roller coaster at Cushing, 1.5 miles north of the entrance, and a water tank, a yellow brick stack and several church spires at Newburyport. The jetties are also distinguishing marks when close in, but care should be taken as the outer ends are sometimes difficult to see at high tide. The Coast Guard lookout station* and steel signal tower near the inner end of the south jetty are conspicuous.

Anchorage.—The usual and best anchorage in the river is in the channel about 400 yards below the bridges on the north side of the channel. The current is reported to run strongest along the south shore here and the holding ground is good. South and southwest of Halftide Rock are a number of private yacht moorings. It is best for visiting yachtsmen to use one of these if possible because of the strong currents. See Harbor master for special anchorage area for small craft.

Pilots.—Strangers entering the river should take a pilot, and it is advisable for all vessels of over 9-foot draft to take one, as the channel over the bar is changed by heavy easterly seas and buoys may be missing or temporarily out of place. Vessels bound up the river above Newburyport should take a pilot or towboat. Pilotage is compulsory only for vessels engaged in the foreign trade, of which none enter. A pilot can sometimes be obtained at Portsmouth and some of

*Lat. 42°48′.9, Long. 70°48′.6 : Charts 331, 1206, 1106.

the local boatmen at Newburyport are competent pilots for this bar although not licensed.

Towboats.—There are no towboats available at Newburyport. The nearest towboat to be had is at Portsmouth. The master of this towboat is a licensed pilot.

Supplies.—Coal in large quantities can be obtained in Newburyport alongside the wharf. The water in the river is fresh for about 7 months in the year. Water and some ship-chandlers' stores can be had at Newburyport, and gasoline and provisions at any of the towns on the river.

Repairs.—There are several marine railways and boat yards. Small craft up to 65 feet in length, with a maximum draft of 8 feet can be hauled out.

Freshets occur in the spring, but as a rule they do not interfere with navigation.

Ice seldom obstructs navigation as far as Newburyport; drift ice may sometimes interfere with vessels under sail, but steamers and vessels assisted by towboats can usually work their way through. Westerly winds carry the drift ice out to sea; during their continuance the flood current has no effect upon the local formations or drift ice. With the wind from any other direction, the flood current will prevent the drift ice from leaving the river.

Above the lower bridges the river is liable to be closed by ice from January to March.

Tides.—The mean rise and fall of the tides is about 8 feet at the entrance and about 5 feet at Haverhill at low river stage.

Currents.—Currents are strong in the river, and yachts sometimes drag when anchored off the American Yacht Club. Strangers should use a mooring if available.

Directions, Merrimack River.—The river for a distance of 5.5 miles above the entrance is shown on chart 331. Above that point no chart is available. There is a whistling buoy outside the bar, and the channel across the bar is marked by a lighted range and by buoys, but is subject to some change, and strangers in vessels are advised to take a pilot. The lighted range does not always mark the best water, but the buoys are usually shifted to conform with changes in the channel. Small craft may enter with a smooth sea and on a rising tide following the buoys. The river cannot be entered with a heavy sea.

The outer ends of the jetties are bare several feet at high tide.

After crossing the bar, the channel is well marked and easily followed to Newburyport. A lighted range leads across a bar with a depth of about 8 feet just before reaching the wharves at Newburyport. The channel on the range leads between a red beacon with a spindle marking **North Pier** and a black buoy marking **South Pier,** which bares at half tide. The range shows about 50 yards to the right of a high yellow chimney. When inward bound stay south of the range until abeam of North Pier.

The channel between Newburyport and Haverhill is marked by buoys at the most difficult points, but it is narrow and crooked, leads close to rocks in places, and local knowledge is necessary to keep in it.

Merrimack River can also be entered by small craft from Plum Island Sound through Plum Island River (described below).

MERRIMACK RIVER TO CAPE ANN

(CHART 1206)

From Merrimack River entrance the coast is sand dunes and trends southward for about 7½ miles to the entrance of Plum Island Sound and Ipswich River. There are many cottages on the south side of Merrimack River entrance, and scattered cottages southward along the beach. Inside the beach is Plum Island Sound and several tributaries forming the approach to villages at their heads.

Plum Island River forms a thoroughfare for small craft between Merrimack River, just inside its entrance, and Plum Island Sound. It is bare at low water and is said to have a depth of 7 or 8 feet at high water, but the deepest draft using it at high water with local knowledge is about 4 feet. The channel is narrow and unmarked, does not always lead in midchannel, and local knowledge is necessary for its navigation. It is crossed by a drawbridge having a draw opening 30 feet wide. The approach to the north end of the thoroughfare is between the east side of Woodbridge Island and the west end of a dike, covered at high water and unmarked.

Plum Island Sound is the approach to several small rivers and villages and is frequented by many small craft. It had a depth in 1940 of 3 to 5 feet at low water across the bar. The bar is shown on larger scale Chart No. 243. The channel is marked by buoys and is subject to change.

Ipswich River, emptying into the south end of Plum Island Sound from westward, has been improved by dredging in the lower end to a depth of 6 feet. In 1940 the bar was reported to have shoaled to about 1 foot at low water. After entering the river there is a depth of about 4 feet to the town of **Ipswich,** on the railroad 2.5 miles above the entrance. The channel above the entrance is usually marked by bush stakes. The river is frequented by many pleasure craft. Gasoline, water, and provisions are obtainable at Ipswich. **Little Neck** is a summer settlement on a prominent hill on the east side at the entrance of Ipswich River. It has a float landing. Gasoline and some supplies are available at the float.

On the northeast side of **Great Neck** is a pier and float landing, at which gasoline is available.

Rowley River, emptying into Plum Island Sound near its middle, has a depth of about 2 feet to a landing near the railroad station of **Rowley,** 2 miles above the entrance. The village of Rowley is about 1 mile from the station. The channel is reported to be marked by bush stakes during the summer.

Parker River, emptying into the north end of Plum Island Sound from westward, has a depth of about 4 feet in a very narrow channel to a fixed bridge at **Newbury Old Town,** 1.6 miles above the entrance. The channel is marked by buoys but is difficult without local knowledge. Newbury Old Town is a summer settlement, and has a wharf just below the bridge, and several float landings. The river is navigable by small craft for several miles above Newbury Old Town, but is little used. All of the bridges are fixed.

There is a boat yard at Newbury Old Town, at which small craft up to 42 feet long and 5-foot draft can be hauled out.

IPSWICH AND ESSEX BAYS

(CHART 243)

Ipswich Bay is the bight between the northern point of Cape Ann and Plum Island Beach. Between these points it is about 6 miles wide and makes in southward about 3 miles. The bay is the approach to Ipswich, Essex, and Annisquam Rivers, and has depths of 4 to 15 fathoms, except in its southern and southwestern sides, where the shore should be given a berth of a little over 1 mile to avoid the shoals off the river entrances.

Essex Bay and **River** lie midway between Ipswich and Annisquam Lighthouses. The entrance is over a shifting bar, over which a depth of about 3 or 4 feet can be carried at low water through a narrow buoyed channel. The river is navigable to the town of **Essex,** 4 miles above its mouth, through a narrow dredged channel about 4 feet deep at low water. The channel through the bay is buoyed and the river channel is usually marked by bush stakes in the summer. There are shipyards at Essex where wooden vessels are built; otherwise there is no traffic except by local fishermen and launches. Local knowledge is necessary to follow the channel across the bar and in the river. Three houses on the east side at the entrance are prominent.

Gasoline and some supplies can be obtained at a general store.

There is a yacht club with pier and float landing at **Conomo Point.**

ANNISQUAM RIVER AND CANAL

(CHART 233)

This is a thoroughfare leading from the eastern part of Ipswich Bay, north of Cape Ann, to Gloucester Harbor, on the south side of the cape. It has a depth of 10 feet on a bar at the north end, and from inside the bar has been dredged where necessary to a depth of 8 feet at low water through to Gloucester Harbor. Some shoaling has taken place. It is narrow and crooked, but is marked by buoys and beacons, and extensively used by many small craft. Strangers in small craft should have no trouble in going through with a smooth sea with the aid of chart 233; the best time is on a rising tide. The bar at the north end cannot be crossed in a heavy sea. The mean rise and fall of tides is about 9 feet.

The thoroughfare is crossed by two drawbridges near the south end. The southerly is a highway bridge at the entrance from Gloucester Harbor, and forms the most distinguishing mark by which the entrance may be recognized. It is a double-leaf lift, with a single opening 40 feet wide and a headroom of 7.5 feet at high water when closed. The signal for the draw is three blasts of the whistle. The railroad bridge 0.6 mile northward, has a single lift opening 40 feet wide and a headroom of 16.5 feet at high water when closed.

Pilotage.—Vessels approaching from the northward and desiring a pilot or a towboat should signal the Annisquam Lighthouse.

Vessels approaching from the southward can signal for a pilot or towboat at Dolliver Point Coast Guard Station or Eastern Point Lighthouse.

Annisquam Harbor Lighthouse, on the east side at the northern entrance to Annisquam River, is a white cylindrical tower with an elevated walk to dwelling. The light is 45 feet above high water and visible 12 miles. The fog signal is an electric siren. It is operated from October 15 to May 15 of each year.

Annisquam is a village and summer resort on the east side of Annisquam River just inside its north end. There are several float landings and anchorage for small craft in 5 to 8 feet in **Lobster Cove,** on the southeast side of the town, anywhere below the bridge. This harbor is frequented by numerous small craft in summer. A channel 6 feet deep and 50 feet wide has been dredged into Lobster Cove to near the bridge. It is marked by locally maintained buoys during the summer. There is a prominent yacht club with float landing on the point at the western entrance to Lobster Cove.

Mill River is a tributary of Annisquam River, on the east side, 0.4 mile southward of Annisquam. A channel 6 feet deep and 60 feet wide, with an anchorage basin of the same depth, has been dredged into the river for a distance of 0.7 mile from the entrance. Some shoaling has occurred. There are numerous summer houses and float landings on the river, and it is used by many small craft in summer.

Directions, Annisquam River.—No special directions are necessary. Chart 233 is the guide. Care should be taken to avoid the sunken rock marked by a buoy which lies close to the channel about 100 yards northweastward of beacon no. 12.

Bay View is a village on **Hodgkins Cove,** 0.8 mile northeastward of Annisquam Lighthouse. There is a lobster plant on a long stone pier with a depth of 15 feet on the outer half of the southwest side, in a channel about 70 feet wide. The cove at the inner end of the pier on the northeast side has a depth of about 2 feet at the entrance and 3 or 4 feet inside. There are unmarked rocks in the entrance. The locality is marked by old derricks used in the adjacent abandoned quarries.

CAPE ANN

(CHART 243)

Under this heading is described that part of the Capes and the offlying dangers from Bay View at the mouth of the Annisquam River to Gloucester Harbor.

Cape Ann is very rocky and broken, 235 feet high in its highest point, known as **Pool Hill,** and covered with numerous summer homes. There are also several abandoned granite quarries. Communication is by railroad to Gloucester and Rockport, and by highway entirely around the cape.

Lanes Cove, 1.4 miles northeastward of Annisquam Lighthouse, is a small cove protected by stone breakwaters at the entrance, forming a harbor for small craft. It has a depth of 12 feet at the entrance and 10 feet in the middle inside. Some coal is landed here. **Lanesville** is a village on the cove. The wharf forming the southwest side of the harbor has a depth of 6 feet at its outer end.

Folly Cove, on the north side of Cape Ann, 2.4 miles northeastward of Annisquam Lighthouse, has a stone wharf on the east side with about 16 feet of water alongside.

Ocean View is a summer settlement on **Andrews Point,** at the north end of Sandy Bay. There are no wharves. A dome on a stone house is prominent.

Sandy Bay is the large bight in the northeastern shore of Cape Ann, between Straitsmouth Island on the east and Andrews Point on the west. Besides these points the bay is 2 miles wide and about 1.5 miles long to its head (Rockport Harbor). A breakwater has been partially completed to form a harbor of refuge. It extends 1,200 yards northward from Avery Ledge, then 830 yards northwestward toward Andrews Point. In 1940 it was awash at low water except for a distance of about 300 yards near the middle, where it was above high water. There is a lighted buoy off the northwest end and a bell buoy off the south end. The bay and approaches have been examined by means of a wire drag. The depths inside the breakwater are 7 to 14 fathoms with several rocky spots of less depths in the southern part. A 12-foot rock on the south side is marked by a buoy. The bay is sometimes used as an anchorage by schooners and tows. It is exposed in a northeasterly weather, and at such times Gloucester or Salem Harbors are generally used.

Caution.—About 400 yards of each end of the breakwater are covered at mean low water. It is reported that a number of boats have grounded on the breakwater. Avoid this by keeping on the correct sides of the buoys that mark the ends.

The entrance to Sandy Bay between Straitsmouth Island and the bell buoy marking Avery Ledge has broken bottom and a rocky spot with a depth of 22 feet in the middle, which strangers may be unable to avoid. Strangers should not use this channel with a greater draft than 18 feet. A ledge, bare in places at low water and having depths of 16 and 11 feet near the end, extends 300 yards northeastward from the northeast end of Straitsmouth Island. The northern entrance to the bay westward of the lighted buoy at the northwest end of the breakwater is deep and clear.

Pigeon Cove, bearing 298° true from Straitsmouth Lighthouse, is a small cove protected by a breakwater and having depths of 3 to 10 feet inside. There are bulkhead wharves around the harbor and there is a public float landing. The best water is on the northeast side. There is a foundry at the head, at which oil is received in barges drawing about 10 feet. **Pigeon Rock,** 50 yards off the east point outside the jetty, is nearly bare at extreme low water.

The most prominent feature of Pigeon Cove is a high concrete stack of the foundry located on the cove, and a tank on Pigeon Hill.

Lying 0.3 and 0.5 mile southward of Pigeon Cove are two stone piers built out from the shore. Both are abandoned and are in poor condition.

Dodge, Bartlett, and **Mitchell Rocks** lie in a cluster about 300 yards from the western shore of Sandy Bay between the two piers southward of Pigeon Cove. Dodge Rock is bare at low water and is marked by a spindle. The western end of the rocks lies 100 yards eastward of the south pier. The south rock has 14 feet over it

and lies 250 yards southward of the spindle. Mitchell Rock, with 4 feet over it, and another, with 18 feet over it, lie 280 and 400 yards, respectively, northward of the spindle and 350 yards eastward of the north pier.

Sandy Bay Ledge is partly bare at high water and extends 200 yards from the western shore of Sandy Bay, southward of the south pier.

Harbor Rock, with 2 feet over it, lies 150 yards northeastward of the end of the north breakwater at the entrance of Rockport Harbor and is marked on its north side by a buoy. Inside the rock a shelving ledge extends 75 yards northeastward from the end of the north breakwater.

Rockport Harbor (see large scale plan of Rockport Inner Harbor on chart No. 243), at the southwest end of Sandy Bay, is used as a harbor by small craft. The entrance is about 200 feet wide between two breakwaters. A channel 12 feet deep and 100 to 200 feet wide has been dredged from the entrance to the public wharf at the west end. The channel leads south of a red buoy just outside the entrance and 75 feet southward of the end of the breakwater on the north side, heading for the south edge of the northerly wharf until inside, and then for the northern part of the southerly wharf. The northern breakwater is marked by a light placed at its outer end. In 1940, areas on both the north and south sides of the public wharf were reported to have a depth of 4 to 5 feet.

There are ledges near the shores, especially on the north side between the end of the breakwater and the first wharf on the north side. Boats should go nothing northward on a line from the end of the north breakwater to the end of the first wharf on the north side and nothing south of a line from the end of the south breakwater to the south edge of the wharf at the head. The first wharf has a depth of about 8 feet at low water. There is about 7 feet at the yacht club floats. Gasoline and provisions are obtainable. There is water on the wharves. The houses and church spires at the village of **Rockport** are prominent from outside. Rockport has communication by railroad and by highway. There is a basin suitable for small craft and protected by stone walls just westward from Rockport Harbor proper, but it was reported nearly bare at low water in 1940.

Straitsmouth Island is low and grassy and has a lighthouse and a few buildings at its eastern end. **Straitsmouth Lighthouse** is a white cylindrical tower. The light is 46 feet above the water and visible 9 miles. There is a Coast Guard station south of **Gap Head,** westward of Straitsmouth Island; **storm warnings** are displayed there.

Flat Ground is a dangerous ledge 0.5 mile long, with 2 to 12 feet over it, lying 1 to 1.5 miles north-northeastward of Straitsmouth Lighthouse. The ledge is marked by two buoys, one at its south end and another at its north end.

Dry Salvages is a bare ledge about 15 feet above high water near the middle of a reef about 500 yards long in a northerly direction. The ledge is marked by a large tripod beacon, which lies a little over 1 mile east-northeastward of Straitsmouth Lighthouse.

Little Salvages is a ledge showing well bare at low water and with parts awash at high water. It lies about 500 yards westward of Dry Salvages. Shoal water extends out a little more than 200 yards from the western side of the bare part of the ledge, and a rock, bare at lowest tides, lies between it and Dry Salvages.

Cape Ann Lighthouses,* on **Thacher Island,** 0.5 mile off the eastern side of Cape Ann and 1.3 miles southward of Straitsmouth Island, are two gray stone towers identical in appearance, 300 yards apart. The light is displayed from the southern tower. The northern tower is no longer lighted. The light is 166 feet above high water and is visible 19 miles. The fog signal is an air diaphone.

Cape Ann Lighted Whistle Radiobeacon Buoy is located 2.5 miles 97° true from Cape Ann Lighthouse.

The Londoner is a ledge about 0.4 mile long in a northeasterly direction; it has general depths of 7 to 11 feet over it, and lies 0.5 mile east-southeastward of Cape Ann Lighthouses. Near the central part of the ledge, on a cluster of rocks which bare at low water, is a spindle. There is a passage with 12 to 26 feet between The Londoner and Thacher Island; it should not be attempted by a stranger.

Milk Island, about 0.4 mile southward of **Emerson Point,** is connected to that point and to Thatcher Island by two bars, with depths of 3 to 7 feet. **Salt Island Ledge** bares at extreme low water.

There are a number of reddish brown, bare, bluffs along the coast between **Cape Hedge** and Eastern Point. The most prominent of these are on Cape Hedge, **Salt Island,** the points to the north and west of Salt Island, the points on both sides of the entrance to **Brace Cove,** and on the southern part of Eastern Point.

Sandy Bay and approaches, and an area 2½ to 10 miles wide, northeastward, eastward, and southeastward of Cape Ann, have been examined by means of a wire drag.

GLOUCESTER HARBOR

(CHART 233)

Gloucester Harbor is one of the most important fishing ports in the United States and an important harbor of refuge; it lies 5 miles southwestward of Emerson Point, the easternmost point of Cape Ann. The entrance is marked on its eastern side by Eastern Point Lighthouse. There is an outer and an inner harbor, the former with a general depth of 4 to 6 fathoms and the latter 2½ to 4 fathoms.

Eastern Point Lighthouse is a white conical tower with a covered way to a dwelling. The light is 57 feet above the water, and visible 13 miles. The fog signal is a bell. There is a radio beacon (skeleton steel tower 125 feet high) north of the lighthouse.

A breakwater extends 750 yards northwestward from the shore near Eastern Point Lighthouse, and is marked at its end by **Gloucester Breakwater Light.** The entrance westward of the breakwater is about 0.6 mile wide; but **Round Rock Shoal** extends from 0.15 to 0.3 mile westward of the end of the breakwater, leaving a channel 150 yards wide and about 3 fathoms deep eastward of the shoal, and nearly 0.4 mile wide and 4¾ to 9 fathoms deep westward of the shoal. During heavy southeast gales the sea at times breaks nearly the whole distance

*Lat. 42°38′.2, Long. 70°34′.6: Charts 243, 1206, 1106, 1107, 70.

across the entrance. There is reported to be a space westward of Round Rock Shoal which is not known to break. Strangers should enter westward of Round Rock Shoal.

Normans Woe, on the west side at the entrance to Gloucester Harbor, is a rocky headland marked by a round house. **Normans Woe Rock,** 0.3 mile northeastward of Normans Woe and over 0.1 mile offshore, is a dark rocky islet, 45 feet high, surrounded by extensive ledges. There is a bell buoy 0.2 mile southeastward of it.

Southeast Harbor is the cove in the eastern part of Gloucester Harbor, northward of Black Bess Point and southward of Tenpound Island. It has good anchorage, soft mud and clay bottom, in about 4 to 5 fathoms and is generally used by vessels seeking shelter. There is a yacht club on the northeast side of the harbor which maintains a pier and float landings. Water is piped to the floats.

Western Harbor is the cove, of semicircular shape, in the northern part of Gloucester Harbor, northward of Tenpound Island. It has good anchorage, soft mud and clay bottom, in from 4 to 5 fathoms, taking care to give the shore a berth of 300 yards. A part of the town of Gloucester is built on its northern shore, but there are no wharves on this side, and it is a parkway.

The southern entrance to Blynman Canal and Annisquam River, the inside route to Ipswich Bay on the north side of Cape Ann is through Blynman Bridge at the head of Western Harbor. For details see page 257. The school tower about 500 yards north of the bridge is prominent.

The **Gloucester Coast Guard station** is located on the west side of Western Harbor, in Oldhouse Cove.

Tenpound Island* is marked by a light on the west side, and has a house and wharf at the **U. S. Fish and Wildlife Service** on the north end. The light is shown from a brown conical tower, is 45 feet above the water and visible 12 miles. The fog signal is a bell. Storm warning signals are displayed.

Rocky Neck is a high and partly wooded island on the east side at the entrance of the inner harbor. It is connected with the shore eastward. **Black Rock,** 100 yards off the western end of Rocky Neck, is bare at half tide and marked by a spindle.

Inner Harbor is 0.8 mile long and has depths of 2 to 4 fathoms. A rocky patch with 17 feet over it lies in midentrance halfway between Rocky Neck and Fort Point. **Harbor Cove,** on the northwest side just inside the entrance to the inner harbor, has been dredged to a depth of 15 feet for the entire area of 50 feet outside the harbor lines. A 16-foot channel has been dredged along the wharves to abreast the west side of the Community Fish Pier. The northwest side of the Community Fish Pier, at the head of the inner harbor, has been dredged to 22 feet at mean low water along the face and out for a distance of 250 feet from the face of the pier.

Smith Cove provides good anchorage for small boats in depths up to about 3 fathoms.

Wharves.—There are a great many wharves at Gloucester, most of which are used in connection with the fish industry. Depths vary up to 22 feet. Dockage and wharfage charges are not usually made. There is a public wharf and float landing at the extreme head of

*Lat. 42°36′.1, Long. 70°39′.9: Charts 233, 243, 1206, 1207, 1106, 1107.

Harbor Cove, with a depth of about 6 feet alongside, at which small craft can land. There is no railroad connection to the wharves.

Pilots.—Pilotage is compulsory for all vessels over 7-foot draft (except fishing vessels), engaged in foreign trade but not for vessels engaged in coastwise trade. The signal for a pilot is a flag in the rigging or four long blasts of the whistle. At night the signal is a blue light. The pilot station for the second district is at Eastern Point. A pilot for any point in the second pilotage district can be obtained there.

A towboat is stationed at Gloucester and will go outside to a vessel making signal. Large vessels are generally towed in and out. Vessels desiring tug or pilot are reported to Gloucester by telephone from Eastern Point.

Anchorage.—The best and generally used anchorage in the outer harbor for vessels coming in for shelter or bound to Gloucester is in Southeast Harbor, locally known as **Pancake Ground.** Yachts anchor off the Yacht Club landing on the northeast side of the harbor.

Anchorage in Western Harbor is good and is much used. This is the **quarantine anchorage.**

Anchorage in the Inner Harbor is permitted only in a small area between Rocky Neck and Community Fish Pier, and also in Smith Cove.

Customs.—The Customs office is located in the New Federal Building. Gloucester is a port of entry and marine documents are issued.

Public Health Service.—There is no Public Health hospital but this Service maintains a third-class relief station at the Customhouse.

Immigration.—Immigration affairs are handled at the Customhouse.

Quarantine.—Vessels subject to quarantine anchor in Western Harbor to receive medical inspection by a Public Health officer.

Chart Agency.—A Chart Sales Agency of the U. S. Coast and Geodetic Survey is maintained at Gloucester.

Port Series No. 24 covers the Port of Gloucester.

Harbor-master.—The operator of the towboat is the harbor-master and a licensed pilot.

Repairs.—Gloucester has marine railways for hauling out the class of vessels that ordinarily trade from here, the largest capable of hauling out vessels of 200 tons, 125 feet in length, and 16-foot draft. There are machine shops for ordinary repairs to machinery. Boston is the nearest place at which repairs to large vessels and extensive repairs to machinery can be made.

Supplies.—Coal is obtainable from the wharves or from lighters. Ship chandlery and all other supplies are also obtainable.

Fuel oil is not available in bunker quantities but diesel oil can be had as desired.

Fresh water of good quality can be had at the wharves.

Storm signals are shown from flag pole on Tenpound Island.

Communications.—Gloucester has rail and highway connection, but has no regular steamer service.

Ice seldom extends outside Tenpound Island, at the entrance to the inner harbor. The towboats and steamers generally keep the inner harbor open.

Tides.—The mean rise and fall of tides is about 8.5 feet. The highest tides result when easterly and southeasterly gales occur near the times of new and full moon.

Currents.—The tidal currents do not to any great degree interfere with the movements of vessels, as they set directly in and out of the harbor and their velocity is comparatively small.

DIRECTIONS, GLOUCESTER HARBOR

(CHART 233)

Gloucester Harbor and approaches have very broken ground and many rocks and ledges, some of them unmarked, and careful navigation is necessary, especially in thick weather. The harbor and approaches have been examined by means of a wire drag, and the dangers are charted. The principal dangers for vessels of 24-foot or less draft, to an anchorage in Southeast Harbor, and 18-foot or less draft into the inner harbor, are marked, and strangers are advised not to enter with a greater draft.

Deep-draft vessels entering the inner harbor should use caution to avoid the 17-foot rocky shoal lying nearly in midchannel between Rocky Neck and Fort Point.

Strangers in vessels are advised to enter westward of Round Rock Shoal. In heavy southeasterly gales the sea breaks across the eastern side of the entrance from the breakwater into Round Rock Shoal, and at times breaks nearly the whole distance across to Normans Woe Rock.

No special directions are necessary. Charts 243 and 233 are the guide for approaching and entering Gloucester Harbor.

Caution.—Land observations indicate that differences as much as 3° greater than the normal west variations may be encountered within the area embraced by Chart 233.

Chapter 13.—GLOUCESTER TO PLYMOUTH

(CHART 1207)

MAGNOLIA HARBOR

(CHART 243)

This is a cove about 1.5 miles westward of the entrance to Gloucester Harbor and just inside **Kettle Island. Magnolia** is a prominent summer resort on the eastern side. There is a public pier and float with about 4 feet alongside at low water. The harbor is used by many small craft but the holding ground is not very good and the cove is exposed to southerly weather.

GLOUCESTER HARBOR TO LYNN HARBOR

(CHART 240)

Off the shore eastward of Manchester Harbor entrance, between Gloucester entrance and House Island, are a number of islands, rocks, and ledges, which extend about 0.8 mile from shore. The farthest outlying ones, named in order from eastward, are: **Great Egg Rock** (high and bare) **Boohoo Ledge** (bare at low water), **Salt Rock** (shows at high water), **Pickett Ledge** (bare at low water), **Gales Ledge,** and **Pilgrim Ledge.** There are several coves, but Manchester Harbor is the only one of interest to navigation.

The shore line of this section of the coast is lined with summer homes and hotels.

Manchester Harbor is about 5 miles westward of Gloucester Harbor and is formed by an arm of the bay extending behind **Gales Point** in a northeasterly direction for 1 mile to the village of **Manchester.** The entrance to the outer harbor is northward of Bakers Island Lighthouse,* between **House Island** (partly wooded) on the east and Great Misery Island on the west. A channel dredged to 8 feet leads into the harbor and there is a depth of about 6 feet to the coal wharf at the head of the harbor. A railroad draw with a horizontal clearance of 50 feet and a vertical clearance of 6½ feet crosses the head of the harbor. The harbor is frequented by many small craft. The en-entrance channel is marked by buoys.

There is a yacht club with float landing, and another wharf and float landing at a marine railway capable of hauling vessels up to 80 feet in length and 9-foot draft on the west side of the harbor. Gasoline and water are available at the float landings, and supplies in the town.

Tides.—The mean range of the tide is about 9 feet.

There is anchorage in the outer harbor inside Great Misery and House Islands. Vessels desiring to anchor for the night or in head

*Lat. 42°32′.2, Long. 70°47′.2; Charts 240, 1207, 1106, 1107, 70.

winds may here find fair holding ground and good shelter except in southerly gales. The anchorage is 0.8 mile wide, and has from 3 to 6 fathoms.

Whaleback is a dangerous ledge lying in the entrance of the outer harbor of Manchester. It is about 400 yards long east and west, and 200 yards wide. Near the middle of its northern side is a rock bare at low water, which is marked by a spindle. There is a clear channel 250 yards wide between the ledge and House Island; the channel westward of the ledge is 500 yards wide.

Sauli Rock, bare at half tide, lies 300 to 400 yards eastward of the northeast end of Great Misery Island, and is marked on its south side by a buoy.

White Ledge, bare at low water, lies 300 yards northward of House Island, and is marked on its northwest side by a buoy. A rock covered at half tide lies 250 yards north-northeastward of White Ledge, and is marked off its northwest side by a buoy.

Chubb Islet, bare and rocky, lies 300 yards from the north shore of the outer harbor of Manchester, and should be given a berth of over 200 yards.

SALEM, BEVERLY, AND MARBLEHEAD HARBORS

(CHART 240)

These harbors form a large, irregular indentation in the shore of Massachusetts Bay, 11 miles southwestward of Cape Ann, and 12 miles northeastward of Boston Harbor entrance. Gales Point is the northern and Marblehead Neck the southern point at the entrance to this large indentation, which includes within its limits the harbors of Manchester, Beverly, Salem, and Marblehead, the distance between the two points being 4 miles. This wide space is studded with islands, bare rocks, and sunken ledges, through which lead the several channels into the harbors.

Salem Harbor is considerably used as a harbor of refuge; Salem and Beverly have considerable coasting trade, mostly in vessels carrying coal and oil, the deepest draft being about 28 feet. Marblehead Harbor is frequented by many yachts and small craft, and has an occasional cargo of coal.

Channels.—Three main channels lead through the islands and rocks at the entrance. They are known as Main Ship Channel, Cat Island Channel, and Marblehead Channel. There are several other channels of less importance, used only by local boats. These channels have been swept by the wire drag, and all dangers found are shown on chart. These channels are named on Chart 240.

Main Ship Channel, the most northerly, leads between Bakers and Great Misery Islands, and northward of Great and Little Haste. It has a depth of about 5½ fathoms until up to Smith Point if the range is closely followed, but there are several buoyed dangers close to the sailing line. This channel is used by most deep-draft vessels.

Cat Island Channel, the middle channel, has its entrance near **Halfway Rock,** and leads in a northwesterly direction, between Cat Island on the south and Satan Rock, the Brimbles, and Eagle Island on the north. The least depth in Cat Island Channel is between Eagle and Cat Islands, and is about 26 feet.

Marblehead Channel, the westerly channel, leads in a northerly direction between Cat Island and Marblehead Neck. There are several marked shoals with 10 to 24 feet close to the channel, on which the sea breaks in easterly gales, and several unmarked ones with depths of 19 feet and more. It is not recommended for strangers with a greater draft than 12 feet.

South Channel, a branch of Marblehead Channel, leads along the northern shore of the peninsula between Marblehead and Salem Harbors and southward of the numerous rocks and ledges on the east side of the entrance to Salem Harbor. The principal dangers are marked, but the channel is less than 100 yards wide in its narrowest part; it has a least found depth of about 15 feet, but has not been closely examined and should not be used by strangers except in small craft.

Islands and rocks along Main Ship Channel.—Bakers Island, on the south side of the entrance to Main Ship Channel, has houses scattered over it and a lighthouse at the northern end. There is a boat landing on the west side.

Bakers Island Lighthouse is a white conical tower and the light 111 feet above high water, is visible 16 miles. The fog signal is a siren.

An extensive area of rocks and reefs extends for 2 miles southeastward of Bakers Island. A lighted whistling buoy marks the southeast end and vessels should pass outside of it. **Middle** and **Inner Breakers** are partly bare at low water.

Great Misery Island,* on the north side of Main Ship Channel at the entrance, has scattered houses and a landing at its north side.

Hardy Rocks, 0.6 mile westward of Bakers Island Lighthouse and nearly 0.3 mile south-southwestward of the Main Ship Channel range, is bare at low water and marked by a beacon and a buoy on the northeast side.

Bowditch Ledge, 1.2 miles west-northwestward of Bakers Island lighthouse and 300 yards south-southwestward of the Main Ship Channel range, is marked by a granite beacon with a black staff and cage.

Great Haste, on the south side of the main channel, 2.4 miles westward of Bakers Island, is a bare rock surrounded by ledges. **Little Haste,** close northwestward of Great Haste, is bare at low water and marked by a beacon.

Islands and rocks along Cat Island Channel.—Halfway Rock, 2 miles southward of Bakers Island, is about 15 feet high and marked by a prominent beacon. It is surrounded by deep water.

North and **South Gooseberry** are high, rocky islets on the western end of the extensive ledges southward of Bakers Island. **Dry Breakers,** the southerly part of the ledges, show at high water as a low, bare ledge.

Pope Head, 300 yards northwestward of North Gooseberry, is a rugged bare rock, surrounded by ledges to a distance of 150 yards. A buoy marks the western side of the ledges.

Satan Rock, 0.5 mile east-southeastward of Cat Island, is a small, bare rock marked by a spindle with black cage; it should be given a berth of over 200 yards.

---

*Lat. 42°33′.0, Long. 70°48′.0 : Charts 240, 1207.

Brimbles is a rock bare at low water lying 0.3 mile south-southeastward of Eagle Island. It is marked by a black spindle with four arms (the two arms facing Cat Island Channel are red); the spindle should be given a berth of over 200 yards.

Eagle Island is small, grassy, and rocky, and lies 0.7 mile north-northeastward of the north end of Cat Island.

Grays Rock, 0.7 mile northwestward of Cat Island, is about 10 feet high.

Coney Island is a low, grassy islet with a small stone house near its middle. **Coney Ledge,** the higher parts of which are covered at high water, is an extensive ledge extending southeastward and southward from Coney Island, and is marked at its easterly end by a buoy.

Islands and rocks along Marblehead Channel.—Islands and rocks, sunken and bare, extend for 2 miles southward and southwestward from the south end of Marblehead Neck. Many of them are marked by buoys, and the channels between them are used by local boats, but the area should be avoided by strangers. A lighted bell buoy marks the southeastern end of the broken ground. Those showing above water are **Great Pig Rocks,** bare at high water, and having rocks awash at low water southward of them; **Sammy Rock,** bare at low water; **Ram Islet,** high rocky, and grassy; **Little Pig Rocks,** awash at high water; **Roaring Bull,** bare at low water and marked by a spindle; and **Tinkers Island,** marked by several houses. A bar with little depth connects Tinkers Island with **Flying Point,** the southern end of Marblehead Neck.

Tom Moore Rock, at the eastern end of a reef extending 500 yards eastward from the middle of Marblehead Neck, is bare at one third ebb and marked by a spindle.

Marblehead Rock, 500 yards eastward of the northern part of Marblehead Neck, is a high bare rock with a conical beacon on the top.

Cat Island, 0.8 mile northeastward of Marblehead Neck, is over 0.3 mile long, bare, and has a large building on the north end, and a wharf on the southwest side. It is surrounded by extensive ledges, bare and submerged. There is a water tank on a small hill near the center of the island. A spindle marks the high bare rock at the south end.

Marblehead Harbor.—This harbor is about 1 mile long and 700 yards wide and is formed on the east and south by Marblehead Neck and a narrow strip of land called **Marblehead Beach,** connecting the south end of the neck with the mainland. Marblehead Lighthouse, at the north end of Marblehead Neck, marks the easterly point at the entrance. Marblehead Harbor is an excellent anchorage and is much used by yachts during the summer. The anchorage is reported to be uncomfortable for small yachts when the wind is northeast. The depths in the harbor up to Skinner Head are 4 to 5 fathoms, and vessels up to about 20 feet draft can enter. The greater part of the head of the harbor southward of Skinner Head and Boden Point is shoal. Some coal is received in barges drawing up to 15 feet.

Marblehead Lighthouse, on the north end of Marblehead Neck, is a square skeleton tower, brown to gallery and black above, with an elevated walk to dwelling. The light is 130 feet above the water, and visible 15 miles.

Marblehead, on the west side, and **Marblehead Neck,** on the east side of Marblehead Harbor, are important summer resorts. A number of prominent yacht clubs have their headquarters here. There are numerous piers with float landings, and in 1940 two public float landings were maintained. There are several boat repair yards; the largest marine railway has a capacity of 250 tons, 125-foot lengths and 16-foot draft. Diesel oil, gasoline, water, ship chandlery, and supplies are available.

A U. S. Coast and Geodetic Survey Chart Sales Agency is located at Marblehead.

Storm-warning displays are shown from a steel tower at **Fort Sewall,** the northern entrance point to Marblehead Harbor.

Salem Harbor.—The harbor proper is about 1.5 miles long in a southwesterly direction. The channel favors the eastern side of the harbor and has depths of 3½ to 4 fathoms in the outer part and about 15 feet to the entrance of the dredged channel leading to South Salem and South River.

The entrance to Salem Harbor is between **Abbott Rock Beacon** (spindle on stone base) and **Fort Pickering Lighthouse*** (brown conical tower with white base, brown bridge to shore) on the west, and **Great Aquavitae Beacon** (spindle on stone base) on the east.

Mann Rock, with 20 feet over it, lies 1,000 yards 76° true from Juniper Point. It lies nearly in the track of vessels approaching Salem Harbor and is marked by a buoy.

There is a large wharf and coal terminal on the northwest side of the harbor. The overhead conveyors show prominently in approaching. A channel 25 feet deep has been dredged to this terminal and it is used by steamers drawing up to 28 feet. There is 30 feet of water at mean low water alongside the terminal.

A channel dredged to 10 feet but reported shoaled to 6 and 7 feet and marked by buoys, leads to **Derby Wharf** and to South River.

South River is a short estuary extending into the city of Salem. Its entrance is on the west side of Derby Wharf, a long stone jetty with a light (red square tower) on the end. South River has been dredged to a depth of 10 feet (reported shoaled to 8 feet in 1940) and width of 200 to 300 feet to the outer end of Derby Wharf, and to a depth of 8 feet (reported shoaled to 4 feet in 1940) inside to near the head. There is a large mill and a conspicuous brick stack on the west side just inside the entrance. A drawbridge with an opening 43 feet wide (4 feet clearance at high water) crosses the river about 0.2 mile above Derby Wharf. There is a public float landing for small craft on the southeast side at the bridge. The dredged channel at the entrance to the river is marked by buoys and is easily followed by small craft. The midchannel is clear inside.

Customs, Quarantine, and Immigration.—All three are handled by the Customs officer, whose office is in the Post Office Building.

Beverly Harbor.—This harbor lies north of Salem Neck, at the west end of Salem outer harbor, and is formed by the confluence of Danvers River, Beverly Creek (Bass River), and North River. It forms the approach to the city of Beverly. It has some trade in coal and oil, carried in barges and vessels up to 26-foot draft.

*Lat. 42°31′.6, Long. 70°52′.0; Charts 240, 1207, 1106, 1107.

Small craft up to 65 feet in length are allowed to anchor without showing anchor lights along the northeast side of Monument Bar, between Old Hospital Point and the Beacon marking the end of the bar.

A channel dredged to 24 feet leads from Beverly Harbor to the wharves at Beverly.

Beverly is a city on the north side of Beverly Harbor, just inside the entrance. There are depths of about 28 feet at low water at one of the oil wharves, and various lesser depths at the other wharves. There ars a number of yacht clubs and boat yards. Gasoline and water are piped to some of the floats. The capacity of the largest marine railway is 12 tons, 40 feet length, 6.5 feet draft.

Bridges.—Two drawbridges cross Beverly Harbor just above the principal wharves at Beverly. The lower, a highway bridge, has a single opening 40 feet wide, and a headroom of 10 feet at high water when closed. The railroad bridge, 100 yards above the highway bridge, has a single opening 40 feet wide, and a headroom of 3.8 feet at high water when closed. The signal for each bridge is 3 blasts of the whistle.

Beverly Creek (Bass River), a tributary of Beverly Harbor from northward just above the bridges, has been improved by dredging a channel 9 feet deep for about 1 mile above the entrance to near the head. There is a lumber wharf on the east side of the creek. The channel leads between flats bare at low water, and is most easily followed at that time. It is marked by spar buoys to the bridge. It is crossed by a drawbridge 0.6 mile above the entrance, having a single opening with a width of 40 feet, and a headroom of 5 feet at high water when closed.

Danvers River is the continuation of Beverly Harbor northwestward. It has a depth of about 7 feet at low water for 2 miles above Beverly to the village of **Danversport.** Lumber vessels go to Danversport at high water. The channel is narrow and marked by buoys for 1.5 miles above Beverly. It leads between flats bare at low water and is difficult without local knowledge. A drawbridge with an opening 50 feet wide and headroom of 8 feet at high water when closed crosses the river 0.5 mile above the bridges at Beverly. The signal for the bridge is three blasts.

North River, a tributary of Beverly Harbor from southward just above the bridges, is nearly bare at low water in a narrow unmarked channel. It is little used.

Schooners bound for the Danvers River or Beverly Creek are towed by power boats which can be obtained at Beverly.

Prominent objects.—Approaching from eastward, Bakers Island, with its lighthouse on its northern end and numerous houses scattered over the island, and Great Misery Island, the high, grassy island, lying northward of Bakers Island, are the most prominent. A large water tank will be seen about 0.5 mile northward of West Manchester.

Approaching from southward, Halfway Rock, a bare rock about 15 feet high, with a beacon on it, will be seen about 2 miles south of Bakers Island. Southward of Bakers Island lie two high rocky islets, North and South Gooseberry Islands, and about a mile southwestward of these is Cat Island, long and narrow with a number

of houses near the northern end. Marblehead Neck is high and rocky, and has many summer houses and several yacht clubs; Marblehead Lighthouse is on its northern point. Marblehead has several prominent marks including the red brick tower of Abbot Hall, two standpipes, and two radio towers near Naugus Head.

Anchorage.—Salem Harbor is much used as a harbor of refuge, particularly during the autumn.

There is also good anchorage for vessels in what is known as the outer harbor, westward of Bowditch Ledge and northward or eastward of Little Haste, in 5 to 7 fathoms. The most generally used anchorage for vessels is eastward of the entrance to Beverly Harbor and northward of Middle Ground, in 3½ to 6 fathoms. Small vessels, especially sailing vessels, also anchor on the east side of Salem Harbor just inside of Naugus Head, in 3½ to 4 fathoms.

In Beverly Harbor the best anchorage is between **Rams Horn Rock** and **Lobster Rock** beacons, a little south of the line joining them, in 3 to 4 fathoms. Small vessels and motorboats usually anchor on the south side of the channel between Lobster Rock beacon and the bridge, in 12 to 15 feet.

In Marblehead Harbor the anchorage in anywhere in the middle in 24 to 30 feet, good holding ground, and is sheltered from all but northeasterly winds. It is much used as an anchorage by yachts.

Pilotage.—Pilots may be had at Eastern Point, Gloucester, and at Nahant. Pilotage for coastwise vessels is not compulsory. Vessels in foreign trade are required to engage pilots. Deep draft vessels bound for Beverly should take a pilot.

Towboats.—There are no towboats, but one can be obtained from Gloucester or Boston. There are power boats available at Beverly for towing schooners and small barges up the Danvers River.

Supplies.—Diesel oil, gasoline, coal, and water can be obtained at Salem and Beverly, and Marblehead. Provisions, and motorboat supplies are obtainable at all of the cities. Bunker fuel oil is available at Beverly.

Repairs.—There is a railway at Salem for hauling out small craft of about 80 tons, and railways at Marblehead for hauling out yachts up to 250 tons, 125-foot length, and 16-foot draft. There are machine shops for ordinary repairs to machinery at most of these cities.

Ice.—The head of Salem Harbor on the flats is usually closed by ice every winter during the months of January and February, but the formations rarely extend beyond the coal piers except in unusually severe winters, when they have been known to reach as far out as The Haste, and occasionally as far as Eagle Island. Northerly and northwesterly winds are most favorable to local formation in Salem Harbor. Winds from southward and westward, during light formations, have a tendency to carry the ice off to sea, while those from eastward usually break up the formation both in the harbor and its approaches.

Ice rarely obstructs Marblehead Harbor to such an extent as to become a hindrance to navigation. Fishermen have made it a refuge when it was impossible to get into Gloucester, Salem, or Lynn Harbors. The formation of ice in Marblehead Harbor is entirely local, and it remains but a short time.

Tides.—The mean rise and fall of tides is about 9 feet.

Currents.—The tidal current in Salem and Marblehead Harbors has little velocity. In Beverly Harbor it has considerable velocity, and sets across the channel in places. During the first half of the ebb the current sets across the shoal extending northward from Old Hospital Point.

DIRECTIONS, SALEM, MARBLEHEAD, AND BEVERLY HARBORS

(CHART 240)

The approaches to these harbors have very broken ground, and all of the channels lead between islands and rocks, bare and submerged. Caution is necessary for their navigation at all times, and strangers should not attempt to enter or leave in thick weather. All of the channels in the harbors and their approaches, except the channels between the black buoy and the horizontally striped buoy northward of Little Haste, through South Channel and through Marblehead Harbor, have been examined by means of a wire drag and the dangers are shown on the charts. Strangers should exercise great care in navigating through areas not examined by means of a wire drag. For a description of the channels and depths, see page 266.

DIRECTIONS, SALEM HARBOR

(CHART 240)

Through main ship channel.—With Bakers Island Lighthouse bearing between 248° true and 284° true, steer toward it, or coming from Gloucester bring Eastern Point Lighthouse* astern on a 242° course, heading for the southern part of Bakers Island (this course leads 0.3 mile southward of a buoy marking a 17-foot spot).

If the course you are steering does not cross the Main Ship Channel Range well eastward of Bakers Island, change course as necessary when about 1 mile from the light to insure getting on the range while still east of Bakers Island. When on this range make it good. The true course is 276°.

Keeping on this range you will pass 550 yards northward of Bakers Island Lighthouse and nearly 200 yards northward of the buoy marking Powers Rock. After passing the light continue this course for 2.5 miles. When the beacon marking Little Haste is on the port beam, distant 0.6 mile, change course to 227° true and steer this for over 0.7 mile until the buoy marking Mann Rock (20 feet) is on the port beam, distant about 150 yards. Then change course to 203° true, heading for the tangent at Naugus Head. Continue this course for about 0.4 mile until the buoy off Abbott Rock Beacon is about 100 yards on the starboard beam; then change course to 223°, heading to pass between the two lighted buoys marking the entrance to the dredged channel leading to the Salem Terminal Corporation. From a position between these two buoys, the buoys can be followed to the Terminal Corporation's wharf or the course can be changed to 213° true, which will lead to anchorage or to the entrance to the dredged channel leading to South River.

NOTE.—If not of too great draft, when at the position on the main channel range 2.5 miles westward of Bakers Island Light and with

*Lat. 42°34′.8, Long. 70°39′.9: Charts 238, 243, 1206, 1207, 1106, 1107, 70.

Little Haste Beacon abeam, you can change course to **220°** true and steering that course for 1.8 miles will lead to a position about 200 yards northeastward of the lighted buoys marking the entrance to the dredged channel leading to the Salem Terminal Corporation, and by continuing this course for 0.5 mile further you will be off the buoy marking the entrance to the dredged channel marking the South River. (This course leads rather close to the 17-foot spot lying 0.3 mile north of Little Haste Beacon and also rather close to the 20-foot spot known as Mann Rock. Both of these rocks are buoyed. Also, the course does not lead through quite as good water as the ones given in the preceding paragraph.)

DIRECTIONS, MARBLEHEAD HARBOR

(CHART 240)

From northeastward.—Follow the directions for Salem Harbor to a position 300 yards northwestward of the black buoy off the north side of Bakers Island; then steer **216°** true for the northwest end of Cat Island, with the east side of Gales Point astern, and pass 300 yards southeastward of Hardy Rock buoy and beacon. When about 0.3 mile east (mag.) of Eagle Island steer 236° true with Baker Island Lighthouse astern, pass 200 yards southward of Eagle Island, and to a position about 350 yards southward of Chappel Ledge buoy with the eastern end of Grays Rock abeam. Then steer 225° true for the middle of the entrance to Marblehead Harbor, and anchor off the town, favoring if anything the westerly side of the harbor, in 4 to 5 fathoms, soft bottom.

From eastward.—Unmarked detached rocks and ledges with depths of 15 to 25 feet lie off the eastern entrance to Marblehead Harbor, and strangers may have trouble in avoiding them. The following course is recommended for vessels of 12-foot or less draft. Bring Halfway Rock beacon astern on a 278° true course, heading a little north of the flag tower at Fort Sewall, and pass 300 yards southward of Cat Island beacon, 500 yards northward of Marblehead Rock beacon, and 100 yards northward of the black buoys off the north end of Marblehead Neck. Vessels can then haul southwestward into the harbor.

From southward.—The entrance through Marblehead Channel is suitable for vessels not exceeding 15 feet in draft. There are numerous unmarked spots with depths of 17 to 25 feet. Chart 240 is the guide.

DIRECTIONS, BEVERLY HARBOR

(CHART 240)

Strangers in vessels of over 18 feet draft should not enter without a pilot, as the channel is crooked in places and, although well marked by aids, requires some local knowledge to keep in the best water. No attempt should be made to enter at night.

Follow the directions for Salem Harbor to a point on the main ship channel range 2.3 miles westward of Bakers Island Light, at which point the pier at **Mingo Beach** should be abeam if the vessel is on course **276°** true, which is the bearing of the range. At this point

change course to **243°** true and continue that course for about 0.8 mile to a position about 100 yards south of the buoy off **Hospital Point.*** At this point change course to **272°** true, heading for the buoy northward of **Juniper Point** and continuing the course to within about 100 yards of that buoy. Then change course to **305°** and head for half way between the two buoys marking the entrance to the dredged channel in Beverly Harbor. From this point on, the channel is crooked, but well marked with buoys and beacons and can be readily followed by the use of Chart No. 240.

MARBLEHEAD TO BOSTON HARBOR

(CHART 240)

The islands and rocks eastward, southward, and southwestward of Marblehead Neck are described under "Salem, Beverly, and Marblehead Harbors" on page 266.

Phillips Point (Littles Point) is high and rocky, and its western and higher part is wooded. A rock with 12 feet over it lies 600 yards eastward of **Grass Head,** the eastern end of the point. A reef with bare heads extends 350 yards southward from Phillips Point, and **Dread Ledge,** bare at half tide and marked by a spindle, lies 500 yards southward of the point.

Nahant Bay is 2 miles wide between Phillips Point and Nahant. Temporary anchorage, exposed to easterly and southerly winds, can be had in the bay in 3 to 6 fathoms, but it is little used. The usual anchorage is off Swampscott, southwestward or westward of the southern end of Fishing Point. Small craft can anchor westward of the point in 8 to 15 feet. The bay is clear; 18 feet is found about 0.5 mile from its northwest side, shoaling thence to the shore. **Fishing Point, Blaney Rock,** and **Red Rock** are rocky points on the northern side of Nahant Bay. There is a rock with 3 feet of water over it about 125 yards south of the end of Fishing Point. A buoy is placed just south of the rock.

The city of **Swampscott** is on the northern shore of Nahant Bay. A large standpipe, the high school cupola, and the Oceanhouse Hotel are prominent.

Lynn Beach is a narrow strip of sand separating Nahant Bay from Lynn Harbor, and is about 1 mile long in a southerly direction to **Little Nahant,** a high, grassy head with several houses. Little Nahant is joined to Nahant by a strip of beach 0.4 mile long, called **Little Nahant Beach.**

Egg Rock, about 60 feet high, lies on the southern side in the entrance to Nahant Bay. It is a bird sanctuary.

Nahant is a high peninsula about 1.5 miles long, with bluff seaward faces. It is occupied by a town and summer resort. It is connected with Lynn by a highway. A standpipe is the most prominent mark. Two church spires, and a stone house on East Point are also prominent.

There is a Coast Guard station on Nahant Beach just southward of Little Nahant. The white buildings and a steel signal tower are prominent.

*Lat. 42°32′.8, Long. 70°51′.4: Charts 240, 1207, 1106, 1107

Nahant Harbor is the cove on the south side of Nahant. Entering between **Joe Beach Ledge** buoy and **Bass Rock** spindle, temporary anchorage can be selected off the wharf in 3 to 4 fathoms, hard bottom. The town wharf has about 5 feet of water alongside it.

The **Boston Pilots** have an office at this wharf.

Shag Rocks are a group of bare rocks extending 300 yards southward from the southeast end of Nahant. A ledge, awash at lowest tides, extends 100 yards southward from the southernmost Shag Rock. There is a gong buoy south of the ledge.

Lynn Harbor.—This harbor, the northerly end of Broad Sound, is full of shoals, largely bare at low water through which a channel has been dredged to the city of Lynn. Lynn has considerable trade in coal, oil, lumber, and building materials. The depth of water at the wharves at Lynn varies from 8 to 30 feet.

The easterly or main channel is dredged to 22 feet with a width of 300 feet. There is a turning basin at the head of the harbor with a width of 550 feet. The channel is marked by buoys at the outer end and lights to the town of Lynn. It leads between mud flats bare at low water. Just eastward from the turning basin there is an anchorage basin for small craft. Some local knowledge is necessary to carry the best water, but strangers in small craft should have no trouble in going to Lynn with the aid of the chart.

The principal wharf at Lynn is a coal wharf at the gas works. Several large gas tanks are located just back of the wharf. A 22-foot channel leads from the turning basin to the coal wharf where there are depths of 30 feet.

The Yacht Club maintains a pier with float landing, at which there is about 8 feet of water. Water and gasoline are available at the float.

Prominent objects in approaching Lynn Harbor are: the standpipes at Nahant and Winthrop, the large gas tanks and several stacks at the head of the harbor, twin brick stacks at the General Electric Company plant on Saugus River, and twin towers on a beach house at the north end of Lynn Beach.

Black Rock Channel, a branch of the easterly channel, leading along the western side of Nahant, is unmarked and suitable only for small craft. There are shoals nearly bare at low water on either side.

Western Channel of Lynn Harbor leads into Saugus River. In 1940 the controlling depth to the General Electric Co. wharf, 0.5 mile above the bridges at the entrance, was reported to be 7 feet. The most of the channel has 11 feet or over, but a 7-foot spot was reported about north by west of the end of Point of Pines. The river has been improved by dredging to a depth of 6 feet for ¾ mile above this wharf to a lumber wharf. Western Channel is marked by buoys as far as the bridges; from there on it is unmarked and local knowledge is required.

There is a boat yard on the Saugus River and one on the Pines River.

Bridges.—There are three bridges across the Saugus River between its mouth and the General Electric Company's wharf, and one between that wharf and the lumber wharf. All have draw openings.

The first bridge, known as the **General Edwards Bridge,** has a clearance of 100 feet horizontal and 27 feet vertical above mean high water when closed. It will be open at any time.

The next bridge is for a narrow gage railroad, which was not being operated in 1940, and the draw is left open all the time. The horizontal clearance is 50 feet.

The next bridge, which is operated by the B. & M. Railroad, has a horizontal clearance of 50 feet and a vertical clearance of 7.7 feet at mean high water when closed. There is a watchman on duty for 8 hours during the daytime, and the bridge will be opened at night if previous notice is given.

The **Foxhall Bridge,** across the river between the General Electric Co. wharf and the lumber wharf, has a horizontal clearance of 40 feet and a vertical clearance of 6.7 feet at mean high water.

Bridge signals—The signal for all bridges is 2 long blasts and 2 short blasts.

Repairs.—There are marine railways in Saugus Creek. The largest can haul out yachts of 100-foot length and 8-foot draft. All kinds of repairs to machinery can be made.

Pilots.—Pilotage is compulsory for foreign vessels only. A pilot to the entrance of Lynn Harbor may be obtained from the Boston Pilot Boat. At the entrance to Lynn Harbor a Lynn pilot will then be picked up.

A **Lynn, Salem, and Beverly pilot** lives at Nahant and boards vessels, on signal, off Bass Point.

Tides.—The mean rise and fall of tides is about 9 feet at Lynn.

Sailing directions for Lynn are given on page 299.

Revere is a town and summer resort on the west side of Broad Sound. At **Revere Beach** a breakwater has been built out from the shore on **Cherry Island Bar,** forming an anchorage for small craft, with depths of 4 to 6 feet. Northward of the breakwater there are the ruins of a long wharf which was built out to a depth of about 3 or 4 feet.

Caution.—Parts of the breakwater are covered at high tide. There is a stone pier 6 feet above high water at its northeast end.

BOSTON LIGHTSHIP

(CHART 1207)

Boston Lightship, off the entrance to Boston Harbor 6 miles eastward of Boston Light, has a red hull with **"BOSTON"** on each side and masts surmounted by red gallery and lantern. The light is 40 feet above the water, and visible 12 miles. The fog signal is an air diaphone, and a bell is used if the diaphone is out of order. There are a submarine oscillator and a radio beacon. The station is equipped for distance finding.

In approaching Boston Lightship from the southward, the coast off Cohasset, Minots Ledge Light, and Scituate should be given a berth of about 4 miles to avoid the broken ground known as **Stellwagen Ledges,** which extend nearly that distance offshore and the outer extremity of which is marked by a lighted whistle buoy.

BOSTON, OUTER HARBOR AND APPROACHES

(CHART 246)

All of Boston Harbor is shown on Chart 246, and the inner harbor is shown on the larger scale chart, No. 248. The entrance between

the southern end of Deer Island on the north, and Point Allerton on the south is over 3.5 miles wide. A group of islands and shoals lie in and off the entrance through which several channels lead. The entrance to the harbor has been narrowed by the filling in of Shirley Gut, which formerly separated Deer Island from the mainland. There is now no channel whatever left through the Gut and the southern extremity of Deer Island is the northern entrance point of the harbor. Deer Island is described on page 280.

Prominent Objects.—From the northward **Winthrop Head,*** a hill 103 feet high, covered with houses, is marked by a gray standpipe, which appears to be the most prominent mark. From eastward **Great Brewster,** 104 feet high, is the most prominent of the islands in the entrance.

On the south side of the entrance a turreted tower on **Nantasket Hill** is one of the most prominent landmarks. The tank and standpipe on **Strawberry Hill** are very prominent, and about 2 miles south of Point Allerton two radio towers are illuminated at night and are conspicuous at all times. In the city the most outstanding landmarks are the Customhouse tower; two gas tanks, one in Chelsea, and one on Commercial Point; the elevator in the southern part of East Boston, the new Federal Building in Boston; a tank and radio mast at Squantum; a tank on Quincy Great Hill, and a stack on Nut Island. These, as well as many other landmarks, are shown on the charts.

Broad Sound, about 4 miles wide, between Nahant on the northeast and Deer Island on the southwest, forms the approach to Nahant and the city of Lynn at its north end, and the northern approach to Boston Harbor at its south end. It has depths of 3 to 8 fathoms in the entrance, but is shoal near the shores.

At **Winthrop Beach** a breakwater 700 yards long has been built parallel to the shore at a distance of about 400 yards. It is bare several feet at the highest tides and is quite prominent.

Channels.—Three main channels, all obtained by dredging, lead through the shoals at the entrance to President Roads. There are several other channels of less importance used by local vessels.

Broad Sound North Channel leads from Broad Sound to President Roads from northeastward, eastward of Deer Island. It has been dredged to 40 feet over a width of 900 feet except at the outer end where it is 1,100 feet wide. The channel is well marked by lighted buoys. The eastern entrance to this channel is marked by a lighted gong fairway buoy.

Finns Ledge, with depths from 25 to 29 feet, lies on the northern edge of the outer end of North Channel. The ledge is marked by a lighted bell buoy. Careful navigation is required here, especially in the case of an incoming vessel passing an outgoing vessel at the entrance to the channel.

Broad Sound South Channel leads from Broad Sound in a southwesterly and westerly direction to President Roads. It has been dredged 30 feet deep and 1,200 feet wide, and is well marked by buoys and ranges but most of the aids to navigation for this channel are not lighted.

*Lat. 42°22′.1, Long. 70°58′.1: Charts 246, 1207.

The Narrows is the channel leading into Boston Harbor from southeastward, between The Narrows Lighthouse and Lovell Island on the northeast and Point Allerton, Georges Island, and Gallups Island on the southwest. It has been dredged 27 feet deep and 1,000 feet wide and is well marked. There are shoals with depths of 21 to 23 feet in the southeastern approach, which may be avoided in the daytime and with clear weather.

Hypocrite Channel is a natural channel leading between Green Island on the north and Little Calf Island on the south. It has ample depth, but there are unmarked dangers. It is not recommended for strangers or for large vessels.

Black Rock Channel, leading into The Narrows from eastward, between Great Brewster Spit and Lovell Island, has an unmarked ledge with a least found depth of 7 feet nearly in midchannel, which strangers may be unable to avoid. It is used only by small local vessels and is not recommended for strangers.

There is a channel 250 yards wide, leading into The Narrows from westward, between Georges Island and Gallups Island. There is a light near the end of the shoal off the southeast end of Gallups Island. This channel is suitable only for quick-working vessels on account of the sharp turn into The Narrows.

The Nubble Channel, leading from Nantasket Roads to President Roads between Nixes Mate and Long Island, has been dredged 15 feet deep and 300 feet wide and is marked by buoys. The course through the channel is about 335° true, heading about 100 yards to the left of Deer Island lighthouse and following the buoys.

Sculpin Ledge Channel leads between Long Island and Spectacle Island, and is good for vessels of about 8-foot draft to Hingham Bay by the passage southward of Peddocks Island. The deeper water favors Long Island, and in coming from President Roads the island should be followed at a distance of about 400 yards until up with the red buoy off the easterly end of Sculpin Ledge. Pass close eastward of the buoy, and round the southwesterly end of Long Island at a distance of about 300 yards.

The channel leading from Nantasket Roads to Boston, southward of Long Island and Spectacle Island, is partially marked by buoys, and can be used by boats of 8-foot draft with the aid of the chart. Directions to Hingham Bay through this channel are given on page 298.

Thieves Ledge, with 4 to 6 fathoms over it, is 0.7 mile long and about 0.2 mile wide. It is dangerous in heavy easterly gales, when the sea breaks on it. The ledge is marked northward of its eastern end by a lighted whistle buoy, which lies 2.6 miles east-southeastward of Boston Light. There are spots with 32 feet and 34 feet respectively over them lying 0.5 mile eastward and 1.1 miles southeastward of the buoy, upon which the sea sometimes breaks in heavy easterly gales.

Harding Ledge, 2.3 miles southeastward of Boston Light and 1.5 miles from the shore, is an extensive ledge, bare before low water, and marked by a spindle on its shoalest part, and a lighted bell buoy 0.3 mile northeastward of the spindle. There is a rock, bare before low water, 300 yards southwestward of the spindle, and very broken

ground, not closely examined, between the ledge and the short westward. Vessels should keep outside the lighted bell buoy.

Point Allerton is a grassy hill 100 feet high, covered with houses, and the base of the sea face is protected by a sea wall. The Coast Guard Station is 0.8 mile west of the point. Shoals extend eastward and northward from the point. A lighted bell buoy placed northward of the point marks the extent of the shoals. **Ultonia Ledge,** the eastern end of the broken ground, has very broken bottom and unmarked spots, with depths of 3¾ fathoms extending 1.2 miles eastward of the point.

Boston Lighthouse,* on the north side of the entrance to Boston Harbor from southward, is a white conical tower on Little Brewster (Lighthouse) Island. The light is 102 feet above the water, and visible 16 miles. The fog signal is an air siren. An auxiliary light, 13 yards 234° from Boston Light, shows a fixed white light with two fixed red sectors covering dangers in Nantasket Roads.

Shag Rocks are bare, rugged ledges lying 0.3 to over 0.5 mile eastward of Boston Lighthouse. They are surrounded by extensive submerged ledges.

Great Brewster, Middle Brewster, Outer Brewster, and **Calf Islands** are the larger of the islands lying northward and northeastward of Boston Lighthouse. Great Brewster is 104 feet high, has a bluff at the north end, and is the most prominent. These islands are surrounded by several smaller islands and extensive shoals, bare and submerged.

Great Brewster Spit, extending 1 mile westward from Great Brewster Island, is bare at low water and marked at the west end by **Narrows Lighthouse,** a beacon, a bell tower, and by another beacon (spindle on granite base) on the south side 0.3 mile eastward of the lighthouse.

The Graves are a group of bare rocks and ledges about 0.5 mile long in a northeasterly direction, and are marked near the southwest end by The Graves Lighthouse. **Northeast Grave** is a rock bare at low water 700 yards northeastward of the lighthouse. A lighted whistling buoy is moored about 0.5 mile northeastward of the ledge and 1.1 miles northeastward of the lighthouse.

An obstruction (wreck or rock) with 13 feet of water over it lies 1,250 yards 41° true from the Graves Light. It is marked by a buoy located about 100 yards to the northeast.

The Graves Lighthouse is a light grey conical tower. The light is 98 feet above the water, and visible 16 miles. The fog signal is a horn.

The Graves lighted whistle radiobeacon buoy is placed 2,250 yards 22° true from the Graves light.

The material from the dredged channels in Boston Harbor is dumped in Broad Sound, 1 to 3.5 miles northeastward and north-northeastward of The Graves Lighthouse. A gas buoy and bell buoy, painted white and marked "DG," are maintained on the dumping ground, and are moved to indicate the locality where dumping is in progress. The only place where marked shoaling has occurred lies 1.5 miles 15° true from The Graves Lighthouse, and this shoal has been removed to a least depth of 7 fathoms.

*Lat. 42°19′.6, Long. 70°53′.4: Charts 246, 1207, 1106, 1107, 70.

Roaring Bulls, 0.5 to 0.9 mile southwestward of The Graves Lighthouse, is bare in the highest parts at about half tide and unmarked.

Green Island, 1.2 miles southwestward of The Graves Lighthouse, is about 30 feet high, and is surrounded by several smaller islets and bare and submerged ledges.

Devils Back, 0.6 mile westward of Green Island, is bare at the northeast end at low water.

Lovell Island, on the northeast side of The Narrows and south side of South Channel, has several buildings, and the towers of the Lovell Island range (white conical towers) at the north end. **Ram Head Flats** and **Ram Head** (bare at low water) extend to a greatest distance of 0.7 mile northeastward of the island. There is one good wharf on the west side of the island, (near the southern end), and another wharf in ruins.

Nixes Mate is an extensive reef on the south side of the eastern end of President Roads; near the center is a low, grassy island marked by Nixes Mate beacon (pyramid on granite base).

Gallups Island, westward of Lovell Island, is high and grassy on the north side. The buildings of the United States Maritime Commission, located on the island, are prominent. There is a wharf, which is protected by a breakwater, at the southwest end of the island.

Georges Island, southward of Lovell Island and on the north side of Nantasket Roads, has a large fort and several houses. There is a wharf on the west side.

Nantasket Roads, westward of the southern entrance to The Narrows and southward of Georges Island, is a good anchorage. The depths range from 8 to 12 fathoms. On the westerly side of Georges Island the depths range from 4 to 6 fathoms, and better bottom and shelter will be found here in easterly winds. This anchorage is frequently used by vessels seeking shelter in easterly gales. For anchorage regulations see page 286.

Rainsford Island is nearly 1 mile westward of Georges Island. The wharf is in ruins. **Quarantine Rocks** lie southwestward of Rainsford Island.

Long Island,* on the south side of President Roads is 1.5 miles long and marked at the north end by **Long Island Head Lighthouse** (white tower). It is the site of a large hospital building with a prominent gilded dome. A tall brick chimney near its highest part is prominent. There are three wharves on the island.

Deer Island, now connected to the mainland by a fill, on the north side of President Roads, and separating Broad Sound from Boston Harbor, is mostly grassy. There is a prison on the north end and a sewage pumping station, with a prominent stack, on the southwest side.

Deer Island Lighthouse, a brown conical tower, is located at the end of a ledge extending 500 yards southward from Deer Island. The fog signal is a bell. There is a sewer outlet just southwest of the light.

Great Faun Bar and **Little Faun Bar** extends eastward from Deer Island to Broad Sound North Channel. A stone beacon with red

*Lat. 42°19′.8, Long. 70°58′.0: Charts 246, 1207, 1106, 1107.

spindle is placed on Great Faun Bar 650 yards northwestward of the edge of the channel and near the easterly end of the part of the bar that is bare at low water.

President Roads lies between and southward of Deer Island Lighthouse and the easterly end of Governors Island Flats. The shoals on the northwest side of the Roads are maked by buoys. The depths in the Roads range from 5 to 10 fathoms. **The quarantine anchorage,** and the most commonly used general anchorage in Boston Harbor, is on the north side of the Roads. See anchorages, page 286. The Main Ship Channel leads along the southern side of the Roads.

Governors Island Channel, formerly leading northward and westward of Governors Island Flats, is being filled and is no longer navigable.

The northern part of Boston Harbor, northward of the Main Ship Channel and between the entrance and East Boston, is full of extensive flats, bare at low water, between which crooked natural channels lead. Several channels have been dredged through the flats to depths of 6 to 8 feet to yacht clubs at the head. These channels are buoyed. The best approach is from southeastward, between the western end of **Deer Island Flats** and the eastern end of **Apple Island Flats.** The easterly channel was dredged 8 feet deep, and leads to the west side of **Winthrop Beach.** There was a reported controlling depth of 6 feet in 1940. An anchorage basin of the same depth was dredged at the head. A light marks the west side of the entrance of the dredged channel.

The western channel which was dredged to 6 feet in 1936 leads to **Belle Isle Inlet.** At the head of this channel are several boat yards and a yacht club.

Spectacle Island, on the south side of President Roads at its western end, consists of two islands connected by a gravel spit. It is marked on the northeast end by the lights of the Spectacle Island range (white conical towers). There are two stacks on the island and a garbage wharf on the west side.

On the north end of the island are located two range marks which determine the eastern end of the **Measured Mile Course,** laid out between Thompson and Spectacle Islands. Two similar range marks are located on the north end of Thompson Island. The distance between these two ranges is **1.00 nautical mile** measured on a course of 242°42′ true.

BOSTON INNER HARBOR

(CHART 248)

The Main Ship Channel of Boston Harbor has been dredged 35 feet deep and 1,200 feet wide from President Roads to the upper end of the navy yard at Charlestown. This depth has also been obtained by dredging to the lower bridges in Mystic, Chelsea, and Charles Rivers. An anchorage basin 30 feet deep, 350 yards wide, and 0.8 mile long, has been dredged along the northeast side of the Main Ship Channel, southwestward of Bird Island Flats. In 1940 dredging was being done to deepen part of this channel to 40 feet and ledges were being removed in some sections.

Caution.—On account of the dredging operations going on in the main ship channel, mariners must be guided by the chart and the

latest reports, as published in the Notices to Mariners, as to the conditions of the channel.

Castle Island, on the southwest side of Main Ship Channel, 1 mile northwestward of Spectacle Island, is marked by **Fort Independence*** and is connected with the shore westward by filled-in land. There are a number of boulders, bare at low water, lying a short distance southeastward of Castle Island. There are four radio towers on the island and five more radio towers just to the northwest of the island.

Pleasure Bay lies immediately westward of Castle Island. There are depths of 16 to 25 feet inside, and it is used as an anchorage for pleasure boats. The pier on the south side of the entrance is marked by a light at its lower end.

Governors Island, on the northeast side of Main Ship Channel and 0.7 mile northward of Castle Island, is about 100 feet high, grassy, and marked by **Fort Winthrop** on its summit. The area between Governors Island and East Boston is being filled in.

Reserved Channel has been dredged to 30 feet to the bridge but had shoaled in spots to 27 and 28 feet in 1940. A modern and extensive freight terminal has been constructed on the north side of the channel. This terminal has a berthing space of over 4,500 feet, with depths of 30 feet and more alongside. The entrance to the channel is marked by a light. Several rock outcrops with depths from 24 to 27 feet lie off the entrance to Reserved Channel.

Beyond the bridge the channel has been dredged to 12 feet to its head, but the controlling depth in 1940 was about 8 feet.

For bridge details see page 289.

East Boston is on the northeastern side of the harbor, and is separated from the city of Chelsea by Chelsea Creek. There are modern piers here where trans-Atlantic passenger steamers berth regularly.

Chelsea is separated from **Charlestown,** on the western side of the harbor, by the Mystic River, and Charlestown from Boston proper by the Charles River. The **United States Navy Yard** occupies a large part of the deep water front of Charlestown. **South Boston** is on the peninsula southeast of the city proper, from which it is separated by Fort Point Channel.

Commonwealth Pier, an extensive terminal with slips dredged to 40 feet, lies about midway between Fort Point Channel and Reserved Channel.

Fort Point Channel separates Boston proper from South Boston. In a distance of 1 mile from its entrance in Boston Harbor, Fort Point Channel is crossed by eight bridges. A dredged channel with a controlling depth of 20 feet in 1937 except in the locality of the Congress and Summer Street bridges where the depth was 17 feet, leads from the entrance to Dorchester Avenue Bridge, a distance of 0.7 mile. From the latter bridge to the head the depth was 11 feet in 1938. Steamers bound into Fort Point Channel require the assistance of towboats.

For bridges see page 289.

Charles River, on the western side of the harbor between Boston proper and Charlestown, is the approach by water to **Cambridge** and

*Lat. 42°20′.3, Long. 71°00′.7; Charts 246, 248, 1207.

Watertown. The entrance of the river to the first bridge has been dredged for its full width to a depth of 35 feet. Thence to the **Charles River Dam,*** a distance of 0.5 mile, the depth is about 15 feet. The lock in the Charles River Dam is 350 feet long between gates, with a clear width of 45 feet, and has a depth of 17 feet at low water on the lower sill; the upper sill has 21 feet over it at the level of the river above the dam. Charles River above Charles River Dam is maintained at a height of 7.4 feet above mean low water; a depth of 14 feet can be taken 3 miles above the dam to Western Avenue Bridge, thence 2.2 miles to Arsenal Street Bridge 13 feet, thence 2 miles to the head of navigation at the dam at Watertown 9 feet. Charles River above the dam is used by many yachts and small craft. No toll is charged for passage through the lock.

Mystic River, entering the north end of Boston Harbor from northwestward, between Charlestown and Chelsea, is the approach to several wharves near the lower end, and to the towns of Medford and Malden. The channel in Mystic River has been dredged 30 feet deep for a distance of 1 mile above Chelsea Bridge at the entrance, and 20 feet deep for a further distance of about 0.3 mile, to a point 150 yards below the second bridge. The river above has been improved by dredging a channel 6 feet deep to a point about 2,500 feet above the Wellington Bridge, thence 4 feet deep to the head of commercial navigation at Medford. Some shoaling has occurred since the dredging. The mean range of tide is about 9½ feet.

There is a lock at Medford, 15 feet wide and 45 feet long, and the river has a navigable depth of 4 to 7 feet for 2 miles above the lock to lower Mystic Lake.

Condition of channel in 1940.—According to the best information available approximately 30 feet could be carried from the Chelsea Bridge to the entrance of Island End River, and from this point to the head of the 30-foot project the controlling depth was about 27 feet. The next 700 yards of channel leading to within about 150 yards south of the Boston & Maine Railroad bridge had a controlling depth of 20 feet. The 6-foot channel above this point was believed to have a controlling depth of about 4 feet, and the 4-foot channel was reported to have both shoaled and narrowed. There was reported to be no navigation of the river above the Wellington Bridge.

Little Mystic River is the name given a long slip just northward of the navy yard. It has depths of 18 to 20 feet at the upper end and 28 feet at the entrance. It is also known as **South Channel.**

Island End River is a tributary of Mystic River from northward 0.5 mile above the entrance. There is a large wharf at the western entrance of Island End River with a channel dredged to 30 feet leading to it. In 1940 there was a least depth of 26 feet to the coke and coal wharf on the west bank of the river and 13 feet to the wharf 350 yards above the coke and coal wharf. Above this river is shoal; from 4 to 1½ feet at its head. There is considerable business to the wharves near the entrance, principally vessels carrying coal and oil. A rocky shoal on the east side at the entrance, and the current of Mystic River running across the entrance, make navigation difficult for large vessels. A towboat is usually employed to assist such vessels.

*Lat. 42°22′.1, Long. 71°04′.3; Charts 246, 248, 1207.

Malden River, a tributary of the Mystic from northward, has been improved by dredging a channel 6 feet deep for a distance of 1.6 miles upstream.

In 1937 the controlling depth to Everett was 6 feet.

Chelsea Creek, emptying into Boston Harbor from eastward between East Boston and Chelsea, is the approach to important wharves near the entrance, and the town of Revere at the head, 2.6 miles above the entrance. The 35-foot dredged channel of Boston Harbor leads to Meridian Street Bridge, just inside the entrance. From this bridge to Chelsea Street Bridge, 0.75 mile above, the channel has (1939) a controlling depth of 30 feet. A channel 30 feet deep has been dredged (1939) to the Oil wharf, 0.8 mile above Chelsea Street Bridge. The channel from this point to the head of navigation at Revere was 7 feet deep in 1936.

Pilotage, Boston.—This port lies within Pilotage District No. 1, as defined by the laws of Massachusetts, which district embraces the port of Boston and the coast from Egg Rock, on the north, to Point Allerton, on the south.

Pilotage into Boston Harbor is compulsory, with a few unimportant exceptions which seldom occur, for all vessels engaged in the foreign trade. It is not for vessels engaged in the coasting trade.

A pilot boat will be found within sight of Boston Lightship. Pilot boats are marked by their numbers, which are painted on their sails or stacks in black figures 4 feet high.

A vessel bound into Boston Harbor liable to pilotage, which arrives within a line drawn from Harding Ledge to The Graves and thence to Nahant Head, without having been offered the services of a pilot, is exempt from the payment of pilotage fees, unless such services are requested. A pilot boat being on its station, and displaying the signals required by law, constitutes an offer of pilotage service. Such compliance will entitle the pilot to the regular fee for pilotage from vessels otherwise liable therefor. A vessel under 350 tons register bound into the port of Boston declining the services of a pilot is liable to one-half the pilotage fees. A vessel under 350 tons register bound out of the port of Boston is not liable for pilotage unless such services are requested. Vessels in the coastwise trade are exempt from the compulsory payment of pilotage.

The **office of the Boston Pilots** is located at No. 69 Long Wharf.

Towboats.—Towboats are available at Boston. Lighters and fire and wrecking tugs are also available.

Special signals.—The call for the harbor master or police steamer is three short and one long blasts of the whistle.

The call for the **fire boat** is three long and two short blasts of the whistle.

Wharves.—The wharves of Boston have depths sufficient for the largest vessels, the greatest depths being 40 feet or more, which exist at the Commonwealth Pier.* There are public float landings for small craft at a number of places, including Summer Street and Northern Avenue bridges.

Supplies.—Fuel oil can be obtained from the wharves or from barges. There are good facilities for bunkering coal-burning ves-

*Lat. 42°21′.2, Long. 70°02′.4; Charts 246, 248, 1207.

sels. The city water is of good quality and suitable for either drinking or boiler purposes. Gasoline can be obtained from floats anchored off Governors Island.

Repairs.—There are a number of drydocks and marine railways available for vessels of all sizes. The largest are listed in the table on page 333. Repairs of all kinds and of any magnitude can be undertaken. Large vessels are built at Quincy on Weymouth Fore River. The Boston Navy Yard Dock No. 3 is capable of drydocking the largest vessel in the world. It is located just northward of the Reserved Channel.

Immigration.—The immigration station is located in East Boston.

Quarantine.—The quarantine anchorage is on the north side of President Roads. Quarantine is enforced in accordance with the rules of the U. S. Public Health Service. The call for the Quarantine Officer is two long blasts of the whistle followed by two short and one long blast. The Quarantine Station is in the Customhouse, and the boarding station is at the Army Base.

Marine Hospital.—There is a Marine Hospital at Brighton. The service also maintains an office and **dispensary at the Customhouse, Boston,** where outpatients are treated. Application for admission to the hospital should be made at the Customhouse office. The call for the **port physician** is the same as for quarantine.

Customs.—The Customhouse is open for business during regular office hours except on holidays. The same office hours are kept at the **Appraisers Stores Building.**

A Coast and Geodetic Survey field station is located on the tenth floor of the Customhouse, where complete files of the Coast and Geodetic Survey charts, coast pilots, tide tables, current tables, and other publications relating to navigation may be consulted and information affecting navigation obtained without charge. The field station is also a sales agency for Coast and Geodetic Survey publications, including charts.

A United States branch hydrographic office is established on the tenth floor of the Customhouse. Bulletins are posted here giving information of value to mariners, who are also enabled to avail themselves of publications pertaining to navigation and to correct their charts from standards. No charge is made for this service.

A United States Coast Guard office is located in the Customhouse. This is the **Coast Guard District Headquarters** and the office of the **Captain of the Port.** See page 328.

Other Federal activities are given in tables in the Appendix.

The Harbor Master's office is located at 521 Commercial Street.

Port Series No. 2 covers the port of Boston.

Maritime Association, Boston Chamber of Commerce, publishes a very valuable handbook of the facilities of the port. The address is 80 Federal Street, Boston, Mass.

Yacht Clubs.—A list of the larger yacht clubs between Cape Cod and the Canadian Boundary is given in the Appendix.

Harbor and anchorage regulations.—A pamphlet containing the rules and regulations of the harbor master, together with photographs showing the various anchorage limits, may be obtained at the harbormaster's office, 521 Commercial Street.

Anchorages.—Because of the state of emergency existing at this time (1941), special anchorage regulations are in effect and are enforced by the **Captain of the Port,** an officer of the U. S. Coast Guard. For detailed anchorage regulations or for permits pursuant to those regulations, apply to the Captain of the Port, U. S. Coast Guard, Customhouse, Boston, Mass.

In 1941 five anchorage areas had been defined by Federal authority.

President Roads Anchorage, located on the north side of President Roads.

Bird Island Anchorage, located on the north side of the main ship channel just inside Governors Island. (These two anchorages are used by deep draft vessels.)

Castle Island Anchorage, located on the north side of the channel into Dorchester Bay between Thompson Island and Pleasure Bay.

Long Island Anchorage, located east of Long Island and between it and Rainsford, Georges, and Gallups Islands. (Light draft vessels should use these last two anchorages as far as possible.)

The Explosive Anchorage is located between Rainsford and Peddocks Islands.

The special anchorage areas are shown on large scale charts of Boston Harbor. Some of the regulations are quoted below:

1. No vessel shall anchor in The Narrows or in Nantasket Gut, or at the entrances thereto. Neither shall any vessel anchor in the channel south of Lighthouse Island, southwest of a line between Kelly Rock Bell Buoy 10 and Nash Rock Buoy 8, nor northeast of a line between Hunt Ledge Buoy and Point Allerton Lighted Bell Buoy 3.

2. No vessel shall anchor in Boston inner harbor north of a line between the northwest tangent on Governor's Island and the southeast end of the Army Base except as follows:

(*a*) Vessels not carrying inflammable, explosive, or other dangerous cargo may anchor in the Bird Island anchorage.

(*b*) Yachts and fishing vessels may be allowed to anchor outside of channels in waters through which commercial shipping does not usually proceed upon application to the Captain of the Port.

3. Loaded tank vessels awaiting the daylight or tide to proceed to their unloading terminal shall anchor in the President Roads anchorage and no other anchorage except by permit from the Captain of the Port. The limits of The President Roads anchorage area are marked by buoys.

Explosive Anchorage.—The explosive anchorage is located in the lower harbor, between Peddocks Island and Rainsford Island. No vessels carrying explosives as cargo or on which explosives as cargo are to be loaded may proceed to an explosive anchorage without first notifying the Captain of the Port. No vessels carrying explosives as cargo may move through any channel or waterway of the port without a permit unless the requirement of a permit is waived by the Captain of the Port.

There are a considerable number of special rules, that are liable to change, for the handling of vessels loading or unloading explosives. It is suggested that the Captain of the Port be contacted before entering the port. Applications by radio to him should be transmitted via commercial traffic station or via Coast Guard facilities.

Harbor Regulations.—There are many rules and regulations of the Commonwealth of Massachusetts affecting, and in some cases, controlling the handling of petroleum products, rafting of lumber, speed of vessels, control of motorboats, depositing of refuse, handling of lines, movements of vessels as directed, anchorage areas, etc. It is recommended that the navigator obtain from the Captain of the Port or from the Harbor master such information regarding the rules as may be to his particular interests. Those ports having Harbor masters are listed in the Appendix.

Tides.—The mean rise and fall of tides is about 9 feet at Boston Lighthouse and about 9½ feet at Boston Navy Yard. The predicted times and heights of high and low water for every day in the year at the Commonwealth Pier are given in the tide tables, published in advance by the Coast and Geodetic Survey.

CURRENTS, BOSTON HARBOR

The time of current from the Boston Lightship to the navy yard in general does not differ by more than ½ hour. The predicted times of slack water and the times and strength of flood and ebb at Deer Island Light for every day in the year are given in the Atlantic Coast Current Tables.

Tidal Current Charts for Boston Harbor are published by the Coast and Geodetic Survey and sold for the nominal price of 25 cents. These charts, which are good for any year, show the direction and velocity of the tidal current for each hour of the current at Boston Harbor (Deer Island Light), daily predictions for which are included in the Atlantic Coast Current Tables. They present a comprehensive view of the tidal current movement for the harbor as a whole and also supply a means of readily determining for any time the direction and velocity of the current at various localities throughout the harbor.

The currents at Boston Lightship are described on page 41.

In Broad Sound the velocity of the current at strength in most places is less than ¾ knot. This increases to about 1 knot or more on approaching the entrances of the channels leading into Boston Harbor.

In Hypocrite Channel the velocity at strength is a little over 1 knot.

In South Channel north of Ram Head, the velocity at strength is almost 2 knots.

Between Deer Island Light and Long Island Head, in the channel, the velocity at strength is nearly 2 knots.

In the Main Ship Channel, from Spectacle Island to the navy yard, the velocity at strength varies between ½ and 1 knot.

Between Boston Lighthouse and Point Allerton, near the middle of the channel, the velocity at strength is about 1½ knots. On the northern side of the channel, southward of Great Brewster Spit, the current turns nearly 30 minutes earlier than in the middle of the channel, and the velocity is about half as great.

In Nantasket Roads, in the middle of the channel, the velocity at strength is about 1½ knots.

In Nantasket Gut the velocity at strength is between 2 and 2½ knots.

In Black Rock Channel the velocity at strength is between 1 and 1½ knots. The flood sets southwestward through the channel and the ebb northeastward, and should be kept in mind when passing through The Narrows.

Between Georges Island and Gallups Island the velocity at strength is over 1 knot. The flood sets westward and the ebb eastward.

Between Gallups Island and Long Island Head the velocity at strength is about 1 knot. The flood current sets southward to southwestward and the ebb in the opposite directions.

Between Moon Head and Long Island the velocity at strength is about ½ knot, the flood setting northwestward and the ebb southeastward.

Between Thompson Island and Spectacle Island the velocity at strength is about ½ knot. The flood sets northwestward and the ebb southeastward.

WEATHER, BOSTON

Weather.—The prevailing winds are southwesterly during the summer and northerly during the winter. At all seasons the heaviest gales are usually from the northeastward or eastward.

Fogs are prevalent throughout the year. For statistics see table on page 334. Winds from the east to southwest bring fog while westerly and northerly winds clear it away.

Storm warnings.—Night signals are displayed from the customhouse tower. Day and night signals are displayed from a tower on Nantasket Hill near Hull. Day signals are also displayed from the City Point Coast Guard Station, South Boston, from May to October.

Ice.—The channels of Boston Harbor are navigable throughout the year. Ice rarely forms in the main channels. Occasionally during severe winters the greater part of the harbor is frozen, but towboats and steamers keep the main channels open. The Charles and Mystic Rivers and Chelsea Creek, and the minor passages in the harbor are sometimes frozen during severe weather. When ice is prevalent, the buoys may be displaced or even carried away by it. Local towboats can be employed for the purpose of breaking ice.

Bridges, Boston and Locality

Name of bridge	Type	Horizontal clearance	Vertical clearance above mean high water when closed
SOUTH CHANNEL		*Feet*	*Feet*
Chelsea St., Charlestown	Bascule	75	25
MALDEN RIVER			
Malden River	do	50.3	7.7
Medford Street	do	52.0	3.1
CHELSEA CREEK			
Meridian Street	Swing	100	5
Chelsea Street	Bascule	70	4
B. & A. R. R.	do	70	3
B. & M. R. R.	Fixed	10.5	4.6

***Bridges, Boston and Locality*—Continued**

Name of bridge	Type	Horizontal clearance	Vertical clearance above mean high water when closed
RESERVED CHANNEL		*Feet*	*Feet*
L Street Bridge	Retractile	39. 8	6. 4
DORCHESTER BAY			
Savin Hill-Commercial Point	Bascule	65	13
NEPONSET RIVER			
New York, New Haven & Hartford Ry	do	52. 3	5. 9
Neponset Avenue	do	78. 6	10. 9
Granite Avenue	do	50	6. 4
Boston-Milton	Fixed	41	5. 8
WEYMOUTH FORE RIVER			
Quincy Point	Bascule	175	33. 7
East Braintree	do	50	12. 5
WEYMOUTH BACK RIVER			
Hingham	do	50	10
FORT POINT CHANNEL			
Northern Avenue	Swing	75. 6	7. 6
Congress Street	Bascule	75	6. 5
Summer Street	Retractile	51	4. 6
Dorchester Avenue	do	42	4. 6
New York, New Haven & Hartford Ry	Bascule	44. 3	8. 4
Broadway	Swing	50	23. 8
Dover Street	do	40. 7	15. 4
CHARLES RIVER			
Charlestown	do	50	23
Warren Avenue	Retractile	36. 5	6
4 railway bridges	Bascule	65	3
Railway	do	50	33
Charles River Dam	do	50	5. 4
Above Charles River Dam there are 11 fixed bridges.	Fixed	45	12
MYSTIC RIVER			
Chelsea	Swing	125	13
Malden	Bascule	75	6. 7
Boston Elevated	do	75	28. 8
Boston & Maine (eastern division)	Swing	42. 6	—3. 5
Boston & Maine (western division)	do	44	—2. 9
Wellington	Bascule	50	10. 2
Mystic Valley Parkway	do	50	5. 0

BRIDGE REGULATIONS

The following are extracts from the rules and regulations prescribed by the Secretary of War to govern the opening of the drawbridges across Boston Harbor and tributaries:

GENERAL REGULATIONS

1. The owner or owners of every bridge covered by these rules and regulations shall maintain in good and efficient order the draw span and the machinery and appliances for operating the same and for assisting vessels while passing through the draw. The said owner or owners shall also provide and maintain at the draw span such number of draw tenders or operators as may be necessary to open and close the same promptly; and they shall also provide and maintain in good order on the bridge piers or fenders such fixtures as may be necessary to vessels in mooring or making fast while waiting for the draw span to open.

2. Except as specified in paragraphs 9, 10, 11, and 12 of these regulations, the draw in each and every drawbridge crossing the above-named waterways shall, upon the prescribed signal being given, be opened promptly for the passage of any vessel, vessels, or other water craft not able to pass the closed structure: *Provided*, That when the draw in any of the bridges shall have been open for 10 minutes or longer, it may be closed for the crossing of trains, cars, vehicles, or individuals, if any be waiting to cross, and after being so closed for 10 minutes or for such shorter time as may be necessary it shall again be opened promptly for the passage of vessels or other water craft if there be any such desiring to pass.

3. The length of time that a draw has been open shall be computed from the time that the draw span begins to move in opening, and the length of time that a draw has been closed shall be computed from the time that the draw span ceases to move in closing.

SIGNALS

4. (*a*) When a vessel or other water craft intends to pass through the draw of one of the bridges covered by these rules and regulations, the master or pilot of the vessel or craft shall, on approaching within signalling distance, signify his intention to pass through the bridge by sounding with a whistle or horn the signal prescribed below, viz: Two long blasts followed immediately by two short blasts.

SPECIAL SIGNALS

(*b*) For Meridian Street Bridge: Two long blasts followed immediately by 2 short blasts and 1 long blast.

(*c*) The signal to be given by a vessel drawing 18 feet or more, entitled to passage at all hours as provided in paragraphs 9, 10, and 11, below, shall be four long blasts.

5. The signal given by a master or pilot shall be immediately answered from the bridge by three long blasts of a whistle or horn unless under these rules and regulations a delay in opening the draw is permitted, and in case of such a delay the signal shall be immediately answered by two long blasts. A long blast of a whistle or horn as herein provided shall continue for 3 seconds and a short blast for 1 second.

6. Upon hearing or preceiving the prescribed signal or upon verbal request from the master or pilot of any vessel or other water craft waiting at the bridge, the tender or operator of the draw of the bridge shall at once open the draw for the prompt passage of any vessel or other water craft unless under these rules and regulations a delay in opening the draw is permitted: *Provided*, That the draw may not be opened if there is a train, car, or other vehicle at the time passing over said draw, or if a train or car is approaching so closely that it cannot be safely stopped before reaching the draw.

7. Trains, cars, vehicles, or persons shall not be stopped on any draw span for the purpose of delaying the opening of the draw, nor shall any vessel or other water craft be so handled or placed as to delay the opening or closing of any draw span, but all passage, over, under, or through a draw span shall be prompt so as to reduce delays to water and bridge traffic to a minimum.

8. The foregoing general regulations (pars. 1 to 7) shall apply in cases of all bridges, but to provide for closed or open periods, the following special regulations and exceptions are prescribed.

SPECIAL REGULATIONS

9. **Across Fort Point Channel.**—Northern Avenue Bridge, Congress Street Bridge, and Summer Street Bridge: Between the hours of 6:30 a. m. and 9 a. m. and between the hours of 4:30 p. m. and 7 p. m. the draws in the bridges named in this paragraph shall not be required to be opened except on Sundays, and on legal holidays observed in the locality, for the passage of any vessel, vessels, or other water craft except during the periods between 7:05 to 7:15 a. m. and 8 to 8:10 a. m., 5:20 to 5:30 p. m. and 6:20 to 6:30 p. m.: *Provided*, That the draws in the bridges named in this paragraph, upon the prescribed signal being given, shall be promptly opened at all hours for the passage of any vessel, vessels, or other water craft whose draft is 18 feet or more: *And provided further*, That any vessel, vessels, or other water craft proceeding upstream through Northern Avenue Bridge shall be afforded continuous passage through the Congress Street and Summer Street Bridges, and any vessel, vessels, or other water craft proceeding downstream through the Summer Street Bridge shall be afforded continuous passage through the Congress Street and Northern Avenue Bridges.

10. **Across Mystic River.**—Chelsea Bridge North, Malden Bridge, Boston Elevated Railway bridge, Boston & Maine (eastern division) Railroad bridge, and Boston & Maine (western division) Railroad bridge.

Between the hours of 7:45 a. m. and 10 a. m. and between the hours of 5 p. m. and 6 p. m. the draws in the bridges named in this paragraph shall not be required to be opened except on Sundays, and on legal holidays observed in the locality, for the passage of any vessel, vessels, or other water craft except during the period between 9 to 9:10 a. m.: *Provided*, That the draws in these bridges shall, upon the prescribed signal being given, be opened promptly at all hours for the passage of any vessel, vessels, or other water craft whose draft is 18 feet or more: *And provided further*, That any vessel, vessels, or other water craft proceeding either upstream or downstream which having passed any of the bridges mentioned in this paragraph, shall be afforded continuous passage through the succeeding bridges.

11. **Across Little Mystic River (South Channel)—Chelsea Bridge South.**—Between the hours of 7:45 a. m. and 10 a. m., and between the hours of 5 p. m. and 6 p. m. the draw in the bridge named in this paragraph shall not be required to be opened except on Sundays, and on legal holidays observed in the locality, for the passage of any vessel, vessels, or other water craft except during the period between 9 a. m. and 9:10 a. m.: *Provided*, That the draw in this bridge shall upon the prescribed signal being given, be opened promptly at all hours for the passage of any vessel, vessels, or other water craft whose draft is 18 feet or more.

12. **Across Charles River.**—Charlestown Bridge, Warren Bridge, Boston & Maine Railroad bridge, Boston Elevated Railway bridge, and Charles River Dam Bridge.

Across Fort Point Channel.—Dorchester Avenue Bridge, New York, New Haven & Hartford Railroad bridge, New York, New Haven & Hartford (Y connection) Railroad bridge, Broadway Bridge, and Dover Street Bridge.

Between the hours of 6:15 a. m. and 9:10 a. m. and between the hours of 4:15 p. m. and 7:40 p. m. the draws in the bridges named in this paragraph shall not be required to be opened except on Sundays and on legal holidays observed in the locality, for the passage of any vessel, vessels, or other water craft excepting that when high tide at Charlestown Navy Yard is between 6:15 a. m. and 9:10 a. m., the draws shall be opened within 45 minutes before or after said tide for a period of 10 minutes for the passage of all vessels or other water craft having a draft of 12 feet or over, if there be any such desiring to pass; the exact time of opening to be prescribed by the railroad companies, due regard being had for causing minimum interference with railroad schedules, highway traffic, and the interests of navigation. The opening time of each bridge shall be so fixed as to permit continuous passage through the next and following bridges located in direction of course of vessel or other water craft.

13. These rules and regulations shall not apply to steam vessels owned or leased by the United States, nor shall they apply to vessels employed by the

city of Boston or other municipality for police and fire protection. All such United States and municipal vessels shall be passed without delay through the draws of all bridges, at any hour of the day or night, upon signaling by four long blasts of the whistle.

14. These rules and regulations shall take effect on December 1, 1930, and all regulations or parts of regulations in conflict therewith are hereby revoked to take effect on that date.

GENERAL REMARKS ON APPROACHING BOSTON HARBOR

General remarks on approaching and standing along the coast are given on page 42.

Approaching from Cape Ann (chart 1207).—The soundings in the vicinity of Cape Ann are very irregular and cannot be depended on to locate even approximately the vessel's position. The southern end of Jeffreys Ledge, with depths of 19 to 30 fathoms, extends 15 miles eastward from Cape Ann, and depths of over 50 fathoms are found a few miles eastward and a short distance southward from the edge of the bank. A 229° true course from off the lighted whistle buoy located 2.5 miles eastward of Cape Ann Lighthouse clears the offshore dangers between Cape Ann and Nahant, and leads close to the lighted gong buoy marking the entrance to Broad Sound North Channel.

At night a number of lighted aids are visible, and they are sufficiently numerous to locate the position readily by cross bearings. In clear weather the course should be shaped to pass well northward of The Graves Lighthouse* and enter through the Broad Sound North Channel.

Approaching from Cape Cod (chart 1207).—Approaching the easterly side of the cape, soundings of 20 fathoms indicate a distance of 2 to 3½ miles from the shore, but off the north side of the cape the 20-fathom curve draws closer inshore and the soundings are not so regular. Vessels standing to clear Boston Lightship on a course of 295° true from the locality of Peaked Hill Bar Lighted Whistle Buoy will cross the southwesterly end of Stellwagen Bank in depths of 12 to 15 fathoms. Soundings in Stellwagen Bank cannot be depended on to locate a position on the bank, except in the case of soundings in a depth of 9½ fathoms, the shoalest water, which is found near its extreme southwest end.

In clear weather the Pilgrim Monument at Provincetown forms a splendid landmark and is visible for many miles.

As the entrance to Boston Harbor is approached, after crossing Stellwagen Bank, soundings of 20 fathoms or more (at low water) insures a distance of 5 miles or more from the shore and well outside of outlying rocks. Inside the depths of 20 fathoms the soundings are very irregular, and they cannot, as a rule, be depended on to keep a vessel out of danger. East of Nahant the 20-fathom curve lies closer inshore and some of the dangers extend offshore nearly to it.

Tidal currents.—For some distance northwestward of Cape Cod the tidal currents have a slight set into Cape Cod Bay on the flood and out of the bay on the ebb. Along the north shore of Massa-

*Lat. 42°21′.9, Long. 70°52′.2; Charts 246, 1207, 1030, 1106, 1107, 70.

chusetts Bay the flood sets in a general westerly or northwesterly direction and the ebb in a southerly or southeasterly direction. The velocity of the currents is influenced greatly by the force and direction of the wind. Off the entrance to Boston Harbor the flood sets westward and ebb eastward, increasing slightly in velocity as the entrance is approched.

Entering Boston Harbor in Fog.—In thick weather a course should be laid to clear Boston Lightship by a safe distance when approaching from either Cape Ann or Cape Cod, and the water should not be shoaled to less than 20 fathoms unless the fog signal of the lightship is heard and the vessel located. From the lightship a course may be laid to pass about midway between Boston Light and the lighted bell buoy off Point Allerton. The fog signal of Boston Light, with a frequent use of the lead, will enable a vessel to reach an anchorage inside of Point Allerton. Unless the lightship is located no attempt should be made to enter the harbor, and the water should not be shoaled to less than 20 fathoms.

Vessels when in the vicinity of Cape Cod, if overtaken by fog or thick easterly weather, may find it convenient to anchor in Provincetown Harbor or on the west side of the cape south of Provincetown, where there is a good lee and holding ground in 7 to 12 fathoms.

Vessels equipped with radio should not fail to utilize the services of the naval radio direction finder stations which are so located as to give a strong fix from bearings received from three stations. A submarine oscillator is operated at Boston Lightship. Details of these stations will be found in the Light List. Vessels equipped with radio compasses should avail themselves of the clear-weather transmission to test the accuracy of the apparatus.

SAILING DIRECTIONS, BOSTON HARBOR AND VICINITY

Boston Harbor and approaches has very broken, rocky bottom, and caution is necessary. The area from the entrance of Nantasket Roads an Broad Sound North and South Channels, out to a depth of 25 fathoms or more, has been examined by means of a wire drag, and the dangers are shown on the charts. The area examined in this way extends northeastward to beyond Cape Ann and southward to Cape Cod Canal, the outer limit usually being from 4.5 to 7 miles from the shore.

Table 9.—BOSTON LIGHTSHIP TO DEER ISLAND LIGHTHOUSE VIA BROAD SOUND NORTH CHANNEL

CHARTS 1207, 246

Position *Reverse directions in italics*—read upward	True course	Distance
	Degrees	*Nautical miles*
1. About 0.5 mile northward of Boston Lightship. Chart 1207:		
Direct	296	5.0
Reverse	*116*	*5.0*
2. 0.2 mile north-northeast of The Graves lighted whistle buoy with The Graves and Boston Lighthouses in line with the buoy. Chart 246:		
Direct	249	3.0
Reverse	*69*	*3.0*
3. 300 yards south-southwest of Finns Ledge Lighted Bell Buoy (in middle of north end of dredged channel). Brings Finns Ledge Lighted Bell Buoy astern on course of 208° heading for Nixes Mate Lighted Gong Buoy:		
Direct	208	1.7
Reverse	*28*	*1.7*
4. Lighted Bell Buoy off Little Faun abeam. (Keep north of South Channel Range):		
Direct	240	0.8
Reverse	*60*	*0.8*
5. 500 yards southward of Deer Island Lighthouse.		

Table 9A.—BOSTON LIGHTSHIP TO DEER ISLAND LIGHTHOUSE VIA BROAD SOUND SOUTH CHANNEL

CHARTS 1207, 246

	Degrees	*Nautical miles*
1. About 0.5 mile northward of Boston Lightship. Chart 1207:		
Direct	296	5.0
Reverse	*116*	*5.0*
2. 0.2 mile north-northeast of The Graves lighted whistle buoy with The Graves and Boston Lighthouses in line with the buoy. Chart 246:		
Direct	236	2.2
Reverse	*56*	*2.2*
3. Midway between the two buoys marking northern entrance to South Channel and on South Channel range (Conical towers on Lovell Island):		
Direct	215	1.4
Reverse	*35*	*1.4*
4. Intersection of Spectacle Island and Lovell Island South Channel ranges. (Channel turn Red buoy just forward of starboard beam.) Steer Spectacle Island lighted Range:		
Direct	250	1.7
Reverse	*70*	*1.7*
5. 500 Yards south of Deer Island Lighthouse.		

Table 9B.—BOSTON LIGHTSHIP TO DEER ISLAND LIGHTHOUSE VIA THE NARROWS

CHARTS 1207, 246

Position *Reverse directions in italics*—read upward	True course	Distance
1. 0.5 Mile north of Boston Lightship (If 0.5 mile south of Lightship, steer 271° true for 3.2 miles until about 0.4 mile northward of Thieves Ledge Lighted Whistle Buoy, and then steer 254° true for 2.8 miles to Position 2): Chart 1207:	*Degrees*	*Nautical miles*
Direct	253	6.2
Reverse	*73*	*6.2*
2. 0.5 Mile south of Boston Light. Chart 246:		
Direct	270	1.0
Reverse	*90*	*1.0*
3. Narrows Light and Deer Island Lighthouse on range (Kelly Rock bell buoy aft of starboard beam):		
Direct	292	0.7
Reverse	*112*	*0.7*
4. Small stack on Georges Island abeam:		
Direct	312	1.0
Reverse	*132*	*1.0*
5. Nixes Mate Lighted buoy abeam:		
Direct	274	*0.5*
Reverse	*94*	*0.5*
6. 500 yards south of Deer Island Lighthouse.		

Table 10.—DEER ISLAND LIGHT TO BIRD ISLAND ANCHORAGE, BOSTON

CHART 246

	Degrees	*Nautical miles*
1. 500 yards south of Deer Island Lighthouse:		
Direct	264	1.6
Reverse	*84*	*1.6*
2. Halfway between lighted channel buoys northward of Spectacle Island:		
Direct	291	0.4
Reverse	*111*	*0.4*
3. Halfway between lighted channel buoys off Lower Middle:		
Direct	310	1.3
Reverse	*130*	*1.3*
4. Lighted channel buoy west of Governors Island on starboard beam: After passing this buoy, change course about 30° to the right and anchor in anchorage area off the beacons marking the edge of Bird Island Flats.		

Table 11.—DEER ISLAND TO DORCHESTER BAY

CHART 246

Position *Reverse directions in italics*—read upward	True course	Distance
	Degrees	*Nautical miles*
1. 500 yards south of Deer Island Lighthouse:		
Direct	264	1. 65
Reverse	*84*	*1. 65*
2. Halfway between lighted channel buoys northward of Spectacle Island:		
Direct	231	0. 5
Reverse	*51*	*0. 5*
3. Close to and southward of red buoy west of Spectacle Island:		
Direct	231	0. 6
Reverse	*51*	*0. 6*
4. Steamer wharf on Thompson Island abeam, distant about 200 yards:		
Direct	247	0. 5
Reverse	*67*	*0. 5*
5. Northwest of and close to black buoy westward of Thompson Island at entrance to dredged cut. Pass between this buoy and red buoy west of it:		
Direct	217	0. 6
Reverse	*37*	*0. 6*
6. Black buoy off entrance channel to U. S. Naval Reservation close to on port side. Pass between next buoys:		
Direct	39	*0. 15*
Reverse	*59*	*0. 15*
7. 50 yards southward of lighted buoy north of Naval Reservation:		
Direct	254	0. 3
Reverse	*74*	*0. 3*
8. North of and close to black channel buoy:		
Direct	212	0. 2
Reverse	*32*	*0. 2*
9. Off Commercial Point:		
To proceed up the river follow the aids to navigation and the chart.		

Table 12.—DEER ISLAND LIGHT TO QUINCY (WEYMOUTH FORE RIVER)

CHART 246

Position *Reverse directions in italics*—read upward	True course	Distance
Follow Reverse Courses in Table No. 1 B until off Georges Rocks lighted buoy. Swing southward around this buoy and around the buoy marking the 16-foot spot to Position.		
1. 200 yards 180° true from buoy marking 16 foot spot 0.4 mile 164° true from The Narrows light:	*Degrees*	*Nautical miles*
Direct	245	1. 5
Reverse	*65*	*1. 5*
2. Outer end of wharf on Rainsford Island abeam, bearing 336° true, distant 0.4 mile:		
Direct	205	1. 0
Reverse	*25*	*1. 0*
3. Buoy off west end Peddocks Island abeam, bearing 285° true, distant 300 yards:		
Direct	146	0. 5
Reverse	*326*	*0. 5*
4. Lighted buoy South-southwest of Peddocks Island bearing 14° true, distant 180 yards:		
Direct	89	0. 7
Reverse	*269*	*0. 7*
5. Pig Rock Light bearing 221° true, distant 400 yards:		
Direct	153	0. 5
Reverse	*333*	*0. 5*
6. Two lights on west side of dredged channel on range and buoy south of Sheep Island on port beam. Head up center of dredged channel with east end of Sheep Island astern:		
Direct	211	1. 4
Reverse	*31*	*1. 4*
7. In channel 160 yards 166° true from Light No. 4:		
Direct	241	1. 0
Reverse	*61*	*1. 0*
8. In turning basin below bridge:		
For bridge details see page 289.		

Table 13.—NANTASKET ROADS TO QUINCY (WEYMOUTH FORE RIVER) VIA NANTASKET GUT

CHART 246

Position *Reverse directions in italics*—read upward	True course	Distance
	Degrees	*Nautical miles*
1. 200 yards 180° true from buoy marking 16-foot spot 0.4 mile south of The Narrows light:		
Direct	215	0.7
Reverse	*35*	*0.7*
2. Windmill Point Light abeam and on range with prominent radio towers at Nantasket:		
Direct	158	0.3
Reverse	*338*	*0.3*
3. Army Wharf (Shore end) on Peddocks Island abeam and Windmill Point Light bearing 22° true (astern):		
Direct	202	1.2
Reverse	*22*	*1.2*
4. Tangent to western end Grape Island showing between two channel buoys southwest of Sheep Island:		
Direct	153	0.5
Reverse	*333*	*0.5*
5. Same as Position 6, Table No. 12. Proceed on courses given in Table No. 12.		

Table 14.—BOSTON LIGHTSHIP TO ENTRANCE LYNN CHANNEL

CHARTS 1207, 240

	Degrees	*Nautical miles*
1. 0.5 Mile north of Boston Lightship:		
Direct	296	5.0
Reverse	*116*	*5.0*
2. 0.2 mile north-northeast of The Graves lighted whistle buoy with The Graves and Boston Lighthouses in line with the buoy. Chart 246:		
Direct	286	3.1
Reverse	*106*	*3.1*
3. Flip Rock buoy on starboard beam, bearing 16° true distant 0.2 mile. Chart 240:		
Direct	313	1.7
Reverse	*133*	*1.7*
4. At entrance to Lynn dredged channel. If bound to Lynn see Table No. 15.		

Table 14A.—ENTRANCE BROAD SOUND NORTH CHANNEL TO ENTRANCE LYNN CHANNEL

CHARTS 1207, 240

	Degrees	*Nautical miles*
1. Finns Ledge lighted bell buoy bearing 270° true, distant 0.2 mile:		
Direct	342	1.8
Reverse	*162*	*1.8*
2. Flip Rock buoy on starboard beam, bearing 16° true, distant 0.2 mile. Change to Chart 240:		
Direct	313	1.5
Reverse	*133*	*1.5*
3. At entrance to Lynn dredged channel.		

Table 15.—ENTRANCE TO LYNN CHANNEL TO LYNN

CHART 240

Position *Reverse directions in italics*—read upward	True course	Distance
1. In entrance of dredged channel about 70 yards westward of lighted bell buoy:	*Degrees*	*Nautical miles*
Direct	2	0. 35
Reverse	*182*	*0. 35*
2. Off White Rocks Light, midway between it and the buoy on east side of channel:		
Direct	31	0. 5
Reverse	*211*	*0. 5*
3. Black Rocks Light abeam distant 50 yards:		
Direct	23	0. 6
Reverse	*203*	*0. 6*
4. Sand Point Light abeam distant 50 yards:		
Direct	Mid-channel	0. 4
Reverse	*Mid-channel*	*0. 4*
5. Black Marsh Channel Light abeam distant 50 yards:		
Direct	343	0. 4
Reverse	*163*	*0. 4*
6. In Basin.		

Table 16.—BOSTON LIGHTSHIP TO BEVERLY HARBOR

CHARTS 1207, 240

	Degrees	*Nautical miles*
1. 0.5 Mile east of Boston Lightship:		
Direct	2	10. 0
Reverse	*182*	*10. 0*
2. Newcomb Ledge lighted whistle buoy bearing 272° true distant 200 yards. Chart 240:		
Direct	324	1. 7
Reverse	*144*	*1. 7*
3. Black buoy about 1.1 miles 112° true from Bakers Island light bearing 234° true, distant 200 yards:		
Direct	302	1. 1
Reverse	*122*	*1. 1*
4. Bakers Island Light abeam, bearing 212° true distant 0.3 mile. Swing onto Hospital Point Lighted range heading through main ship channel:		
Direct	276	2. 4
Reverse	*96*	*2. 4*
5. Black Rock and Mingo Beach pier bearing 6° true:		
Direct	243	0. 8
Reverse	*63*	*0. 8*
6. 100 Yards south of red buoy located about 0.4 mile southward of Hospital Point Light. For directions for Beverly Harbor see page 273.		

Table 17.—BOSTON LIGHTSHIP TO VARIOUS FISHING BANKS AND POINTS IN NOVA SCOTIA

CHARTS 70, 1000, 1106, 1107

Position *Reverse directions in italics*—read upward	True course	Distance
	Degrees	*Nautical miles*
1. Boston Lightship, bearing west, distant 1 mile:		
Direct	76	242
Reverse	*256*	*242*
2. Brazil Rock lighted whistle buoy (Nova Scotia). Charts 70 or 1000.		
1. Boston Lightship, bearing west, distant 1 mile. Course passes 2½ miles north of Ammen Rock whistle buoy:		
Direct	67	220
Reverse	*247*	*220*
2. Entrance Yarmouth Harbor (Nova Scotia) Charts 70, 1000 or 1106.		
1. Boston Lightship, bearing west, distant 1 mile:		
Direct	45	69
Reverse	*225*	*69*
2. Platts Bank. Charts 70, 1000 or 1106.		
1. Boston Lightship, bearing west, distant 1 mile:		
Direct	68	88
Reverse	*248*	*88*
2. Cashes Ledge, Ammen Rock whistle buoy (latitude 42°53′, longitude 68°54′). Charts 70, 1000 or 1106.		
1. Boston Lightship, bearing west, distant 1 mile:		
Direct	68	70
Reverse	*248*	*70*
2. Fippennies Ledge. Charts 70, 1000 or 1106.		
1. Boston Lightship, bearing west, distant 1 mile:		
Direct	105	137
Reverse	*285*	*137*
2. Georges Shoal (north end of 5-fathom curve). Charts 70, 1000 or 1107.		

DORCHESTER BAY

(CHART 246)

This bay extends southwestward from President Roads between Spectacle and Thompson Islands on the east and South Boston on the west. The bay is filled by extensive flats, large areas of which are nearly bare at low water and rise abruptly from the edge of the channel

Old Harbor, on the south side of South Boston, is filled by flats with little water over them. An anchorage basin for yachts has been dredged on the north side of the harbor; the eastern part has a depth

of 9 feet and the western part 6 feet. There is a Marine Park pier on the north side at the entrance. There is a channel with a least depth of about 6 feet at mean low water leading to the yacht clubs and the public float. The most commonly used yacht anchorage is the Castle Island anchorage south and east of City Point, clear of the cable area.

Southward of Old Harbor a channel 18 feet deep has been dredged up to Commercial Point. Subsequent shoaling has reduced this depth to about 15 feet just north of Commercial Point. The principal traffic is in coal and building material, which is brought by barges and other vessels that are towed to Commercial Point, Neponset, and Milton Mills. Vessels can select anchorage in the Castle Island anchorage northwestward of Thompson Island. Northward of Commercial Point and south of Fox Point there is an anchorage basin used by yachts.

A channel has been dredged 12 feet deep from the 18-foot channel northward of **Squantum Point*** to a Naval Reservation situated eastward of the point.

Commercial Point is on the west side at the entrance of Neponset River and can be recognized by a large gas tank and a tall stack. A 12-foot channel has been dredged to the basin northwestward of Commercial Point. The entrance to the basin is crossed by a drawbridge. (See p. 289 for details.) There is a yacht club and two yacht repair yards in this inner harbor where small craft up to about 50 feet in length can be hauled out. Storm warnings are displayed during summer from a yacht club on **Fox Point.**

Neponset River.—A buoyed channel, dredged to 15 feet leads from Commercial Point to the railroad bridge. Above this point, a 6-foot channel has been dredged to the head of navigation at Milton Mills.

Bridges.—Three drawbridges cross Neponset River. The signal is two long blasts followed by two short blasts. A list of these bridges will be found on page 289. For bridge regulations, see page 290.

Repairs.—There are a number of yacht yards on the river where yachts may be constructed or repaired. The largest of the several marine railways can handle vessels up to 350 tons, with a length of 145 feet and draft of 17 feet.

There are also a number of yacht clubs.

Pilots are generally taken by strangers with deep draft. Pilotage is not compulsory.

Directions.—For directions from President Roads to Commercial Point, see page 296.

QUINCY BAY

(CHART 246)

Quincy Bay indents the southerly shore of Boston Harbor between the peninsulas of Squantum and Houghs Neck. The general depths in the bay are 8 to 10 feet, but shoals partly bare at low water extend 0.5 to 0.7 mile from its southerly side. **Hangman Islet,** small and rocky, lies near the middle of the entrance to the bay; the reef, extending 0.2 mile southwestward from the islet, is marked near its end by a black spindle. A ledge with 5 feet over it lies 0.4 mile northward of Hangman Islet, with foul ground between. **Sunken Ledge,** dry at

*Lat. 42°18′.1, Long. 71°02′.3: Charts 246, 1207.

low water, lies 0.6 mile northeastward of Hangman Islet and is marked by a stone beacon near its northern end and a light on its southeast edge. A buoy marks the channel west of Sunken Ledge.

Squantum, on the west side of the bay, is marked by a lighted radio mast and an elevated tank.

Wollaston Channel, near the westerly end of the bay, has about 8 feet in the outer portion and about 4 feet near the inner end. It is marked by two sets of buoys. There are two yacht clubs at the head of this channel

Two lighted radio towers in the southern part of **Atlantic** are visible from the bay.

Eastward of Squantum and connected with it by a causeway lies **Moon Head,** which is recognized by the grassy hill and bluff on its easterly end. The entrance to Quincy Bay from westward is between Moon Head and Long Island, and is good for a depth of 8 to 12 feet at low water. From here, the **West Way** leads in a northerly direction between Spectacle Island and Thompson Island to the Main Ship Channel, and the Sculpin Ledge Channel in a northeasterly direction along the northwesterly shore of Long Island into President Roads.

Houghs Neck is marked at its northeasterly end by a hill 100 feet high, called **Quincy Great Hill,** which is mostly settled; an elevated tank on the hill is very prominent. **Nut Islet,** marked by a power station and stack, lies 300 yards northward of Quincy Great Hill, with a causeway between. There is a channel into Hingham Bay between Nut Islet and Peddocks Island.

The Quincy Yacht Club is located on the eastern side of Houghs Neck. The club during the summer season maintains range lights leading through the channel to the club wharf.

HINGHAM BAY

(CHART 246)

Hingham Bay is that part of Boston Harbor lying southeastward of Peddocks Island. It is the approach to Weymouth Fore River, Weymouth Back River, Hingham Harbor, and Weir River. The easterly part of the bay is shoal, and extensive shoals make out from the southerly shore and surround the islands in the bay. The easterly entrance is through Nantasket Gut, but there is also an entrance southward of Peddocks Island that is frequently used by vessels bound into Weymouth Fore or Back Rivers.

Pig Rock.—A pile of rocks visible at all stages of the tide and formely used as a foundation for the light, is located on the shoal area known as Pig Rock about 220 yards 233° true from the present position of the light.

Nantasket Gut is a narrow channel between Peddocks Island and Windmill Point and leads into the bay from Nantasket Roads. The tidal currents have considerable velocity but generally follow the direction of the channel; the flood sets southward and the ebb northward. There is an unmarked 15-foot spot near mid-channel.

Windmill Point, on the east side of Nantasket Gut, is marked on its southerly side by a fixed light and a fog bell. Prominent on Windmill Point is a large hotel with a steamer landing **(Pemberton)** southward of it. Eastward on the slopes of the hill are the town of **Hull**

and the Hull Yacht Club houses. **Nantasket Hill** is marked by a stone tower and a skeleton tower from which storm warnings are displayed by day. Hull is connected with Boston by steamer during the summer season.

A dredged channel 11 feet deep leads to a wharf on **Hog Island,** eastward of Hull. The channel starts just southward of Inner Seal Rock buoy No. 1 and has a general direction of 64° true.

Weymouth Fore River has its entrance on the southwest side of Hingham Bay between Houghs Neck and **Grape Island** and is the approach by water to **Quincy Point, Weymouth, East Braintree,** and a number of landings. A large shipyard, an electric power plant, and several other industries are located on this river. The river has been improved by dredging a channel 27 feet deep at M. L. W. from Hingham Bay to the bridge at Quincy Point. This depth was attained in 1940 but a subsequent survey shows some shoaling. Above the bridge the industries, including an extensive oil terminal, are served by a channel dredged by local interests. In 1939 oil tankers drawing up to 28 feet were reported to have used this channel. Oil and coal constitute the principal traffic. According to the latest available information the depth above the bridge is about 27 feet and some of the docks have 32 feet alongside.

Above the oil plant a channel dredged to 6 feet leads to Weymouth which is the head of navigation.

In entering the river the large twin stacks of the Edison Power Plant on the east side of the river just above the bridge are prominent. The two tall radio towers, near Quincy Point, are also prominent. A red neon sign is lighted at night on the City Service Co. stack.

Bridges.—Two drawbridges cross Weymouth Fore River; one at Quincy and one at Weymouth (East Braintree). For details, see page 289. The bridge signal is two long blasts followed by two short blasts.

Town River Bay, on the northwesterly side of Weymouth Fore River northward of Quincy Point, has several wharves, including several plants for the repair and storage of yachts. There is a ship and yacht yard with a marine railway suitable for commercial vessels of tonnage up to 1,000.

The project calls for a channel 24 feet deep from deep water in Weymouth Fore River to a point opposite the upstream end of the Quincy Oil Company terminal, with a turning basin 18 feet deep, 400 feet wide, and about 1,000 feet long at the inner end; and a channel 15 feet deep, thence to a point just below the plant of the Quincy Electric Light and Power Company.

In December 1940 there was a 24-foot channel from the Weymouth Fore River to about 600 yards west of Hole Point and a 15-foot channel for 500 yards beyond. There is an 18-foot anchorage basin west of Hole Point. It is expected that work will continue on the project until the project dimensions are obtained.

Weymouth Back River lies just eastward of Weymouth Fore River and southward of Grape Island. The channel from Weymouth Fore River to the wharf of the fertilizer works on **Eastern Neck,** a distance of 1.3 miles, is buoyed, and has a depth of 12 feet. A depth of 12 feet has been obtained by dredging for 0.9 mile above the fer-

tilizer works to the wharf just above Hingham Bridge. The channel is buoyed, but strangers desiring to enter the river in vessels should take a pilot or towboat. There is good anchorage at the entrance, 0.2 to 0.3 mile westward of Grape Island. Hingham Bridge details will be found on page 289.

Weymouth Back River above the bridge is closed to navigation except on permit.

Hingham Harbor and **Weir River** are shallow and lie in the southeasterly end of Hingham Bay. Their common entrance lies close westward of Bumkin Island. The channel, 250 yards wide, with a depth of over 3 fathoms, leads for 0.5 mile in a southeasterly direction from the westerly end of **Bumkin Island** and then divides. The branch leading eastward takes the name Weir River. The channel leading to Hingham Harbor trends southward, is narrow, and has a depth of 18 feet up to **Crow Point,*** the entrance of the harbor. The Hingham Yacht Club has a clubhouse, dock, and floats at Crow Point.

Hingham Harbor is a cove 1 mile long, with an average width of about 0.6 mile. At low water it is a dry flat, through which a narrow and tortuous channel winds to the town of Hingham. The upper end has been dredged to a depth of 8 feet. There is a lumber wharf and a float landing where gasoline and water are available at Hingham. The channel is sometimes marked by bush stakes in summer.

Weir River leads to the wharf at **Nantasket Beach.** It is filled by extensive flats, mostly bare at low water, between which is a channel with a controlling depth of 14 feet. The channel is used by steamers running from Boston to Nantasket Beach. A channel 14 feet deep has been dredged by private interests through an extensive shoal in the river, cutting off a sharp bend in the original channel. Nantasket Beach has a large steamer wharf with 16 to 18 feet alongside at M. L. W. and a public float landing for small craft north of it. Passenger ferries run to Boston during the summer season.

Eastward of Hingham Bay and the Weir River is a long, narrow peninsula extending northward from the mainland for 3 miles to Point Allerton. This is occupied by the town of Nantasket Beach. There are three grassy hills on this beach, the most prominent of which is **Strawberry Hill** (about 1 mile southward of Point Allerton), which is marked by a prominent standpipe and tank at its summit. Two hills southward of this are called **White Head,** with a low brick stack near it, and **Sagamore Head.**

Tides.—The mean rise and fall of tides is about 9½ feet.

Directions.—For directions for entering Hingham Bay see tabulations on page 298.

COHASSET HARBOR

(CHART 242)

From Nantasket Beach the coast, presenting a general hilly appearance, trends 3 miles east-southeastward to Cohasset Harbor. Rocks and sunken ledges extend 0.5 mile from shore in places.

Cohasset Harbor is a large, shallow cove lying southwestward of Minots Ledge Lighthouse and 5 miles southeastward of Point Aller-

*Lat. 42°15'.7, Long. 70°53'.6; Chart 246.

ton. It is of little commercial importance but is the resort of numerous yachts and fishing craft. Anchorage in 6 to 10 feet can be had in the so-called outer harbor. A channel, 60 to 90 feet wide and 6 feet deep, has been dredged to the inner harbor, but in 1940 it was reported to have shoaled until the controlling depth was about 3 feet. It is marked by buoys and lights. The inner harbor is sheltered by a breakwater which extends about 250 yards northward from near the westerly end of **Bassing Beach** at the entrance. The breakwater is partly covered at high water but the outer end is about 5 feet above high water. An anchorage basin, 6 feet deep, has been dredged in the inner harbor. The fish wharves at the extreme head of the harbor are nearly bare at low water; gasoline and provisions are obtainable. There are two boat yards, with a railway suitable for hauling out small craft up to a length of 72 feet and a draft of 7 feet. There is a small machine shop available. The Yacht Club has a pier and float, with about 8 feet of water alongside. Fresh water is available on the float. The town float has about 4 feet alongside at low tide, and is located near an oil wharf. In a normal winter the inner harbor is usually closed by ice for about one month.

Numerous rocks and ledges lie in Cohasset Harbor and extend off to Minots Ledge Lighthouse. The most prominent inside the lighthouse are **East** and **West Shag Rocks,** which show at high water.

There are three channels to the entrance of Cohasset Harbor—**Western** or **Brush Island Channel,** entering between **Brush Island Ledge** and **Chittenden Rock; Gangway Passage,** leading between **West Hogshead Rock** and **The Grampuses;** and **Eastern Channel,** which leads between **Enos Ledge** and **West Willies.** All of the channels are marked by buoys, but the dangers are numerous; the least depth crossed in entering is about 5 feet. Gangway Passage is the widest and best entrance for strangers. Strangers, even in small craft, should enter only in clear weather and with a smooth sea. The best time is on a rising tide. The dredged channel leading into the harbor is between flats that bare at low water.

Minots Ledge Lighthouse,* on **Outer Minot,** is a dark gray conical granite tower. The light is 85 feet above the water and visible 15 miles. The fog signal is a bell.

The light is on the outer of the dangers visible at low water, but submerged rocks and very broken ground, on which the sea breaks in heavy weather and which should be avoided by vessels, extend over 1 mile northeastward and 2.5 miles eastward of the lighthouse. The outer limit of the broken ground is marked by a lighted whistle buoy lying 2.4 miles eastward of the lighthouse.

SCITUATE HARBOR

(CHART 232)

Scituate Harbor is a cove largely bare at low water, except where dredged, which is partially protected by breakwaters which have been built out from the points at the entrance. In June 1939 there was a depth of 12 feet in the entrance channel to a point abreast of the south

*Lat. 42°16′.2, Long. 70°45′.6: Charts 242, 1207, 1000, 1106, 1107, 70.

jetty. The harbor channel and the adjoining anchorage basin were 10 feet deep. The channel to the town wharf and for some distance beyond it as far as the Scituate Boat Yard was 6 feet deep. The yacht anchorage basin, located northward of the town wharf, was 6 feet deep. All of the above depths were at mean low water. Spring tides sometimes fall 2.4 feet below this datum.

At the town pier and at the adjoining wharf there are floats with 6 feet of water alongside, at which gasoline, water, and supplies may be taken. A yacht club maintains a pier and float, with 6 feet alongside at mean low water, with gasoline and water on the float. A boat yard has a marine railway that can haul small craft up to 75 feet long and 8 feet draft. The **Scituate Coast Guard Station** is located on the point at the southern side of the harbor entrance.

The most unfavorable weather is usually from the northeast. The harbor is free of ice most of the winters.

Cedar Point, on the north side of Scituate Harbor, is marked by an unused white lighthouse tower.

The breakwater has been recently extended about 300 feet eastward from the southeast extremity on Cedar Point and a **light** is shown from a skeleton tower on the end of it.

On the high land, about 2 miles 267° true from the entrance of Scituate Harbor, is a prominent high tower with pointed top, which can be seen for many miles seaward. About 1 mile northwestward of the entrance to Scituate Harbor there is a tall yellow chimney that is very conspicuous in approaching.

Just southward of the entrance to Scituate Harbor is a high yellow bluff, known as **First Cliff.** A similar formation, known as **Second Cliff,** lies about 0.5 mile south of the entrance.

NEW INLET

(CHART 1207)

New Inlet, on the north side of **Fourth Cliff** and 2 miles southward of Scituate, is the approach to North River and South River. A radio direction finder station is located on Fourth Cliff. The inlet had a depth of 5 to 6 feet at low water on the bar in 1940, and is marked by a bell buoy off the entrance and by several channel buoys, but is subject to change and is never entered except by boats with local knowledge. Sand and gravel are shipped from a plant located on **Herring River,** a tributary to North River from the north. A channel 5 to 6 feet deep has been dredged to the wharf at the plant.

North River formerly emptied into the sea near **Rexhame,** but in the great storm of 1898 it broke through the beach and formed its present outlet. The river has been partly cleared of boulders to **Hanover** about 10 miles above the entrance. The depth to this point is about 3 feet at low water and 9 feet at high water. The river is little used. The bridges crossing it have draws, but they are seldom opened.

South River, emptying through New Inlet from southward, is used by fishermen and yachtsmen.

Humarock.—Local knowledge is necessary for navigation to this town. There is a float, with gasoline and some supplies available. A boat yard builds and repairs small craft.

Chapter 14.—CAPE COD BAY

(CHART 1208)

Deep draft vessels entering Cape Cod Bay from the northward should pass eastward of the lighted whistle buoy lying about 5 miles northeastward of Brant Rock and which lies well east of the extremity of the broken bottom which extends offshore over 4 miles in this direction. Although this broken ground has been examined by means of the wire drag, the depths are such as to render the above precaution advisable.

Ice in Cape Cod Bay.—Plymouth, Barnstable, Wellfleet, and other shallow harbors of Cape Cod Bay are usually closed to navigation a part of every winter. Instances are on record of this ice, and the ice forming in the shallower parts of Cape Cod Bay in severe winters, being driven by the winds out into the bay, where it masses into heavy fields or windrows, sometimes as much as 10 feet or more thick, making the navigation of parts of the bay unsafe or impracticable at times. The prevailing northerly winds drive it down to the southern end of the bay, but occasionally, at intervals of years, it has been known to obstruct Provincetown Harbor for a few days. The movements of the ice are dependent largely on the winds, the tidal currents apparently having little or no effect on it.

PLYMOUTH, KINGSTON, AND DUXBURY HARBORS

(CHART 245)

About 6 miles northward of the entrance to Plymouth Bay is the village of **Brant Rock,** near which is located a high, gray, water tank, and an old tower which are very prominent along this section of the coast. **Brant Rock Coast Guard Station** is located here. For about 1 mile south of Brant Rock, to the entrance of Green Harbor, foul ground extends offshore for nearly 1.5 miles to the eastward, to **Farnham Rock,** which has a lighted bell buoy with a marker buoy located just eastward of it.

Green Harbor River has its entrance on the south side of Green Harbor Point. Two small jetties, covered at high water, have been built at the entrance, but the channel is almost bare at low water. The river is used by small fishing boats only, which can usually enter or leave about 2 hours after low water. It should not be attempted by strangers.

Green Harbor is a small village on the west side of the river. Just southwest of the village, and 5 miles northward of the entrance to Plymouth Bay, there are three high steel **radio towers** that are prominent for many miles.

High Pine Ledge, bare at lowest tides, is marked on its easterly side by a red buoy which lies about 0.8 mile from shore and 2 miles

northward of Plymouth (Gurnet) Lighthouse. The ledge extends from the buoy nearly to the shore, and vessels should not attempt to pass westward of the buoy.

Plymouth (Gurnet) Lighthouse* is a white octagonal pyramidal tower on **Gurnet Point** at the north side of the entrance to Plymouth Bay and Harbor. The light is 102 feet above the water and visible 16 miles. The fog signal is a reed horn.

About 3 miles south of Gurnet Point is **Rocky Point:** Between the two, and extending about 2 miles westward to **Plymouth Beach,** is **Plymouth Bay.** The southern part of the bay, known as **Warren Cove,** is sometimes used as a temporary anchorage in southerly weather.

The central part of the bay is occupied by **Browns Bank.** Northward of Browns Bank, and between it and **Saquish Neck** and **Head,** is the entrance channel to Plymouth Harbor and Duxbury Bay.

The controlling depth through the entrance channel, from off Gurnet Point to the intersection of the three channels at the south end of the Cowyard, is about 20 feet at mean low water. There is a 16-foot spot in mid-channel, about 0.8 mile westward of Gurnet Point Light, which can be avoided. The channel is well marked and easily navigated in clear weather. The channels into the tributaries are described under their headings.

Anchorage.—Large vessels waiting for the tide or weather may anchor on the north side of the entrance channel southeast of Saquish Head and northeastward of the buoy marking the extremity of the shoal, making southward from that head; or they may proceed to the intersection of the bay channels and anchor where the swinging room is greatest, which is about 500 yards west-northwestward of Duxbury Pier Light.

Duxbury Pier Lighthouse, marking the north side of the channel and the south end of the shoal between the main channel and the Cowyard, is a brown conical tower and has a fog bell.

Duxbury Bay, between Duxbury Beach on the east, **Saquish Neck** on the southeast, and the mainland on the west, is about 3 miles long, with an average width of 2 miles. It is full of flats, mostly bare at low water, through which several narrow crooked channels lead. Shoals, with little water in places, rise abrutly on both sides of these channels, and at low water the edges of the shoals show by discolored water.

From the locality westward of Duxbury Pier Light, where the different bay channels come together, a channel about 200 yards wide, with depths from 20 to 40 feet, extends northward up Duxbury Bay, until west of **Clark Island.** This channel is known as the **Cowyard** and affords good anchorage for small craft. Westward of Clark Island this channel splits. The eastern branch continues up to eastern side of Duxbury Bay and is difficult to follow. It is not much used, but a controlling depth of about 7 feet can be carried to the bridge at the mouth of the **Back River.** A somewhat less depth can be carried for about 0.5 mile above the bridge, above which point the channel is practically bare at low water. This branch of the channel is unmarked. The bridge is fixed.

*Lat. 42°00′.2, Long. 70°36′.1: Charts 245, 1208, 1106, 1107, 79.

The western branch of the channel, from the locality of Clark Island, has a natural channel with plenty of water for about 1.5 miles northward of the fork in the channel. It is buoyed by the Federal Government to this point and easily followed. Above this point it trends westward and then northward to the village of **Duxbury.** This section of the channel is reported to have been dredged for the northern half mile of its length, in 1940, to give a controlling depth of 8 feet to the anchorage basin off Duxbury. That section of the channel above the point where buoys are maintained by the Federal Government is marked by local authorities. At Duxbury there is a yacht club and a small boat yard, with a marine railway capable of hauling out small craft up to 56 feet long, with a draft of 6.5 feet.

There are numerous moorings in the anchorage basin. There are several wharves and float landings. Gasoline and some supplies are available.

Kingston Bay, contained between the mainland and the western point of Duxbury Bay, has a diameter of about 1.5 miles, but is so full of flats as to render it unfit for navigation except with a pilot and at high water. The village of **Kingston** is built nearly 1 mile back from its western shore on a small stream called **Jones River.** The bay is of little importance as a harbor or port. Several channels lead between the flats of this bay, but they are narrow and crooked. The northernmost and deepest is **Miles** or **South Channel,** and by it about 6 feet at low water can be taken to within 0.7 mile of the mouth of Jones River and 3 feet to the mouth. The river is bare at low water.

From the southerly end of the Cowyard westward of Duxbury Pier Lighthouse a channel has been dredged to the **Plymouth Cordage Co.'s wharf,** 1.7 miles northwestward of Plymouth, with a turning basin at the wharf. The channel has been dredged 250 feet wide and 20 feet deep through the bar at the entrance from the Cowyard, and is marked by buoys. The upper part of the channel for a distance of 0.6 mile below the wharf has been dredged 150 feet wide and 18 feet deep; according to the latest available information (1939) the channel had shoaled in both of these places where dredging has been done until the controlling depth was 13 feet at each place; the curve in this part of the channel is marked on its southerly side by black buoys maintained privately. There is 16 feet alongside the wharf at mean low water. The small dredged channel leading for about 100 yards in a southeasterly direction from the turning basin was dredged to 8 feet in 1940.

Plymouth Harbor is about 1 mile wide at its northern end, gradually narrowing to its southern end. The larger part of the harbor is dry at low water.

Plymouth is a city on the southwest side of Plymouth Harbor. The principal channel leading to Plymouth is marked by buoys and in 1940 had a controlling depth of 15 feet. From the State pier a channel has been dredged to the coal wharf about 500 yards northwestward. There is some water-borne commerce at Plymouth, the principal item being shipments to and from the Plymouth Cordage Company and coal received. The maximum draft that is taken to Plymouth is about 19 feet.

There are a yacht club, several wharves and floats at which gasoline, water, and supplies can be taken.

Repairs.—There are a number of boat yards with marine railways at which small craft up to about 50 feet long and 6 feet draft can be built, stored, or repaired.

Pilotage.—It is compulsory for foreign vessels only. Pilot can be obtained by signaling the Coast Guard Station at Gurnet Point and waiting off that point until boarded.

Prominent objects.—Captains Hill, on the peninsula between Duxbury and Kingston Bays, is about 200 feet high and on its top is **Standish Monument,** which shows prominently from all directions when approaching the harbor. **Manomet Hill,*** about 5 miles southward of Gurnet Point, is over 390 feet high, heavily wooded, and is a conspicuous landmark in approaching the entrance. A tank at the prison farm 1 mile southeast of Plymouth is very prominent. The buildings and the brick chimney of the Plymouth Cordage Co. at **North Plymouth,** and the buildings at Plymouth are prominent from eastward and northeastward.

Anchorage.—The best anchorage is in the Cowyard, but small light-draft vessels often find good anchorage under the lee of Long Beach, in 3 to 4 fathoms. Yachts and small craft anchor in the anchorage basins off the wharves at Plymouth.

Supplies.—Diesel oil, coal, water, some ship chandlery, and gasoline can be obtained at Plymouth.

Tides.—The mean rise and fall of tides is about 9 feet at the entrance and about 9.5 feet at Plymouth.

The **tidal currents** have considerable velocity, the greatest velocity being between Gurnet Point and Duxbury Pier and at the entrance to the Cowyard. The set is generally in the direction of the channel; but the ebb sets southward and eastward across Browns Bank, while the flood sets northward and westward above Saquish Head, and sweeps strongly around Duxbury Pier Lighthouse northward into the Cowyard.

Ice.—Beginning about the middle of January, this harbor is usually closed to navigation for a few weeks of every winter by local ice; when there is ice in the harbor the Cowyard is not a safe anchorage. In winter the safest anchorage from ice is in the channel southward or eastward of Saquish Head, and vessels sometimes go to sea on account of drift ice at this anchorage. Westerly winds have a tendency to carry the ice out in fields.

DIRECTIONS, PLYMOUTH HARBOR

The western side of Cape Cod Bay out to a distance of 4.5 to 7 miles from the shore, from Boston Harbor to Cape Cod Canal entrance, has been examined by means of a wire drag. The dangers within a distance of 0.5 to 1 mile of the shore were not generally covered with the drag. The channels in Plymouth Harbor and tributaries generally have soft bottom. The channel through the entrance is well marked and easily followed in clear weather. Above the Cowyard the channels are narrow and crooked, lead between flats bare or nearly so at low water, and local knowledge is necessary to carry the best water. The best time for strangers to navigate the channels inside the harbor is at low water when the flats are visible.

*Lat. 41°55′.6, Long. 70°35′.5: Charts 245, 1208, 1107.

The following directions for approaching will lead to Gurnet Point bell buoy, which lies 0.7 mile southeastward of Gurnet Point Lighthouse. In approaching, Plymouth Lighthouse may be steered for on any course between 194° true through west to 312° true until within 1 mile from it.

From Boston (Charts 1207 and 1208).—Bring Boston Lightship astern on a **139°** true course and continue course until about 14 miles from the lightship, when you will be about 0.5 mile eastward of the lighted whistle buoy located about 5 miles northeastward of Brant Rock. At this position change course to **188°** true and continue this course for a little over 9 miles to a point just east of Gurnet Point Gong Buoy.

From Cape Ann (Charts 1207 and 1208).—From a position 0.5 mile off the lighted whistle buoy, 2.5 miles east of Cape Ann, steer **184°** true for nearly 24 miles to a position about 0.5 mile eastward of the lighted whistle buoy located about 5 miles northeastward of Brant Rock. From this position steer **188°** true, as in the preceding paragraph, to a position off Gurnet Point Gong Buoy.

Cape Cod Canal to Gurnet Point (chart 1208).—After leaving the eastern end of the canal, round the bell buoy marking the entrance, and steer **26°** true for about 2.2 miles to clear a lighted bell buoy. From near this lighted bell buoy steer **348°** true for about 6.5 miles, to a position 0.3 mile east of the lighted gong buoy off Manomet Point. At this position change course to **318°** true, and continue course a little over 6 miles, to a position off Gurnet Point Bell Buoy.

Gurnet Bell Buoy to Cowyard (chart 245).—When off Gurnet Bell Buoy, bring Duxbury Pier Light on range with the tall chimney at the Plymouth Cordage Company's plant, on a bearing of **256°** true. Make good this range, if not too great draft, to a point about 100 yards north of the lighted buoy on the south side of the channel off the northeast of Browns Bank. This course leads through a known depth of about 19 feet. If better water is desired, pass slightly further south of the bell buoy and come on the range to the westward of the buoy south of Gurnet Point. Just westward of the lighted buoy are two dangers which must be avoided. 550 yards from the buoy, on a line toward the next channel buoy on the south side of the channel, a 5-foot spot is reported. About 400 yards northward of this 5-foot spot is a 16-foot spot. If entering on an ebb tide, care must be taken to avoid being set to the southeast by the ebb current, which is reported strong at this point. To pass between these shoals, continue to make the range good for 0.3 mile beyond the lighted buoy, and then change course to **237°** true, heading to pass about 150 yards northward of the next channel buoy located on the south side of the channel. Continue this course for a little over 0.7 mile, until 150 yards northward of this buoy, and then change course to **265°** true, heading to pass about 200 to 300 yards south of Duxbury Pier Light. When this light is abeam, change course to about **298°** true, and anchor 500 to 600 yards west-northwestward of the light.

Cowyard to Plymouth (chart 245).—The best time to navigate this channel is at low water, when the flats are visible, or on a rising tide. The channel is well buoyed and lighted; the following courses are approximate; the chart and the aids to navigation must be used.

From a position between the two buoys marking the entrance to the dredged channel leading to Plymouth, steer about **203°** true for about 400 yards, until the next channel buoy is abeam. Then change course to about **186°** true to pass about 50 yards east of the first channel light. Continue this course for about 100 yards beyond this light and change course to **144°** true. Continue this course for about 0.8 mile, changing it as necessary to pass midway between the next channel light and the buoy opposite it. Then steer about **south** true for a short distance until on the first range which bears **229°** true. Make good this range for nearly 0.5 mile, until you are on the next range, the bearing of which is **241°** true. Make good this range for 500 yards, then change course to the westward and proceed to the wharf, having due regard for the buoys marking the limits of the dredged basin.

COAST, PLYMOUTH TO BARNSTABLE HARBOR

(CHART 1208)

Between Rocky Point and Manomet Point, a distance of 2.5 miles, there are a number of outlying rocks which will be avoided by giving the shore a berth of 1 mile. The shore is backed by high wooded hills, the most conspicuous of which is Manomet Hill, 390 feet high. **Manomet Point** is a bluff and is marked by a prominent hotel and the Coast Guard station.

White Horse Beach is a post office and summer resort northwest of Manomet Point.

Mary Ann Rocks, two rocks bare at half tide, lie 0.7 and 0.9 mile southeastward of the northerly end of Manomet Point, and are marked by a whistle buoy and a lighted bell buoy lying 0.8 and 1.4 miles, respectively, from the outer rock.

Stonehorse Rocks, bare at low water, lie southwestward of Mary Ann Rocks and are a part of a reef that extends 0.7 mile southeastward from Manomet Point.

Stellwagen Rock, with 6 feet over it and unmarked, lies 1.7 miles southward of Manomet Point and 0.8 mile from shore.

From Manomet Point to **Peaked Cliff,** a distance of 7 miles, the shore is a line of high bluffs backed by woods. Just southward of **Center Hill Point,** shoals with little water in places extend 0.6 mile from shore. From Peaked Cliff the shore trends southeastward and is low. There are houses on the shore at **Sagamore Beach,** 2 miles northwestward of Cape Cod Canal.

Ellisville Harbor is a small boat harbor about 0.4 mile northward from **Lookout Point.** The entrance is protected by a jetty on the northern side, but the entrance and basin are shoal and available for small craft only at half tide or better.

Cape Cod Canal is described on page 318.

Sandwich Harbor, 1 mile southeastward of the jetties at the entrance of Cape Cod Canal, is the approach to the village of **Sandwich.** The shore in front of the village is low marsh, faced by a sand beach.

The entrance is protected by small jetties. The channel to the town is bare at low water. The place is suitable for small launches only.

From Sandwich Harbor **Spring Hill Beach** extends 2.3 miles southeastward to Scorton Harbor; it is sand dunes backed by lowlands, cultivated and settled.

Scorton Harbor, 3.5 miles southeastward of the entrance of Cape Cod Canal, has a narrow entrance, bare at low water. It is sometimes entered at half tide or higher by small local fishing boats. At high water boats can go to the highway bridge about 1 mile above the entrance. There are no wharves. **Scorton Ledge,** an unmarked 13-foot ledge, lies 0.7 mile north-northeastward of the entrance.

BARNSTABLE HARBOR

(CHART 339)

This harbor, 10 miles southeastward of Cape Cod Canal entrance, is the approach to the town of Barnstable and the village of Yarmouthport. It is used by many local fishing boats and yachts. The entrance is obstructed by a shifting bar with about 5 feet over it at low water. The harbor is nearly filled by flats and shoals, which also extend 2 miles off the entrance from the shore eastward of the lighthouse. The channel is partially marked by buoys but the bar channel is subject to changes and strangers should obtain local information before entering. With northerly winds a heavy sea makes on the bar, and vessels bound to Barnstable should take shelter in the eastern entrance to the canal or anchor in Plymouth or Provincetown until the weather moderates. Ice generally obstructs the harbor during a part of the winter.

A channel, reported in 1940 to have a depth of 4 feet, leads to a fish factory and wharf on **Maraspin Creek.** The channel is marked by local fishermen.

The dredged channel leading to **Yarmouth** has shoaled until in 1940 it had a controlling depth of about 1 foot near its entrance.

Gasoline and some supplies can be obtained at Barnstable.

Sandy Neck Lighthouse* is a skeleton tower 45 feet above high water. The light is maintained from April 15 to October 15 of each year. A standpipe and a lighted radio tower at Barnstable, and a tall stack at the Yarmouth wharf and a tank and spire in Yarmouth are prominent.

Nobscusset Point, 4.5 miles eastward from Sandy Neck Lighthouse, has a small breakwater which provides a protected anchorage for small boats at high water. The area behind the small breakwater is nearly bare at low water.

North Dennis is a village 3.5 miles eastward of Sandy Neck Lighthouse. **Scargo Hill,** southeastward of North Dennis, is 170 feet high, and the highest in the vicinity. There is a prominent stone lookout tower on the hill.

WELLFLEET HARBOR

(CHART 581)

Between Barnstable and Wellfleet there are a number of creeks that are used at high water by local boats and launches, but all of them are dry at low water. The 3-fathom curve is from 0.2 to 0.3 mile from shore between North Dennis and Sesuit Harbor, but eastward of the latter it is 0.5 to 1.5 miles from shore.

Sesuit Harbor, about 5 miles eastward of the entrance to Barnstable Harbor, has a jetty on its east side; the entrance is bare before low

*Lat. 41°43'.4, Long. 70°16'.9; Charts 339, 1208, 1107, 70.

water. The channel is narrow and the entrance should not be attempted except with local knowledge. **East Dennis** is a village 0.5 mile inland.

Rock Harbor.—The entrance channel had about 1 foot depth in 1940 and was marked along the south side by bush stakes. A basin has been dredged in the creek, and there is a wharf about 250 feet long on the south bank of the creek. Boats usually pass in and out within 2 hours of high water. Gasoline is available. A light on the south side of the entrance is maintained locally.

Wellfleet Harbor.—This harbor is on the western side of the hook of Cape Cod, near its southern end. Extensive shoals lie in the entrance and extend about 5.5 miles westward of **Billingsgate Island,** which marks the western side of the entrance to the harbor; **Mayo Beach** is at the head of the harbor. The channel into the harbor leads between the shoals and is narrow in places, but it is marked by buoys, so as to be easily followed in the daytime in clear weather; it has a least depth of 13 feet until above Smalley Bar.

The former 6-foot channel leading to the fish wharf (in ruins) had shoaled in 1940 until it was nearly bare at low water. It is marked by private bush stakes.

Wellfleet is a town on the railroad and highway at the head of Wellfleet Harbor. It is frequented only by small fishing and pleasure craft. The harbor is usually closed by ice for a part of each winter.

Anchorages.—The best anchorage is in the inner harbor, where the depth ranges from 9 to 13 feet. The anchorage in the outer harbor is somewhat exposed in westerly winds; the depth ranges from 12 to 21 feet northeast of Smalley Bar. In northerly gales vessels sometimes anchor on the lee side of Billingsgate Shoal in 3 to 7 fathoms, the shoal breaking the sea so that vessels with good ground tackle can ride out a heavy gale from northward.

Tides.—The mean rise and fall of tides is about 10 feet. The tidal currents are weak.

Directions, Wellfleet Harbor.—The directions are good for vessels of 8 foot draft, in daylight with clear weather, and lead to an anchorage in 14 to 21 feet just northward of Smalley Bar buoy.

Pass 0.3 mile southward of the black buoys at the end of Billingsgate Shoal and steer **79°** true for 4.5 miles, until the center of Billingsgate Island bears 8° true. Then steer **44°** true for 1.6 miles, to a position 100 yards southeastward of a black buoy. Then steer **2°** true for 0.85 mile, and then **312°** true for 0.5 mile, passing close to lighted bell buoy. Follow channel buoys to a position close westward of the second red buoy. Then steer **36°** true for 1.5 miles, to a black buoy marking Smalley Bar. Vessels can then steer about **340°** true and anchor above the buoy, or small craft can follow the chart to Wellfleet, preferably on a rising tide. The dredged channel is marked by private bush stakes, and the flats on each side are visible at low water.

PROVINCETOWN HARBOR

(CHART 580)

This harbor is formed by a turn in the northern end of the Hook of Cape Cod, and has a diameter of about 2 miles. It is one of the

best harbors on the Atlantic coast, being of sufficient capacity for large fleets and having anchorage in 3 to 10 fathoms, with excellent holding ground. Coasters and fishermen seek shelter here from gales from any direction.

The approach and entrance are free from danger and are marked by three lighthouses—Race Point Lighthouse, on the northwestern point of Cape Cod; Wood End Lighthouse, on the southern end of the Hook, where it turns eastward; and Long Point Lighthouse*, on the western point at the entrance to the harbor. At night Cape Cod Lighthouse will show over the land westward of it when approaching the entrance on certain bearings.

Cape Cod Lighthouse is a white tower. The light is 183 feet above the water and visible 20 miles. The fog signal is an air oscillator. If the oscillator is disabled the reed horn will be sounded. Just northward of the lighthouse is a **reporting station** with which vessels may communicate with Boston by using the International Code Signals. A stone tower on the summit of the ridge, about 0.5 mile south of the light, is a prominent landmark. There is a radio direction finder station at the lighthouse. See **North Truro** in Light List.

Long Point Lighthouse, at the eastern end of the sand spit forming the western entrance point to Provincetown Harbor, is a white square tower. The light is 36 feet above the water and is visible 11 miles. The fog signal is a bell.

Wood End Lighthouse, on the south side of the sand spit forming the southwest side of Provincetown Harbor, is a white pyramidal tower 45 feet high. The fog signal is a bell. There is a Coast Guard station near the light.

Race Point Lighthouse, at the extreme western end of Cape Cod, is a white tower. The light is 41 feet about the water, and visible 12 miles. The fog signal is an air whistle.

Race Point Coast Guard Station is located about 1.5 miles eastward of the light.

Prominent objects.—In making the northern part of Cape Cod in clear weather, the most prominent feature is **Pilgrim Monument,** a stone structure about 350 feet above the sea; a tall standpipe and several high church spires in Provincetown will also be seen. It is frequently difficult to recognize natural landmarks on Cape Cod when approaching from seaward, owing to a lack of distinctive features.

Naval Trial Courses.—There are two of these. One is located between Race Point and Wood End Lighthouses, off **Shank Painter Bar.** It is 1 nautical mile long and is marked by range beacons (skeleton towers with mast) on shore, and by white buoys, which lie 0.6 to 1 miles offshore. The course is **311°16′** true.

The other trial course is located between Wood End and Long Point Lighthouses and is known as the **Submarine Trial Course.** The course is 1 nautical mile in length and is marked at each end and at the half-mile point by shore ranges. Each end of the course is marked by a white buoy. The course is **225°57′** true.

Caution: Vessels navigating in the locality of these courses should keep a good lookout for submarines. Information is given in Notices

*Lat. 42°02′.0, Long. 79°10′.2: Charts 580, 1207, 1208, 1106, 1107, 70.

to Mariners as to the times when submarines hold trials, and at such times vessels should avoid as far as possible navigating across or along the measured mile courses.

Pamet River, 4.5 miles southeastward of Long Point Lighthouse, leads to the village of **Truro** and is used only by boats and launches; it is bare 2 hours before low water. A shoal extends 1 mile off the entrance. Two small jetties have been constructed at the entrance.

Provincetown is the home port of many vessels engaged in fishing. The two wharves, one of which is maintained by the town, have about 13 feet at their ends at mean low water. A dockage charge is usually made for small craft. There are float landings with about 7 feet alongside, at which fresh water is available. General supplies and limited ship chandlery may be obtained ashore.

There are oil boats in the harbor, at which gasoline, diesel oil, and fresh water may be obtained. There are a marine railway and machine shop suitable for hauling small craft of a length up to about 40 feet and with a draft of 8 feet.

Storm-warning displays are made at Provincetown from a skeleton tower on the hill near the Pilgrim Monument, and are visible from all directions in approaching the coast. They are also shown at Race Point and Cape Cod Lighthouses.

Communication.—Provincetown is on a railroad, and there is a good highway to Plymouth and Boston. During the summer season there is a daily steamer service with Boston.

Ice forms in Provincetown Harbor in severe winters only, and then only for short periods. Instances are on record of fields of heavy ice from the shallow harbors of Cape Cod Bay being driven northward by the wind and into the harbor, closing it to navigation for a few days. Such conditions are abnormal, occurring only at intervals of years; under ordinary conditions the harbor is not obstructed by ice during the winter.

Tides.—The mean rise and fall of the tide is about 9 feet.

Currents.—Off Race Point the tidal currents have a velocity of about 2 knots at strength. The flood sets southward and the ebb in the opposite direction, and tide rips occur during heavy weather when the wind is against the current. Westward of the stretch of coast between Wood End and Race Point, the velocity at strength is about 1 knot. In this locality the ebb current sets northwesterly and the flood sets in the opposite direction.

At the entrance and in the harbor, the tidal currents have little velocity.

Directions.—No directions for Provincetown Harbor are necessary. Chart 580 is the guide.

Herring Cove, just southward of Race Point Lighthouse, affords a temporary lee from easterly winds; small vessels sometimes anchor well inshore in from 10 feet to 4 fathoms.

APPROACHING CAPE COD

(CHART 1208)

The eastern side of Cape Cod is described in United States Coast Pilot, Atlantic Coast, Section B, Cape Cod to Sandy Hook.

Caution: Peaked Hill Bar commences about 3 miles northwestward of Cape Cod Lighthouse and extends westward along the shore several miles, its distance from the beach being 0.6 mile. The depth over the shoal ranges from 14 to 18 feet and in heavy weather it is marked by breakers. A lighted whistle buoy is placed about 2 miles off Peaked Hill Bar and 5.2 miles 337° true from Cape Cod Lighthouse.

Many vessels bound westward into Cape Cod Bay or Boston Harbor in a fog have grounded on Peaked Hill Bar through a failure to take soundings. Keeping in a depth of 20 fathoms will insure passing 2 to 2.5 miles off the eastern side of Cape Cod and will lead to Peaked Hill Bar lighted whistle buoy. Vessels equipped with radio transmitters can fix their position by a sounding taken on bearings from radio direction-finder stations or by simultaneous bearings from two or more stations.

Prominent objects.—The most prominent objects in approaching the northern end of Cape Cod from seaward are the Pilgrim Monument and Cape Cod Lighthouse, which are described in the previous section.

Chapter 15.—CAPE COD CANAL

(CHART 251)

The canal connects the northern part of Buzzards Bay with Cape Cod Bay. It shortens the distance between points north of Cape Cod and points west of Buzzards Bay by 53, 67, or 144 miles, according to the different routes considered, and avoids the outside run along the easterly side of Cape Cod and the exposed ocean route outside of Nantucket shoals.

The Cape Cod Canal has been purchased and is operated by the United States Government. No tolls are charged. Important.—Before using the canal the semi-monthly Information Bulletin, described in paragraph M following, should be consulted.

The entrance from Cape Cod Bay is protected on its north side by a breakwater 3,000 feet long, built out from the shore to a depth of 5 fathoms and a short breakwater which extends from the shore on the south side of the entrance. **Canal Breakwater Light*** (red skeleton structure) is established on the north breakwater near the outer end. The light is 40 feet high and visible for 12 miles. The fog signal is a horn, diaphragm, electric. A radiobeacon is operated at this station.

There are several buoys, both lighted and sound, off the entrance, see chart.

A lighted entrance range on course 245° true leads into the canal.

In approaching the eastern entrance of the canal in clear weather the jetties and the light at the entrance, a large square building, the Coast Guard station on the east bank of the canal and the range are the guides. In thick weather the buoys are the guides. Strangers should not confuse the entrance jetties with the smaller ones at Sandwich Harbor, 1 mile southeastward. The fog is said to be always less dense inside the entrance than outside. Strangers should be careful not to mistake two white church towers near the eastern entrance for the entrance range towers.

High tension lines across the canal have a clearance of 180 feet or more.

GENERAL INFORMATION

A. Location.—The Cape Cod Canal is a sea level canal, extending from a point on Cape Cod Bay about 50 miles southeast of Boston Harbor, Mass., to the head of Buzzards Bay, Mass. In general direction the canal trends from Cape Cod Bay westerly to Buzzards Bay.

*Lat. 41°46′.8, Long. 70°29′.5: Charts 1208, 1107, 70.

B. Dimensions of Canal and approach channels.—

Section of Canal	Bottom Width	Length
	Feet	*Miles*
Easterly Entrance to Station 430	*480	8.4
Station 430 to Wings Neck (Hog Island Channel)	500	4.3
Wings Neck to Cleveland Ledge (Cleveland Ledge Channel)	700	4.7

*Except narrows to 450 feet opposite State Pier.

The canal and approach channels have been dredged to the project depth of 32 feet below mean low water. For controlling depths in canal and approach channels, see semimonthly bulletin referred to in paragraph M.

C. Tides.—The mean tidal range in Cape Cod Bay is 9.4 feet, in Buzzards Bay, 4.0 feet. Predicted times and heights of tides for each day of the year can be obtained from the U. S. Coast and Geodetic Survey Publication "Tide Tables, Atlantic Ocean."

D. Currents.—Predictions of the times of slack water and the times and velocities of strength of current for every day in the year are given in the Current Tables, Atlantic Coast. Slack waters occur about 2 hours before high and low waters at Boston, the east current beginning before Boston low water and the west current before Boston high water. About halfway through the canal the average maximum easterly current occurs about 1 hour after low water at Boston and the westerly current about ¾ hour after high water at Boston. Under ordinary conditions the currents have an average velocity at strength of about 3½ knots in midstream. The average strength of current at spring tides is about 4 knots.

E. Bridges.—Two fixed span high level highway bridges and one vertical lift railroad bridge cross the canal.

Bridge	Minimum bridge clearances		
	Horizontal	Vertical (above mean high water)	
	Feet		*Feet*
Highway	500	Fixed	135
Railroad*	500	Closed	7
		Raised	135

*See page 322 for signals at Railroad bridge.

F. Mooring basins.—Mooring basins are located at the east and west ends of the canal. The East Mooring Basin, located on the north side of the canal, is 2,000 feet in length, 300 feet in width, and has been dredged to a depth of 25 feet at mean low water. The West Mooring Basin, located on the southeast side of the Hog Island Channel, is 2,600 feet in length, 350 feet in width, and has been dredged to a depth of 32 feet at mean low water. Mooring dolphins are provided in both mooring basins. For controlling depths in the mooring basins see semimonthly bulletin referred to in paragraph M.

G. Small boat basin.—(a) The East Boat Basin, located on the south side of the canal opposite the East Mooring Basin, is 440 feet in length, 250 feet in width, and has been dredged to a depth of 13 feet at mean low water. For controlling depths in the small boat basin see semimonthly bulletin referred to in paragraph M.

(b) An improved channel 15 feet deep at mean low water and 100 feet wide leads from the northwest side of the Hog Island Channel, near Station 480, to the existing harbor for small vessels in Onset Bay.

H. Terminal facilities.—(a) At the easterly terminal, near the East Boat Basin, water, fuel oil, and gasoline are obtainable.

(b) Near the west end of the canal, supplies of all kinds are obtainable at the State Pier at Buzzards Bay, at Onset and at Monument Beach. Railways and repair yards for small boats are located at Onset and Monument Beach.

(c) The State Pier at Buzzards Bay has a length of 600 feet and a berthing space along the face of the pier which has been dredged to a depth of 25 feet at mean low water. Further information and regulations governing the use of this pier can be obtained from the Massachusetts Department of Public Works, 100 Nashua Street, Boston, Mass., or from the Department Superintendent at the pier. For controlling depth at the State Pier see semimonthly bulletin referred to in paragraph M.

I. Coast Guard station and weather signals.—A U. S. Coast Guard Station is located near the eastern entrance. U. S. Weather Bureau signals are displayed at the eastern entrance and at Wings Neck.

J. Traffic lights.—Red, green, and amber electric lights, visible for a distance of about 2 miles in clear weather, day or night, are located at the following points:

(a) Eastern or Cape Code Bay Terminal.—On south side of entrance at an elevation of about 30 feet above high water.

(b) Western or Buzzards Bay Terminal.—(1) Wings Neck.—Near Wings Neck Light* at an elevation of about 35 feet above high water.

(2) Station 389.—On north side, near the U. S. Engineer Sub-Office, at an elevation of about 30 feet above high water.

K. Two-way traffic.—Two-way traffic through the canal will be allowed when, in the opinion of the representative of the U. S. Engineer Department charged with directing traffic, conditions are suitable.

L. Aids to navigation.—**(a)** All of the Canal is shown on Chart 251. Aids to navigation for the approach channel in Buzzards Bay are shown on U. S. Coast and Geodetic Survey Charts Nos. 249 and 251, for the Cape Cod Bay approach channel on U. S. Coast and Geodetic Survey Chart No. 251, and are described in the U. S. Coast Guard publication "Light List, Atlantic Coast of the U. S., Northern Part." See also the United States Coast Pilot, Atlantic Coast, Sections A and B.

(b) The canal proper is lighted at night, on both banks, by sodium vapor lights spaced approximately 500 feet apart, 140 feet from the edge of the channel, at an elevation of 25 feet above high water.

---

*Lat. 41°40'.8, Long. 70°39'.7: Charts 249, 251, 1208, 1210, 1106, 1107.

M. Information Bulletin.—A bulletin containing information of the location of dredges and other maintenance plant, controlling depths and other pertinent data is issued semimonthly and may be obtained free on application to the District Engineer, U. S. Engineer Office, Boston, Mass. For address see paragraph Q (b). Additional information concerning operating conditions may be obtained directly from the U. S. Engineer Sub-Office, Cape Cod Canal, Buzzards Bay, Mass.

N. Tolls.—The Cape Cod Canal is maintained by the Government as a free waterway. No tolls are charged.

O. Pilots.—The U. S. Engineer Department does not maintain pilot service but independent pilots, licensed by the Department of Commerce, are usually available at the canal. Messages will be transmitted to pilots with the understanding that the Government will assume no responsibility in connection therewith.

P. Towage.—The U. S. Engineer Department does not supply towage service.

Q. Communication.—(a) Direct communication with the U. S. Engineer Sub-Office at the canal is available at all hours by means of telegraph, telephone, and radio. The telephone number is Buzzards Bay 97. The nearest ship-to-shore telephone station is at Scituate (call letters WOU). The nearest radio telegraph station is at Chatham. A radio-telephone station (call letters WZBA) is located at the U. S. Engineer Sub-Office at the canal. This station operates continuously on a frequency of 2350 KC, and authority to install crystals of this frequency may be obtained on application to the District Engineer.

(b) Except as indicated by paragraph M, written communications concerning the canal should be addressed to the District Engineer, 3d Floor, Park Square Building, 31 St. James Avenue, Boston, Mass.

REGULATIONS

(Approved Aug. 26, 1940)

The following regulations are prescribed to govern the use, administration, and navigation of the Cape Cod Canal, Mass.

1. Limits of Canal.—The Cape Cod Canal, including approaches, extends from the outer extremity of the northerly stone breakwater in Cape Cod Bay at Sandwich through dredged channels and land cuts to a point in Buzzards Bay, Mass., about 5 miles southwest of Wings Neck Light.

2. Authority of Canal officers.—The movement of all vessels and craft of every description through the canal, and the care and maintenance of the canal and all pertaining properties, shall be under the supervision of the District Engineer of the Engineer Department at Large, and his accredited agents, who have general charge of Federal waterway improvements in the locality and whose address is U. S. Engineer Office, 3d Floor, Park Square Building, 31 St. James Avenue, Boston, Mass.

3. Vessels allowed passage.—The canal is open for passage to all adequately power motivated vessels in good condition, of sizes consistent with safe navigation as governed by the controlling dimensions of the waterway. Vessels without engine motive power must

not attempt to sail through the canal. Low-powered vessels should await slack water or favorable current.

4. Tows.—Tows shall be assembled outside the canal entrances when practicable. Vessels in tow shall be securely fastened to the towing vessel and to each other. Long hawsers are not permitted.

5. Obtaining clearance.—Vessels, other than craft less than 25 feet in length, shall not transit the canal until clearance has been obtained. Ordinarily, vessels will be given clearance in order of arrival, but when several vessels are to be passed, clearance will be given in the following order:

First—To vessels owned by the United States or employed on canal improvement work.
Second—To passenger vessels.
Third—To freight vessels, towboats, and pleasure craft.

6. Clearance signals.—The following signals apply to all vessels other than craft less than 25 feet in length.

(a) Westbound traffic.—When the green light is showing at the eastern or Cape Cod Bay terminal, vessels may proceed through the canal. When the amber light is showing, vessels may proceed as far as the East Mooring Basin, where they must stop and from whence clearance will be granted by motorboat or other signal. When the red light is showing, vessels must stop clear of the outer end of the Cape Cod Bay approach channel.

(b) Eastbound traffic.—(1) Signals at Wings Neck.—When the green light is showing, vessels may proceed through the canal. When the amber light is showing, vessels may proceed through the Hog Island Channel as far as the West Mooring Basin or the State Pier. When the red light is showing, vessels, other than those bound to Onset Bay or Monument Beach, must stop clear of Buoys Nos. 1 and 2 at the entrance to Hog Island Channel. In daytime when sunshine partially obscures the traffic lights or if the electrical current should be temporarily interrupted, a red ball or shape will be operated from a pole about 60 feet southwest of the traffic lights. The raised ball has the same meaning as the red light; the ball lowered to the ground, the same meaning as the green light.

(2) Signals at Station 389.—These signals will be operated in synchronism with the signals at Wings Neck except:

a.—In emergencies not foreseen when a vessel passes in by Wings Neck.

b.—When dispatching vessels from the West Mooring Basin or the State Pier.

When the green light is showing, vessels may proceed. When the amber light is showing, vessels may proceed through the Hog Island Channel as far as the West Mooring Basin or the State Pier. When the red light is showing, vessels must not pass Station 389.

(c) In thick weather, all vessels, having obtained clearance, shall signal by 3 long blasts of whistle or horn when passing in by Wings Neck Light or Sandwich Breakwater.

(d) When signal lights are obscured by thick weather, clearance should be secured by radio or other reliable medium.

7. Railroad bridge signals.—(a) The vertical lift span of the railroad bridge is normally kept in the raised position except when lowered for the passage of trains. Immediately preceding the lowering of the span the operator will sound 2 long blasts of a whistle or horn. Immediately preceding the raising of the span the operator will sound 1 long blast of a whistle or horn. When a vessel is approaching the bridge with the span in the lowered position, if it will not be raised immediately, the operator will so indicate by sounding 4 short blasts in quick succession upon a whistle or horn.

(b) When the railroad lift span is lowered in foggy weather, there will be 4 blasts of a whistle or horn on the span every 2 minutes.

Vessels in transit, especially when with a fair current, must exercise extreme caution when the span is lowered.

8. Speed.—(a) General.—No boat in the canal shall be raced or crowded alongside another boat. All vessels must pass mooring dolphins, wharves, landings, and dredging plant or other floating work units at minimum speed so as to avoid damage to moored or anchored vessels by wave wash or suction.

(b) Limits.—Vessel speed will be determined by the time of passage (east or west) between Canal Stations 35+00 (opposite U. S. Engineer Observer's Station near east end) and 388+00 (opposite U. S. Engineer Sub-office near west end). No boat shall pass between these points in less than the following specified minimum running times:

Current direction	Minimum running time canal stations 35 to 388
	Minutes
Head (against boat)	60
Fair (with boat)	30
Slack	45

The above designated minimum running time for slack water shall apply to any boat which enters that portion of the canal between Stations 35 and 388 by passing either Station 35 or Station 388 at any time within a period of one hour before the predicted time of slack water as given in the U. S. Coast and Geodetic Survey publication "Current Tables, Atlantic Coast." The above designated applicable minimum running times for head or fair current, respectively, shall apply to any boat which enters that portion of the canal between Stations 35 and 388 by passing either Station 35 or Station 388 at any time other than designated above for applicability of the requirement for slack water.

(c) Example.—For example, the predicted times of slack current on October 1, 1940, at Cape Cod Canal (Bournedale), Mass., as given on page 32 of the U. S. Coast and Geodetic Survey publication "Current Tables, Atlantic Coast," are 2:25 a.m., 8:43 a.m., 2:50 p.m., and 9:07 p.m. On October 1, 1940, the slack current schedule will apply to any boat which enters the canal by passing either Station 35 or Station 388 between 1:25 a.m., and 2:25 a.m., 7:43 a.m., and 8:43 a.m., 1:50 p.m., 2:50 p.m., and 8:07 p.m., and 9:07 p.m.; the head or fair current schedule, as applicable, will apply to any boat which enters the canal by passing either Station 35 or Station 388 between midnight and 1:25 a.m., 2:25 a.m., and 7:43 a.m., 8:43 a.m., and 1:50 p.m., 2:50 p.m. and 8:07 p.m., and 9:07 p.m. and midnight.

9. Management of boats.—(a) Pilot Rules.—The canal is an inland waterway of the United States and the pilot rules for such waterways as given by the U. S. Bureau of Marine Inspection and Navigation publication "Pilot Rules" are applicable concerning matters not otherwise covered herein.

(b) Passing of vessels.—Restricted passing is permissible, particularly when a leading, low-powered vessel is unable to stem the current, but extreme care to avoid collision is imperative.

(c) Unnecessary delay in Canal.—Vessels must not obstruct navigation by unnecessary delay in entering or passing through the canal or by anchoring in the channel.

(d) Mooring or anchoring in mooring basins.—Vessels mooring or anchoring in the mooring basins shall do so in such manner as not to obstruct the canal channel or impede vessel movement to and from the basins.

(e) Landing of freight, etc.—Except in emergencies, vessels shall not stop to land passengers, freight, or baggage, or to transfer same to another vessel under such conditions as would in any way interfere with navigation.

10. Statistics.—Masters of vessels shall furnish the authorized representative of the District Engineer, on each passage through the canal, such verbal or written statement of passengers, freight, and registered tonnage as may be requested by said authorized representative.

11. Deposit of refuse.—No oil or other liquid, ashes or other material of any kind shall be thrown, pumped, or swept into the canal or approaches, or deposited on canal grounds.

12. Trespass upon Canal property.—Trespass upon the canal property, except with permit as provided in paragraph 13, or injury to the canal, lands, banks, bridges, breakwaters, dikes, dolphins, fences, culverts, trees, telephone lines, power lines, or to any other property of the United States pertaining to the canal is prohibited.

13. Fish and game.—All persons are forbidden to enter upon the United States lands or the canal for the purpose of fishing or hunting, or taking fish or game by any means, without a written permit from the District Engineer. The fish and game laws of the United States and of the State of Massachusetts will be enforced upon the canal and the lands of the United States pertaining thereto.

Chapter 16.—APPENDIX

COAST AND GEODETIC SURVEY

COAST PILOTS

	Price
U. S. Coast Pilot, Atlantic Coast, Section A, St. Croix River to Cape Cod	$1.00
U. S. Coast Pilot, Atlantic Coast, Section B, Cape Cod to Sandy Hook including Long Island Sound	1.00
U. S. Coast Pilot, Atlantic Coast, Section C, Sandy Hook to Cape Henry including Delaware and Chesapeake Bays	.75*
U. S. Coast Pilot, Atlantic Coast, Section D, Cape Henry to Key West	.75*
U. S. Coast Pilot, Gulf Coast, from Key West to the Rio Grande	.75*
U. S. Coast Pilot, West Indies, Puerto Rico, and Virgin Islands	.75
Inside Route Pilot, New York to Key West	.50
U. S. Coast Pilot, Pacific Coast, California, Oregon, and Washington	.75*
U. S. Coast Pilot, Alaska, Part I, from Dixon Entrance to Yakutat Bay	.75*
U. S. Coast Pilot, Alaska, Part II, Yakutat Bay to Arctic Ocean	.75*
U. S. Coast Pilot, Hawaiian Islands	.50
U. S. Coast Pilot, Philippine Island, Part I, Luzon, Mindoro, and Visayas	1.25
U. S. Coast Pilot, Phillipine Islands, Part II, Palawan, Mindanao, and Sulu Archipelago	1.25
Distances Between United States Ports	.10

*The price of these publications will be $1.00 per copy as new editions are issued.

FIELD STATIONS

Boston, Mass., 10th floor, Customhouse.
New York, N. Y., 50 Church Street.
New Orleans, La., room 314, Customhouse, 423 Canal Street.
Los Angeles, Calif., room 1426, Post Office and Courthouse.
San Francisco, Calif., room 307, Customhouse.
Seattle, Wash., room 601, Federal Office Building.
Honolulu, T. H., room 244, Federal Office Building.
Manila, P. I., Engineer Island.

CHART AGENCIES

MAINE:
- Eastport
- Bar Harbor
- Northeast Harbor
- Manset
- Stonington
- Camden
- Rockland
- Boothbay Harbor
- Bath

MAINE—continued.
- Brunswick
- Portland

NEW HAMPSHIRE:
- Portsmouth

MASSACHUSETTS:
- Gloucester
- Marblehead
- Boston
- Provincetown

Distances between ports on the Atlantic Coast of the United States, from Calais, Me., to Cape Cod, Mass.

DISTANCES ARE GIVEN IN NAUTICAL MILES

From— \ To→	Calais	Eastport	Machiasport	Bar Harbor	Bangor	Belfast	Rockland	Boothbay Harbor	Bath	Portland	Saco River entrance	York	Portsmouth	Newburyport	Gloucester	Salem	Marblehead	Lynn	Boston	Scituate	Plymouth	Provincetown	Cape Code Canal, east entrance	Pollock Rip Channel	Nantucket Shoals Lightship
Calais, Me.	----	23	68	103	181	160	151	179	194	204	212	228	237	244	252	259	258	268	273	270	285	287	294	315	392
Eastport, Me.	23	----	45	80	158	137	128	156	171	181	189	205	214	221	229	236	235	245	250	247	262	264	271	292	369
Machiasport, Me.	68	45	----	51	129	108	99	127	142	152	160	176	185	192	200	207	206	216	221	218	233	235	242	263	340
Bar Harbor, Me.	103	80	51	----	92	71	62	90	105	115	123	139	148	155	163	170	169	179	184	181	196	198	205	226	303
Bangor, Me.	181	158	129	92	----	32	48	86	102	114	121	144	154	165	169	176	175	185	190	187	202	204	211	232	309
Belfast, Me.	160	137	108	71	32	----	22	60	76	88	95	118	128	139	143	150	149	159	164	161	176	178	185	206	283
Rockland, Me.	151	128	99	62	48	22	----	41	57	69	76	99	109	120	124	131	130	140	145	142	157	159	166	187	264
Boothbay Harbor, Me.	179	156	127	90	86	60	41	----	22	35	42	65	75	86	97	104	103	113	118	115	130	132	139	160	237
Bath, Me.	194	171	142	105	102	76	57	22	----	36	44	66	76	87	98	105	104	114	119	116	131	133	140	161	238
Portland, Me.	204	181	152	115	114	88	69	35	36	----	18	41	56	63	78	85	84	94	99	96	111	113	120	141	218
Saco River entrance, Me.	212	189	160	123	121	95	76	42	44	18	----	28	37	50	63	70	69	79	84	81	96	98	105	126	203
York, Me.	228	205	176	139	144	118	99	65	66	41	28	----	12	25	42	49	48	58	63	60	75	77	84	105	182
Portsmouth, N. H.	237	214	185	148	154	128	109	75	76	56	37	12	----	22	40	47	46	56	61	58	73	75	82	103	180
Newburyport, Mass.	244	221	192	155	165	139	120	86	87	63	50	25	22	----	30	37	36	46	51	48	63	65	72	93	170
Gloucester, Mass.	252	229	200	163	169	143	124	97	98	78	63	42	40	30	----	11	10	21	25	26	43	47	52	77	154
Salem, Mass.	259	236	207	170	176	150	131	104	105	85	70	49	47	37	11	----	5	18	26	27	44	50	54	82	159
Marblehead, Mass.	258	235	206	169	175	149	130	103	104	84	69	48	46	36	10	5	----	16	21	24	41	47	51	79	158
Lynn, Mass.	268	245	216	179	185	159	140	113	114	94	79	58	56	46	21	18	16	----	13	22	40	48	50	81	156
Boston, Mass.	273	250	221	184	190	164	145	118	119	99	84	63	61	51	25	26	21	13	----	23	40	51	50	84	161
Scituate, Mass.	270	247	218	181	187	161	142	115	116	96	81	60	58	48	26	27	24	22	23	----	20	30	30	65	142
Plymouth, Mass.	285	262	233	196	202	176	157	130	131	111	96	75	73	63	43	44	41	40	40	20	----	26	20	65	142
Provincetown, Mass.	287	264	235	198	204	178	159	132	133	113	98	77	75	65	47	50	47	48	51	30	26	----	23	54	131

PLANIMETRIC MAPS

Along the Atlantic coast of the United States within the limits of this Coast Pilot planimetric maps are planned for the following areas:

MASSACHUSETTS:
Vicinity of Boston Harbor.
Vicinity of Cape Cod Canal.

VARIATION OF THE COMPASS

The magnetic variation for 1941 an annual increase at points mentioned are as follows:

Locality	Variation	Annual increase
	° ′	
Eastport	20 45 W	2
Little River	20 15 W	2
Jonesport, Moosabec Reach	19 45 W	2
Petit Manan	19 30 W	2
Mount Desert Rock	19 15 W	2
Bar Harbor	19 30 W	2
Blue Hill	19 15 W	2
Stonington, Deer Island Thorofare	19 00 W	2
Matinicus Rock	18 30 W	2
Belfast	19 00 W	2
Monhegan	18 15 W	2
Kennebec River entrance	17 45 W	2
Cape Elizabeth	17 15 W	1
Cape Porpoise	16 45 W	1
Isles of Shoals	16 15 W	1
Gloucester	15 45 W	1
Salem	15 30 W	1
Boston Lightship	15 30 W	1
Cape Cod Canal	15 15 W	1
Cape Cod Lighthouse	16 00 W	2

ARMY ENGINEERS

The area with which this Coast Pilot is concerned lies entirely within the North Atlantic Division of the United States Engineers.

The **district office** is: Boston District, Third Floor, Park Square Building, Boston, Mass.

Local Office, Old Post Office Building, Portland, Maine.

Port Series.—The following volumes of the Port Series sold by Superintendent of Documents, Washington, D. C., are available for the ports within this Coast Pilot:

No. 1. Portland, Maine.
No. 2. Boston, Mass.
No. 24. Ports of Northern New England. (Lynn, Salem, Beverly, Gloucester, Newburyport, and Portsmouth.)

HYDROGRAPHIC OFFICE

Boston, Mass., Tenth floor, Customhouse.

COAST GUARD

District Commander:
Customhouse, Boston, Mass.

Captains of the Ports are officers of the Coast Guard designated by the Commandant of the Coast Guard. They have jurisdiction as indicated.

Rockland, Maine, with jurisdiction over the territorial waters of the United States extending from the New Brunswick-Maine coastal boundary to and including Penobscot Bay.

Portland, Maine, with jurisdiction over the territorial waters of the United States extending from the Maine-New Hampshire coastal boundary, to but not including Penobscot Bay.

Portsmouth, N. H., with jurisdiction over the territorial waters of the United States adjacent to the seacoast of, and within, the State of New Hampshire. (Captain of the Port located at Kittery Point Station, Kittery Point, Maine.)

Boston, Mass., with jurisdiction over the territorial waters of the United States extending from New Hampshire-Massachusetts coastal boundary, to and including Cape Cod Bay and the waters of the Cape Cod Canal.

Buoy Depots:
Southwest Harbor, Maine.
South Portland, Maine.
Chelsea, Boston, Mass.

Air Station:
Salem, Mass.

Radio Direction Finder Stations:
Cape Elizabeth, Maine.
Fourth Cliff, Mass.
North Truro (Cape Cod), Mass.

Lifeboat Stations, St. Croix River to Cape Cod

Official designation [1]	Name	Location
1	Quoddy Head	¾ mile west of West Quoddy Head Light.
2	Cross Island	On northeast end Cross Island, opposite Mink Island, off Machiasport, Me.
4	Great Wass Island	West side Great Wass Island, off Jonesport, Me.
5	Cranberry Island	Southeast point Little Cranberry Island, off Mount Desert Island.
6	White Head	Whitehead Island, ⅜ mile west of White Head Light.
7	Burnt Island	North side Burnt Island, off mouth St. George River.
8	Damariscove Island	Damariscove Island, west side Damariscove Harbor.
9	Kennebec River	West side mouth Kennebec River.
10	Cape Elizabeth	On Dyer Cove, near Cape Elizabeth Light.
11	Fletcher Neck	Biddeford Pool.
12	Portsmouth Harbor	On Wood Island, Portsmouth Harbor.
14	Isles of Shoals	Appledore Island.
16	Hampton Beach	1½ miles north of Great Boars Head.
20	Merrimack River	North end of Plum Island, south side of mouth of Merrimack River.
21	Plum Island	On Plum Island, 2¼ miles from south end.
22	Straitsmouth	On Cape Ann, ½ mile west from Straitsmouth Light.
23	Gloucester	Oldhouse Cove, westerly side of Gloucester Harbor.
24	Nahant	On the neck, close to Nahant.
25	City Point	Floating station in Dorchester Bay, Boston Harbor.
26	Point Allerton	1 mile west of Point Allerton.
27	Scituate	On First Cliff south side of Scituate Harbor.
29	Brant Rock	At Brant Rock on Green Harbor Point.
30	Gurnet	Lower end Duxbury Beach, 4½ miles northeast of Plymouth, Mass.
31	Manomet	West side Cape Cod Bay, 7 miles southeast of Plymouth, Mass.
32	Cape Cod Canal	Eastern entrance to Cape Cod Canal.
33	Wood End	¼ mile east of Wood End Light, Cape Cod.
34	Race Point	1⅝ miles northeast of Race Point Light, Cape Cod.

[1] For aviation purposes only.

CUSTOMS PORTS OF ENTRY

(WITH THE EXCEPTION OF PLYMOUTH, ALL OF THESE PORTS ARE AUTHORIZED TO ISSUE MARINE DOCUMENTS)

MAINE:

Portland, headquarters port for Maine and New Hampshire, Customhouse, 312 Fore Street.

Bangor, Federal Building, Harlow Street.

Bar Harbor, Post Office Building, 55 Cottage Street.

Bath, Federal Building, 25 Front Street.

Belfast, Federal Building, Post Office Square.

Calais, Customs-Immigration Station, Main Street.

MAINE—continued.

Eastport, Federal Building, 1 Washington Street.

Jonesport, Rogers Building.

Rockland, Federal Building, between School and Limerock Streets.

NEW HAMPSHIRE:

Portsmouth, Federal Building, Pleasant Street.

MASSACHUSETTS:

Boston, headquarters ports for Massachusetts District Customhouse.

MASSACHUSETTS—continued.
Gloucester, New Federal Building, Dale Avenue.
Plymouth, Post Office, Main Street.
Provincetown, Post Office and Customhouse, Commercial Street.
Salem, Post Office Building.

BUREAU OF MARINE INSPECTION AND NAVIGATION OFFICES

Supervising Inspector:
Boston, Mass., 408 Atlantic Ave.

Local Inspectors:
Boston, Mass., 408 Atlantic Ave.
Bangor, Maine, Federal Building.
Portland, Maine, Federal Building, 76 Pearl St.

IMMIGRATION AND NATURALIZATION OFFICES

Yarmouth, N. S., Evangeline Docks.
Calais, Maine, Customs-Immigration Inspection Station, Main St.
Eastport, Maine, 81½ Water St.
Lubec, Maine, Commercial St.
Bangor, Maine, Post Office Building, Harlow St. (not port of entry).
Portland, Maine, Federal Building, 76 Pearl St.
Gloucester, Mass., New Post Office Building, Dale Ave.
East Boston, Mass., Immigration Station, 287 Marginal St.
Boston, Mass., Post Office Building.
New Bedford, Mass., Post Office Building, Pleasant St.

SHIPPING COMMISSIONER OFFICE

Boston, Mass., 408 Atlantic Ave.

FISH AND WILDLIFE SERVICE OFFICES AND STATIONS

Boston, Mass., Park Square Building.
Boston, Mass., 253½ Northern Ave.
Boothbay Harbor (McKown Pt.), Maine.
Tenpound Island, Gloucester Harbor, Mass.

PUBLIC HEALTH SERVICE

Marine Hospitals:
Boston, Mass., Warren St., Brighton.
Out-patient office, Customhouse, Boston.
Portland, Maine, 331 Veranda St.
Out-patient office at the hospital.

Third Class Relief Stations:
Bangor, Maine, 217 State St.
Bath, Maine, 73½ Front St.
Calais, Maine.
Gloucester, Mass., Customhouse, Dale Ave.
Machias, Maine.
Provincetown, Mass., 322 Commercial St.

Fourth Class Relief Stations (medical attention arranged through the deputy collector of Customs)
Portsmouth, N. H.
Salem, Mass.

Quarantine Stations:

Eastport, Maine.
Searsport, Maine.
Portland, Maine (at U. S. Marine Hospital).
Gloucester, Mass.
Boston, Mass.
Plymouth, Mass.

A regular quarantine station is maintained at Boston. At the other stations the arrangements are made through the Collector of Customs, or the U. S. Marine Hospital.

HARBOR MASTERS

The principal ports having harbor masters, and addresses through which they may be reached, are given below:

MAINE:

Bar Harbor, Chamber of Commerce, Municipal Pier.
Rockland, Snow Shipyard.
Camden, Camden Yacht Club.
Bangor, Coal Company, 50 Front Street.
Boothbay Harbor, Harbor Police Boat.
Bath, Police Station.
Portland, Pocahontas Coal Co.

NEW HAMPSHIRE:

Porthmouth, Piscatauque Towing Co.

MASSACHUSETTS:

Newburyport, American Yacht Club.
Gloucester, Mariners Towboat Co., 71 Wharf St.
Salem, Salem Willows Yacht Club.
Lynn, Lynn Yacht Club.
Boston, Police Station No. 8, 521 Commercial St.
Plymouth, State Pier.
Provincetown, Town Wharf.

YACHT CLUBS

MAINE:

Winter Harbor Yacht Club, Winter Harbor.
Sorrento Yacht Club, Sorrento.
Northeast Harbor Fleet, Northeast Harbor.
Seal Harbor Yacht Club, Seal Harbor.
Kolledgewidgwok Yacht Club, East Blue Hill.
Ellsworth Yacht Club, Ellsworth.
Center Harbor Yacht Club, Haven.
Bucks Harbor Yacht Club, South Brooksville.
North Haven Yacht Club, North Haven.
Stimsons Island Yacht Club, North Haven.
Deer Isle Yacht Club, Sylvester Cove, Deer Isle.
Tarritine Yacht Club, Dark Harbor, Islesboro.
Rockland Community Yacht Club, Rockland.
Camden Yacht Club, Camden.
Northport Yacht Club, Northport.
Penobscot Yacht Club, Bangor.
Boothbay Harbor Yacht Club, Boothbay Harbor.
Southport Yacht Club, West Southport.
Mere Point Yacht Club, Brunswick.

MAINE—continued.

Casco Bay Yacht Club, Falmouth Foreside.
Portland Yacht Club, Portland.
Prouts Neck Yacht Club, Prouts Neck.
Biddeford Pool Yacht Club, Biddeford Pool.
Saco Yacht Club, Saco.
The Kennebunk River Club, Kennebunkport.
Agamenticus Yacht Club, York Harbor.

NEW HAMPSHIRE:

Portsmouth Yacht Club, Portsmouth.

MASSACHUSETTS:

American Yacht Club, Newburyport.
Northend Boat Club, Newburyport.
The Crescent City Club, Bradford.
Ipswich Bay Yacht Club, Ipswich.
Old Town Country Club, Newbury Old Town.
Conomo Point Yacht Club, Conomo Point.
Annisquam Yacht Club, Annisquam.
Sand Bay Yacht Club, Rockport.
Eastern Point Yacht Club, Gloucester Harbor.
Manchester Yacht Club, Manchester.

MASSACHUSETTS—continued.

Jubilee Yacht Club, Beverly.
United Shoe Yacht Club, Beverly.
Salem Willows Yacht Club, Salem.
Palmer Cove Yacht Club, Salem.
Corinthian Yacht Club, Marblehead.
Eastern Yacht Club, Marblehead.
Boston Yacht Club, Marblehead.
Marblehead Yacht Club, Marblehead.
Swampscott Yacht Club, Swampscott.
Nahant Dory Club, Nahant.
Lynn Yacht Club, Lynn.
Volunteer Yacht Club, Lynn.
Point of Pines Yacht Club, Revere.
Beachmont Yacht Club, Revere.
Winthrop Yacht Club, Winthrop.
Cottage Park Yacht Club, Winthrop.
Pleasant Park, Yacht Club, Winthrop.
Orient Heights Yacht Club, East Boston.
Jeffries Yacht Club, East Boston.
South Boston Yacht Club, South Boston.
Columbia Yacht Club, South Boston.
Puritan Yacht Club, South Boston.
Boston Yacht Club, South Boston.
Chelsea Yacht Club, Chelsea.

MASSACHUSETTS—continued.

Old Colony Yacht Club, Dorchester Bay, Boston Harbor.
Savin Hill Yacht Club, Dorchester Bay, Boston Harbor.
Dorchester Yacht Club, Dorchester Bay, Boston Harbor.
Point Norfolk Yacht Club, Dorchester Bay, Boston Harbor.
Neponset Valley Yacht Club, Dorchester Bay, Boston Harbor.
Milton Yacht Club, Dorchester Bay, Boston Harbor.
Squantum Yacht Club, Wollaston.
Wollaston Yacht Club, Wollaston.
Quincy Yacht Club, Quincy.
Wessagussett Yacht Club, Quincy.
North Weymouth Yacht Club, Quincy.
Town River Yacht Club, Quincy.
Merrymont Yacht Club, Quincy.
Hingham Yacht Club, Hingham.
Hull Yacht Club, Hull.
Cohasset Yacht Club, Cohasset.
Scituate Harbor Yacht Club, Scituate.
Duxbury Yacht Club, Duxbury.
Plymouth Yacht Club, Plymouth.
Barnstable Yacht Club, Barnstable.
Provincetown Yacht Club, Provincetown.

Marine Railways and Drydocks

WHERE SEVERAL MARINE RAILWAYS ARE LOCATED AT ONE PLACE, THE DIMENSIONS ARE GIVEN ONLY FOR THE LARGEST ONE

Port	Name	Length	Draft	Capacity	Machine shop
MAINE:		*Feet*	*Feet*	*Tons*	
Jonesport	Marine railway	60			
Winter Harbor	do		8	50	
Southwest Harbor.	do	45	4		Yes
Mount Desert	do	50	8		Yes
Blue Hill	do	50	6		Yes
Ellsworth	do	80	9		
Brooklin	do	50	6		
Sedgwick	do	80	10.5		Yes
Stonington	do	100	10		
Vinalhaven	do			10	
Dark Harbor	do	50	6		Yes
Rockland	do		13	600	Yes
Camden	do	225		700	Yes
Bangor	do	50			
Port Clyde	do	40	6		
Thomaston	do	110	8		
Friendship	do	100	10		Yes
Boothbay Harbor.	do	200	12	600	Yes
Yarmouth	do	65			
Portland	do	160	15	800	Yes
Saco	do	60	7		
Kennebunkport	do	50	7		

WHERE SEVERAL MARINE RAILWAYS ARE LOCATED AT ONE PLACE, THE DIMENSIONS ARE GIVEN ONLY FOR THE LARGEST ONE—continued

Port	Name	Length	Draft	Capacity	Machine shop
NEW HAMPSHIRE:		*Feet*	*Feet*	*Tons*	
Portsmouth	Marine railway	60	6		Yes
MASSACHUSETTS:					
Newburyport	do	65	8		
Amesbury	do	48	6		Yes
Merrimacport	do	50	6		Yes
Newbury Old Town.	do	42	5		
Gloucester Harbor.	do	110	15	250	Yes
Manchester	do	80	9		Yes
Beverly	do	40	6.5	12	
Salem	do	100	11	75	
Marblehead	do	125	16	250	Yes
Lynn	do	100	8	100	Yes
Winthrop	do	75	6		
Boston	Graving dock	906.9	35		
Do	Floating dock	478.8	22.6	10,000	Yes
Do	Marine railway	335	19	3,500	Yes
Dorchester	do	145	17	350	
Quincy	do	200	15	1,000	Yes
Hingham	do	72	7		
Scituate	do	75	8		
Duxbury	do	50	7		
Plymouth	do	50	6		
Provincetown	do	40	8		

WEATHER BUREAU

Offices are maintained at Eastport (Customhouse); Portland (57 Exchange Street); and Boston (Federal Building, Post Office Square).

STORM WARNING DISPLAY STATIONS

MAINE:

- Eastport, Tower on hill near standpipe.
- Machiasport, Flagstaff on Hanson's store.
- Cross Island, Tower on Coast Guard Reservation.
- Great Wass Island, Tower on Coast Guard Reservation.
- Cranberry Island, Tower on Coast Guard Reservation.
- Whitehead Island, Tower on east side of Whitehead Island.
- Marshall Point Light, Tower on Lighthouse Reservation.
- Boothbay Harbor, Tower on Moses Rock, ¼ mile north of harbor.
- West Southport, Flagstaff at Southport Yacht Club.

MAINE—continued.

- Portland, Flagstaff on First National Bank Building.
- Cape Elizabeth, Tower on Coast Guard Reservation.
- Isles of Shoals, Tower on Coast Guard Reservation.
- Portsmouth Harbor, Wood Island Coast Guard Station.

NEW HAMPSHIRE:

- Newcastle, Tower on old Fort Constitution.

MASSACHUSETTS:

- Rockport, Tower near Straitsmouth Coast Guard Reservation.
- Gloucester, Tower on Tenpound Island (Lighthouse Reservation)
- Marblehead, Tower on Fort Sewall Reservation.

MASSACHUSETTS—continued.

Boston, Lanterns on Customhouse (night displays only).

Boston, Flagstaff on barge at City Point Coast Guard Station (May 1 to October 31).

Boston, Flagstaff at Savin Hill Yacht Club (May 1 to October 31).

Cape Cod Light, Tower on Coast Guard Reservation.

MASSACHUSETTS—continued.

Hull, Tower on Nantasket Hill.

Sandwich, Tower on south side of Cape Cod Canal at Coast Guard Station.

Wellfleet, Flagstaff on point at south side of town.

Provincetown, Flagstaff on Town Hill near Pilgrim Monument.

Provincetown, Race Point Coast Guard Station.

Hours of operation of fog signals on account of fog and snow

SIX-YEAR AVERAGES

Station	January	February	March	April	May	June	July	August	September	October	November	December	Total
West Quoddy Head	52	66	54	43	118	202	324	251	137	52	51	41	1, 391
St. Croix River	12	22	17	16	32	59	75	67	47	17	9	14	387
Little River	66	79	72	51	111	184	275	233	122	57	52	54	1. 356
Libby Islands	77	85	73	57	110	189	284	244	130	56	52	57	1, 414
Nash Island	70	88	62	51	95	161	219	196	107	47	57	44	1, 197
Petit Manan	82	92	76	61	145	136	229	203	115	57	56	69	1, 321
Mount Desert	91	85	80	83	103	174	249	214	119	58	58	64	1, 378
Egg Rock	57	80	51	44	76	154	189	180	89	44	45	45	1, 054
Blue Hill Bay	52	61	56	42	58	121	179	166	79	41	47	36	938
Saddleback Ledge	41	51	38	45	69	128	189	161	86	34	31	29	902
Matinicus Rock	53	65	59	55	89	147	205	213	100	47	49	39	1, 121
Whitehead	72	93	70	54	83	143	184	187	99	54	55	49	1, 143
Fort Point	57	59	48	31	28	76	98	105	62	37	45	40	686
Manana Island fog signal	58	79	64	57	94	144	166	168	96	57	57	48	1, 088
Perkins Island	30	34	29	18	30	55	62	85	39	32	30	27	471
Seguin	82	109	78	51	89	129	149	173	93	65	64	67	1, 149
Halfway Rock	88	112	76	50	80	121	126	158	85	62	77	76	1, 111
Portland Lightship	86	107	71	60	93	129	105	89	70	55	88	76	1, 029
Portland Head	74	98	71	45	68	94	121	125	67	46	64	67	940
Cape Neddick	46	56	34	27	40	73	88	85	31	29	33	36	578
Portsmouth Harbor	34	44	23	15	32	68	73	69	21	21	27	23	450
Isles of Shoals	81	95	73	54	76	101	109	119	51	45	56	61	921
Cape Ann	41	78	28	22	23	69	128	50	10	39	52	31	571
Bakers Island	34	52	7	14	9	37	88	30	5	22	51	15	364
Boston Lightship	134	151	100	59	26	122	171	71	34	59	104	114	1, 145
The Graves	73	110	24	22	8	63	94	35	8	43	50	52	582
Boston Light	66	115	26	22	8	69	106	34	18	46	58	55	623
Plymouth (Gurnet)	15	64	1	8	5	63	126	44	---	18	51	28	423
Race Point	43	66	16	24	35	86	151	49	7	33	72	36	618
Cape Cod Light	70	83	31	59	29	101	165	100	9	33	109	58	847
Pollock Rip Lightship	85	78	56	49	84	200	351	199	47	53	128	64	1, 394
Great Round Shoal Lightship	54	85	50	39	72	139	234	129	22	50	128	57	1, 059
Nantucket Shoals Lightship	72	77	64	44	94	232	290	178	52	46	111	28	1, 288

Conversion Tables, True to Magnetic Courses

FOR CONVERSION OF TRUE COURSES AND BEARINGS IN DEGREES, TO MAGNETIC COURSES AND BEARINGS IN POINTS, FOR VARIATIONS FROM 15° TO 21° WEST

Minus signs before figures or W after them means that variation is West

True course in degrees	Magnetic course in points for			
	−15° variation	−17° variation	−19° variation	−21° variation
0	N×E⅜E	N×E½E	N×E¾E	N×E⅞E
2	N×E½E	N×E¾E	N×E⅞E	NNE
4	N×E¾E	N×E⅞E	NNE	NNE¼E
6	N×E⅞E	NNE	NNE¼E	NNE⅜E
8	NNE	NNE¼E	NNE⅜E	NNE⅝E
10	NNE¼E	NNE⅜E	NNE⅝E	NNE¾E
12	NNE⅜E	NNE⅝E	NNE¾E	NNE⅞E
14	NNE⅝E	NNE¾E	NNE⅞E	NE⅞N
16	NNE¾E	NNE⅞E	NE⅞N	NE¾N
18	NNE⅞E	NE⅞N	NE¾N	NE½N
20	NE⅞N	NE¾N	NE½N	NE⅜N
22	NE¾N	NE½N	NE⅜N	NE⅛N
24	NE½N	NE⅜N	NE⅛N	NE
26	NE⅜N	NE⅛N	NE	NE⅛E
28	NE⅛N	NE	NE⅛E	NE⅜E
30	NE	NE⅛E	NE⅜E	NE½E
32	NE⅛E	NE⅜E	NE½E	NE¾E
34	NE⅜E	NE½E	NE¾E	NE⅞E
36	NE½E	NE¾E	NE⅞E	NE×E⅛E
38	NE¾E	NE⅞E	NE×E⅛E	NE×E¼E
40	NE⅞E	NE×E⅛E	NE×E¼E	NE×E⅜E
42	NE×E⅛E	NE×E¼E	NE×E⅜E	NE×E⅝E
44	NE×E¼E	NE×E⅜E	NE×E⅝E	NE×E¾E
46	NE×E⅜E	NE×E⅝E	NE×E¾E	ENE
48	NE×E⅝E	NE×E¾E	ENE	ENE⅛E
50	NE×E¾E	ENE	ENE⅛E	ENE¼E
52	ENE	ENE⅛E	ENE¼E	ENE½E
54	ENE⅛E	ENE¼E	ENE½E	ENE⅝E
56	ENE¼E	ENE½E	ENE⅝E	ENE⅞E
58	ENE½E	ENE⅝E	ENE⅞E	E×N
60	ENE⅝E	ENE⅞E	E×N	E¾N
62	ENE⅞E	E×N	E¾N	E⅝N
64	E×N	E¾N	E⅝N	E½N
66	E¾N	E⅝N	E½N	E¼N
68	E⅝N	E½N	E¼N	E⅛N
70	E½N	E¼N	E⅛N	E⅛S
72	E¼N	E⅛N	E⅛S	E¼S
74	E⅛N	E⅛S	E¼S	E½S
76	E⅛S	E¼S	E½S	E⅝S
78	E¼S	E½S	E⅝S	E¾S
80	E½S	E⅝S	E¾S	E×S
82	E⅝S	E¾S	E×S	ESE⅞E
84	E¾S	E×S	ESE⅞E	ESE⅝E
86	E×S	ESE⅞E	ESE⅝E	ESE½E
88	ESE⅞E	ESE⅝E	ESE½E	ESE¼E
90	ESE⅝E	ESE½E	ESE¼E	ESE⅛E

FOR CONVERSION OF TRUE COURSES AND BEARINGS IN DEGREES, TO MAGNETIC COURSES AND BEARINGS IN POINTS, FOR VARIATIONS FROM 15° TO 21° WEST—continued

True course in degrees	Magnetic course in points for			
	−15° variation	−17° variation	−19° variation	−21° variation
92	ESE½E	ESE¼E	ESE⅛E	ESE
94	ESE¼E	ESE⅛E	ESE	SE×E¾E
96	ESE⅛E	ESE	SE×E¾E	SE×E⅝E
98	ESE	SE×E¾E	SE×E⅝E	SE×E⅜E
100	SE×E¾E	SE×E⅝E	SE×E⅜E	SE×E¼E
102	SE×E⅝E	SE×E⅜E	SE×E¼E	SE×E⅛E
104	SE×E⅜E	SE×E¼E	SE×E⅛E	SE⅞E
106	SE×E¼E	SE×E⅛E	SE⅞E	SE¾E
108	SE×E⅛E	SE⅞E	SE¾E	SE½E
110	SE⅞E	SE¾E	SE½E	SE⅜E
112	SE¾E	SE½E	SE⅜E	SE⅛E
114	SE½E	SE⅜E	SE⅛E	SE
116	SE⅜E	SE⅛E	SE	SE⅛S
118	SE⅛E	SE	SE⅛S	SE⅜S
120	SE	SE⅛S	SE⅜S	SE½S
122	SE⅛S	SE⅜S	SE½S	SE¾S
124	SE⅜S	SE½S	SE¾S	SE⅞S
126	SE½S	SE¾S	SE⅞S	SSE⅞E
128	SE¾S	SE⅞S	SSE⅞E	SSE¾E
130	SE⅞S	SSE⅞E	SSE¾E	SSE⅝E
132	SSE⅞E	SSE¾E	SSE⅝E	SSE⅜E
134	SSE¾E	SSE⅝E	SSE⅜E	SSE¼E
136	SSE⅝E	SSE⅜E	SSE¼E	SSE
138	SSE⅜E	SSE¼E	SSE	S×E⅞E
140	SSE¼E	SSE	S×E⅞E	S×E¾E
142	SSE	S×E⅞E	S×E¾E	S×E½E
144	S×E⅞E	S×E¾E	S×E½E	S×E⅜E
146	S×E¾E	S×E½E	S×E⅜E	S×E⅛E
148	S×E½E	S×E⅜E	S×E⅛E	S×E
150	S×E⅜E	S×E⅛E	S×E	S¾E
152	S×E⅛E	S×E	S¾E	S⅝E
154	S×E	S¾E	S⅝E	S½E
156	S¾E	S⅝E	S½E	S¼E
158	S⅝E	S½E	S¼E	S⅛E
160	S½E	S¼E	S⅛E	S⅛W
162	S¼E	S⅛E	S⅛W	S¼W
164	S⅛E	S⅛W	S¼W	S½W
166	S⅛W	S¼W	S½W	S⅝
168	S¼W	S½W	S⅝W	S¾W
170	S½W	S⅝W	S¾W	S×W
172	S⅝W	S¾W	S×W	S×W⅛W
174	S¾W	S×W	S×W⅛W	S×W⅜W
176	S×W	S×W⅛W	S×W⅜W	S×W½W
178	S×W⅛W	S×W⅜W	S×W½W	S×W¾W
180	S×W⅜W	S×W½W	S×W¾W	S×W⅞W
182	S×W½W	S×W¾W	S×W⅞W	SSW
184	S×W¾W	S×W⅞W	SSW	SSW¼W
186	S×W⅞W	SSW	SSW¼W	SSW⅜W
188	SSW	SSW¼W	SSW⅜W	SSW⅝W
190	SSW¼W	SSW⅜W	SSW⅝W	SSW¾W

FOR CONVERSION OF TRUE COURSES AND BEARINGS IN DEGREES, TO MAGNETIC COURSES AND BEARINGS IN POINTS, FOR VARIATIONS FROM 15° TO 21° WEST—continued

True course in degrees	Magnetic course in points for			
	—15° variation	—17° variation	—19° variation	—21° variation
192	SSW⅜W	SSW⅝W	SSW¾W	SSW⅞W
194	SSW⅝W	SSW¾W	SSW⅞W	SW⅞S
196	SSW¾W	SSW⅞W	SW⅞S	SW¾S
198	SSW⅞W	SW⅞S	SW¾S	SW½S
200	SW⅞S	SW¾S	SW½S	SW⅜S
202	SW¾S	SW½S	SW⅜S	SW⅛S
204	SW½S	SW⅜S	SW⅛S	SW
206	SW⅜S	SW⅛S	SW	SW⅛W
208	SW⅛S	SW	SW⅛W	SW⅜W
210	SW	SW⅛W	SW⅜W	SW½W
212	SW⅛W	SW⅜W	SW½W	SW¾W
214	SW⅜W	SW½W	SW¾W	SW⅞W
216	SW½W	SW¾W	SW⅞W	SW×W⅛W
218	SW¾W	SW⅞W	SW×W⅛W	SW×W¼W
220	SW⅞W	SW×W⅛W	SW×W¼W	SW×W⅜W
222	SW×W⅛W	SW×W¼W	SW×W⅜W	SW×W⅝W
224	SW×W¼W	SW×W⅜W	SW×W⅝W	SW×W¾W
226	SW×W⅜W	SW×W⅝W	SW×W¾W	WSW
228	SW×W⅝W	SW×W¾W	WSW	WSW⅛W
230	SW×W¾W	WSW	WSW⅛W	WSW¼W
232	WSW	WSW⅛W	WSW¼W	WSW½W
234	WSW⅛W	WSW¼W	WSW½W	WSW⅝W
236	WSW¼W	WSW½W	WSW⅝W	WSW⅞W
238	WSW½W	WSW⅝W	WSW⅞W	W×S
240	WSW⅝W	WSW⅞W	W×S	W¾S
242	WSW⅞W	W×S	W¾S	W⅝S
244	W×S	W¾S	W⅝S	W½S
246	W¾S	W⅝S	W½S	W¼S
248	W⅝S	W½S	W¼S	W⅛S
250	W½S	W¼S	W⅛S	W⅛N
252	W¼S	W⅛S	W⅛N	W¼N
254	W⅛S	W⅛N	W¼N	W½N
256	W⅛N	W¼N	W½N	W⅝N
258	W¼N	W½N	W⅝N	W¾N
260	W½N	W⅝N	W¾N	W×N
262	W⅝N	W¾N	W×N	WNW⅞W
264	W¾N	W×N	WNW⅞W	WNW⅝W
266	W×N	WNW⅞W	WNW⅝W	WNW½W
268	WNW⅞W	WNW⅝W	WNW½W	WNW¼W
270	WNW⅝W	WNW½W	WNW¼W	WNW⅛W
272	WNW½W	WNW¼W	WNW⅛W	WNW
274	WNW¼W	WNW⅛W	WNW	NW×W¾W
276	WNW⅛W	WNW	NW×W¾W	NW×W⅝W
278	WNW	NW×W¾W	NW×W⅝W	NW×W⅜W
280	NW×W¾W	NW×W⅝W	NW×W⅜W	NW×W¼W
282	NW×W⅝W	NW×W⅜W	NW×W¼W	NW×W⅛W
284	NW×W⅜W	NW×W¼W	NW×W⅛W	NW⅞W
286	NW×W¼W	NW×W⅛W	NW⅞W	NW¾W
288	NW×W⅛W	NW⅞W	NW¾W	NW½W
290	NW⅞W	NW¾W	NW½W	NW⅜W

FOR CONVERSION OF TRUE COURSES AND BEARINGS IN DEGREES, TO MAGNETIC COURSES AND BEARINGS IN POINTS, FOR VARIATIONS FROM 15° TO 21° WEST—continued

True course in degrees	Magnetic course in points for			
	−15° variation	−17° variation	−19° variation	−21° variation
292	NW¾W	NW½W	NW⅜W	NW⅛W
294	NW½W	NW⅜W	NW⅛W	NW
296	NW⅜W	NW⅛W	NW	NW⅛N
298	NW⅛W	NW	NW⅛N	NW⅜N
300	NW	NW⅛N	NW⅜N	NW½N
302	NW⅛N	NW⅜N	NW½N	NW¾N
304	NW⅜N	NW½N	NW¾N	NW⅞N
306	NW½N	NW¾N	NW⅞N	NNW⅞W
308	NW¾N	NW⅞N	NNW⅞W	NNW¾W
310	NW⅞N	NNW⅞W	NNW¾W	NNW⅝W
312	NNW⅞W	NNW¾W	NNW⅝W	NNW⅜W
314	NNW¾W	NNW⅝W	NNW⅜W	NNW¼W
316	NNW⅝W	NNW⅜W	NNW¼W	NNW
318	NNW⅜W	NNW¼W	NNW	N×W⅞W
320	NNW¼W	NNW	N×W⅞W	N×W¾W
322	NNW	N×W⅞W	N×W¾W	N×W½W
324	N×W⅞W	N×W¾W	N×W½W	N×W⅜W
326	N×W¾W	N×W½W	N×W⅜W	N×W⅛W
328	N×W½W	N×W⅜W	N×W⅛W	N×W
330	N×W⅜W	N×W⅛W	N×W	N¾W
332	N×W⅛W	N×W	N¾W	N⅝W
334	N×W	N¾W	N⅝W	N½W
336	N¾W	N⅝W	N½W	N¼W
338	N⅝W	N½W	N¼W	N⅛W
340	N½W	N¼W	N⅛W	N⅛E
342	N¼W	N⅛W	N⅛E	N¼E
344	N⅛W	N⅛E	N¼E	N½E
346	N⅛E	N¼E	N½E	N⅝E
348	N¼E	N½E	N⅝E	N¾E
350	N½E	N⅝E	N¾E	N×E
352	N⅝E	N¾E	N×E	N×E⅛E
354	N¾E	N×E	N×E⅛E	N×E⅜E
356	N×E	N×E⅛E	N×E⅜E	N×E½E
358	N×E⅛E	N×E⅜E	N×E½E	N×E¾E

Conversion Tables, Feet and Fathoms to Meters, and Vice Versa

FEET TO METERS

Feet	0	1	2	3	4	5	6	7	8	9
0	0. 00	0. 30	0. 61	0. 91	1. 22	1. 52	1. 83	2. 13	2. 44	2. 74
10	3. 05	3. 35	3. 66	3. 96	4. 27	4. 57	4. 88	5. 18	5. 49	5. 79
20	6. 10	6. 40	6. 71	7. 01	7. 32	7. 62	7. 92	8. 23	8. 53	8. 84
30	9. 14	9. 45	9. 75	10. 06	10. 36	10. 67	10. 97	11. 28	11. 58	11. 89
40	12. 19	12. 50	12. 80	13. 11	13. 41	13. 72	14. 02	14. 33	14. 63	14. 93
50	15. 24	15. 54	15. 85	16. 15	16. 46	16. 76	17. 07	17. 37	17. 68	17. 98
60	18. 29	18. 59	18. 90	19. 20	19. 51	19. 81	20. 12	20. 42	20. 73	21. 03
70	21. 34	21. 64	21. 95	22. 25	22. 55	22. 86	23. 16	23. 47	23. 77	24. 08
80	24. 38	24. 69	24. 99	25. 30	25. 60	25. 91	26. 21	26. 52	26. 82	27. 13
90	27. 43	27. 74	28. 04	28. 35	28. 65	28. 96	29. 26	29. 57	29. 87	30. 17

FATHOMS TO METERS

Fathoms	0	1	2	3	4	5	6	7	8	9
0	0. 00	1. 83	3. 66	5. 49	7. 32	9. 14	10. 97	12. 80	14. 63	16. 46
10	18. 29	20. 12	21. 95	23. 77	25. 60	27. 43	29. 26	31. 09	32. 92	34. 75
20	36. 58	38. 40	40. 23	42. 06	43. 89	45. 72	47. 55	49. 38	51. 21	53. 03
30	54. 86	56. 69	58. 52	60. 35	62. 18	64. 01	65. 84	67. 67	69. 49	71. 32
40	73. 15	74. 89	76. 81	78. 64	80. 47	82. 30	84. 12	85. 95	87. 78	89. 61
50	91. 44	93. 27	95. 10	96. 93	98. 75	100. 58	102. 41	104. 24	106. 07	107. 90
60	109. 73	111. 56	113. 39	115. 21	117. 04	118. 87	120. 70	122. 53	124. 36	126. 19
70	128. 02	129. 85	131. 67	133. 50	135. 33	137. 16	138. 99	140. 82	142. 65	144. 47
80	146. 30	148. 13	149. 96	151. 79	153. 62	155. 45	157. 28	159. 11	160. 93	162. 76
90	164. 59	166. 42	168. 25	170. 08	171. 91	173. 74	175. 56	177. 39	179. 22	181. 05

METERS TO FEET

Meters	0	1	2	3	4	5	6	7	8	9
0	0. 00	3. 28	6. 56	9. 84	13. 12	16. 40	19. 68	22. 97	26. 25	29. 53
10	32. 81	36. 09	39. 37	42. 65	45. 93	49. 21	52. 49	55. 77	59. 06	62. 34
20	65. 62	68. 90	72. 18	75. 46	78. 74	82. 02	85. 30	88. 58	91. 86	95. 14
30	98. 42	101. 71	104. 99	108. 27	111. 55	114. 83	118. 11	121. 39	124. 67	127. 95
40	131. 23	134. 51	137. 80	141. 08	144. 36	147. 64	150. 92	154. 20	157. 48	160. 76
50	164. 04	167. 32	170. 60	173. 88	177. 16	180. 45	183. 73	187. 01	190. 29	193. 57
60	196. 85	200. 13	203. 41	206. 69	209. 97	213. 25	216. 54	219. 82	223. 10	226. 38
70	229. 66	232. 94	236. 22	239. 50	242. 78	246. 06	249. 34	252. 62	255. 90	259. 19
80	262. 47	265. 75	269. 03	272. 31	275. 59	278. 87	282. 15	285. 43	288. 71	291. 99
90	295. 28	298. 56	301. 84	305. 12	308. 40	311. 68	314. 96	318. 24	321. 52	324. 80

METERS TO FATHOMS

Meters	0	1	2	3	4	5	6	7	8	9
0	0. 00	0. 55	1. 09	1. 64	2. 19	2. 73	3. 28	3. 83	4. 37	4. 92
10	5. 47	6. 01	6. 56	7. 11	7. 66	8. 20	8. 75	9. 30	9. 84	10. 39
20	10. 94	11. 48	12. 03	12. 58	13. 12	13. 67	14. 22	14. 76	15. 31	15. 86
30	16. 40	16. 95	17. 50	18. 04	18. 59	19. 14	19. 68	20. 23	20. 78	21. 33
40	21. 87	22. 42	22. 97	23. 51	24. 06	24. 61	25. 15	25. 70	26. 25	26. 79
50	27. 34	27. 89	28. 43	28. 98	29. 53	30. 07	30. 62	31. 17	31. 71	32. 26
60	32. 81	33. 36	33. 90	34. 45	35. 00	35. 54	36. 09	36. 64	37. 18	37. 73
70	38. 28	38. 82	39. 37	39. 92	40. 46	41. 01	41. 56	42. 10	42. 65	43. 20
80	43. 74	44. 29	44. 84	45. 38	45. 93	46. 48	47. 03	47. 57	48. 12	48. 67
90	49. 21	49. 76	50. 31	50. 85	51. 40	51. 95	52. 49	53. 04	53. 59	54. 13

Meteorological Table, Eastport, Maine

COMPILED BY THE UNITED STATES WEATHER BUREAU

(Records are averages for a long period of time—most 45 years or more)

Month	Barometer at 32° F. and mean sea level: Mean: For month	Barometer: Extremes: Highest	Barometer: Extremes: Lowest	Barometer: Extremes: Range	Air temperature, in ° F.: Mean: For month	Air temperature: Mean: Mean maximum	Air temperature: Mean: Mean minimum	Air temperature: Mean: Range	Air temperature: Extremes: Highest	Air temperature: Extremes: Lowest	Air temperature: Extremes: Range	Average relative humidity	Average amount of clouds 0-10	Precipitation: Average fall	Precipitation: Number of days 0.01 inch or more	Precipitation: Maximum fall in 24 hours	Wind: Statute miles: Average hourly velocity	Wind: Statute miles: Highest velocity	Wind: Average number of times (observations at 8 a. m. and 8 p. m.) from—: N.	NE.	E.	SE.	S.	SW.	W.	NW.	Calm	Average number of days with winds of 40 miles or over	Number of days fog
	In.	*In.*	*In.*	*In.*								%		*In.*		*In.*													
January	30.00	30.90	28.63	2.27	20.4	28.9	13.1	15.8	58	−20	78	76	6	3.92	15	3.02	12.8	60	7	4	3	3	6	12	15	12	0	4	2
February	29.98	31.04	28.35	2.69	21.5	28.8	13.9	14.9	52	−23	75	76	6	3.35	13	3.06	12.4	56	7	6	3	2	3	9	16	10	0	3	2
March	29.93	30.93	28.59	2.34	28.9	36.3	23.2	13.1	65	−8	73	77	6	3.83	14	3.18	12.2	56	6	5	3	3	8	11	14	12	0	3	3
April	29.93	30.72	28.91	1.81	39.0	45.3	32.5	12.8	81	2	79	76	6	2.84	12	2.75	11.6	50	6	8	4	2	12	9	9	10	0	2	3
May	29.96	30.49	29.06	1.43	47.7	55.1	40.5	14.6	90	28	62	80	6	3.01	12	5.48	9.9	43	5	8	4	2	18	9	6	9	1	1	6
June	29.93	30.52	29.10	1.42	55.1	63.4	47.0	16.4	90	30	60	82	6	2.97	12	3.30	8.9	40	4	6	4	2	19	10	6	9	0	0	8
July	29.93	30.46	29.11	1.35	60.4	68.4	52.0	16.4	93	45	48	83	6	3.08	12	5.24	8.1	43	4	4	2	1	25	13	6	5	2	0	11
August	29.96	30.48	29.14	1.34	60.7	68.2	53.0	15.2	90	44	46	82	6	3.06	11	4.09	8.1	44	3	5	2	2	23	11	7	8	1	0	10
September	30.03	30.64	28.93	1.71	55.8	62.7	49.2	13.5	89	30	59	82	6	2.78	11	3.65	8.9	47	3	4	2	1	13	13	7	13	1	0	6
October	30.00	30.66	28.80	1.86	47.5	52.8	41.6	11.2	83	23	60	80	6	3.55	11	5.33	10.7	47	6	3	4	2	12	13	10	12	0	1	3
November	30.01	30.84	28.62	2.22	36.7	43.0	31.3	11.7	67	−13	80	78	7	3.32	12	3.14	11.9	56	7	4	2	2	6	14	15	10	0	2	2
December	29.98	30.97	28.24	2.73	26.3	32.4	18.9	13.5	57	−23	80	76	7	3.74	14	3.74	12.5	60	8	3	3	2	4	8	20	14	0	3	1
Mean	29.97				41.7	48.8	34.6	12.2				79	6				10.7												
Total														39.39	149				69	60	36	24	149	132	131	124	5	19	57

Meteorological Table, Portland, Maine

COMPILED BY THE UNITED STATES WEATHER BUREAU

January	30.05	30.88	28.64	2.24	22.4	30.1	14.7	15.4	65	−18	83	72	5	3.81	12	2.48	8.8	44	13	3	1	1	4	11	12	16	1	1	1
February	30.02	30.97	28.65	2.32	23.8	31.6	16.0	15.6	58	−17	75	72	5	3.65	11	3.06	9.1	48	11	3	1	2	4	9	12	14	1	0	1
March	29.96	30.98	28.79	2.19	31.8	39.2	24.4	14.8	79	−7	86	70	5	3.75	12	3.50	9.6	47	10	4	2	3	8	10	10	14	1	1	2
April	29.96	30.72	28.86	1.86	43.0	50.4	35.7	14.7	82	9	73	68	5	3.11	11	3.82	9.2	44	9	6	3	4	8	8	8	13	0	0	2
May	29.97	30.58	29.25	1.33	53.3	61.2	45.4	15.8	94	27	67	72	5	3.67	12	4.86	8.6	47	7	6	6	4	14	9	7	9	1	0	2
June	29.95	30.58	29.18	1.40	62.5	70.8	54.2	16.6	96	38	58	73	5	3.36	11	4.96	7.6	35	5	6	5	5	12	9	8	8	1	0	3
July	29.95	30.48	29.20	1.28	68.1	76.1	60.1	16.0	103	48	55	76	4	3.25	11	3.97	7.5	32	5	4	4	5	15	12	8	8	2	0	4
August	29.98	30.40	29.35	1.11	66.4	74.0	58.8	15.2	95	45	50	78	4	3.57	11	2.47	6.9	38	6	4	4	4	13	11	8	10	2	0	5
September	30.05	30.66	29.05	1.61	59.6	67.3	51.9	15.4	94	32	62	79	4	3.20	10	5.28	7.5	38	7	4	3	4	10	12	8	11	1	0	4
October	30.04	30.72	28.88	1.84	49.9	57.3	42.6	14.7	84	22	62	78	5	3.66	10	3.93	8.2	41	9	3	2	3	7	12	10	13	1	1	3
November	30.01	30.83	28.49	2.34	38.0	44.6	31.4	13.2	72	−6	78	74	5	3.80	11	3.76	8.8	41	11	3	1	2	5	13	11	13	1	1	1
December	30.03	30.97	28.76	2.21	27.6	34.4	20.8	13.6	65	−21	86	72	5	3.68	11	2.69	8.7	47	11	2	1	2	3	14	12	16	1	1	1
Mean	30.00				45.5	53.1	38.0	15.1				74	5				8.4												
Total														42.51	133				104	48	33	39	103	130	114	145	13	5	29

540825°—43——23

Meteorological Table, Boston, Mass.

COMPILED BY THE UNITED STATES WEATHER BUREAU

Month	Barometer at 32° F. and mean sea level				Air temperature, in ° F.							Average relative humidity	Average amount of clouds 0–10	Precipitation			Wind											Average number of days with winds of 40 miles or over	Number of days fog
	Mean	Extremes			Mean				Extremes								Statute miles		Average number of times (observations at 8 a. m. and 8 p. m.) from—										
	For month	Highest	Lowest	Range	For month	Mean maximum	Mean minimum	Range	Highest	Lowest	Range			Average fall	Number of days 0.01 inch or more	Maximum fall in 24 hours	Average hourly velocity	Highest velocity	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Calm		
	In.	*In.*	*In.*	*In.*								%		*In.*		*In.*													
January	30.05	31.00	28.67	2.33	27.9	35.8	20.0	15.6	70	−13	83	71	6	3.61	12	3.25	11.2	50	7	3	2	3	3	15	15	14	0	1	1
February	30.04	31.03	28.69	2.34	28.8	36.6	21.0	15.6	68	−18	86	68	5	3.37	10	4.45	11.5	47	7	1	3	2	3	10	17	13	0	1	1
March	29.97	30.96	28.56	2.40	35.6	43.4	27.8	15.6	83	−8	91	64	6	3.57	12	3.04	11.7	56	7	4	3	4	4	10	16	14	0	1	1
April	29.97	30.72	28.86	1.86	46.4	54.5	38.3	16.2	89	11	78	68	5	3.34	11	3.19	10.9	47	5	7	6	5	4	10	10	13	0	1	1
May	29.98	30.56	29.19	1.37	57.1	65.7	48.6	17.1	97	31	66	70	5	3.18	11	3.31	10.0	38	6	5	9	4	4	13	11	10	0	0	1
June	29.96	30.57	29.31	1.26	66.5	75.2	57.8	17.4	100	42	58	72	5	2.89	10	5.35	9.5	33	7	5	8	3	3	14	12	8	0	0	1
July	29.96	30.51	29.38	1.13	71.7	80.1	63.3	16.8	104	50	50	72	5	3.49	10	6.04	9.1	47	4	4	5	4	5	20	13	7	0	0	1
August	29.99	30.46	29.26	1.20	69.9	77.8	62.0	15.8	98	47	51	76	5	3.62	10	4.99	8.7	38	5	6	6	4	7	14	11	9	0	0	1
September	30.07	30.65	29.18	1.47	63.2	71.2	55.2	16.0	102	34	68	76	5	3.14	9	4.27	9.3	73	7	4	4	4	5	15	10	11	0	0	2
October	30.05	30.75	28.97	1.78	53.6	61.6	45.5	16.1	90	25	65	74	5	3.15	9	4.92	10.0	43	5	4	4	4	5	13	15	12	0	0	2
November	30.05	30.86	28.73	2.13	42.0	49.3	34.8	14.5	78	−2	80	72	5	3.33	10	5.43	10.8	56	4	3	2	2	4	13	20	12	0	1	1
December	30.05	30.96	28.80	2.16	32.5	39.6	25.4	14.2	69	−17	86	72	6	3.45	11	3.36	11.0	47	6	2	2	1	3	9	22	17	0	1	1
Mean	30.01				49.6	57.6	41.6	16.0				72	5				10.3												
Total														40.14	125				70	48	54	40	50	156	172	140	0	6	14

Meteorological Table, Nantucket, Mass.

COMPILED BY THE UNITED STATES WEATHER BUREAU

Month	Barometer at 32° F. and mean sea level				Air temperature, in ° F.							Average relative humidity	Average amount of clouds 0–10	Precipitation			Wind										Average number of days with winds of 32 miles or over	Number of days fog
	Mean	Extremes			Mean				Extremes								Statute miles		Average number of times (observations at 8 a. m. and 8 p. m.) from—										
	For month	Highest	Lowest	Range	For month	Mean maximum	Mean minimum	Range	Highest	Lowest	Range			Average fall	Number of days 0.01 inch or more	Maximum fall in 24 hours	Average hourly velocity	Highest velocity	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Calm		
	In.	*In.*	*In.*	*In.*								%		*In.*		*In.*												
January	30.04	30.99	28.82	2.17	31.3	38.5	26.4	12.1	64	−4	61	80	7	3.77	13	2.47	16.2	64	6	6	3	4	5	9	14	15	0	4	4
February	30.04	30.97	28.78	2.19	30.7	36.5	25.0	11.5	60	−6	65	78	6	3.37	12	2.77	16.1	60	7	5	2	3	3	8	15	13	0	4	4
March	29.98	30.92	28.47	2.45	35.5	42.1	31.0	11.1	68	6	62	81	6	3.75	13	3.22	16.3	66	7	6	4	6	6	13	9	11	0	4	5
April	29.97	30.68	29.13	1.55	43.4	49.7	38.4	11.3	74	15	59	82	6	2.96	12	2.51	15.6	61	6	8	2	6	8	14	8	8	0	3	5
May	29.99	30.54	29.28	1.26	52.3	59.1	46.7	12.4	86	34	52	84	6	2.85	11	2.78	14.0	47	5	8	5	6	7	20	7	4	0	1	7
June	29.98	30.49	29.31	1.18	61.0	67.7	55.1	12.6	90	43	47	86	5	2.67	10	3.74	13.0	52	5	9	4	5	7	20	7	3	0	1	9
July	29.98	30.51	29.44	1.07	67.8	74.0	61.6	12.4	92	48	44	86	5	2.87	9	3.69	12.3	59	3	6	2	5	8	27	7	4	0	1	11
August	29.99	30.45	28.71	1.74	67.8	73.8	62.0	11.8	90	51	38	86	5	3.40	9	5.73	11.6	53	5	11	4	6	8	18	6	4	0	0	8
September	30.08	30.63	29.48	1.15	62.8	68.9	57.6	11.3	88	41	46	84	5	2.45	9	3.70	12.8	56	6	11	6	5	9	14	5	4	0	1	6
October	30.05	30.61	29.07	1.54	54.2	59.8	49.1	10.7	81	30	51	81	6	3.39	10	4.25	14.7	53	7	9	6	7	4	11	9	9	0	2	3
November	30.05	30.80	29.16	1.64	44.4	50.5	39.8	10.7	68	15	51	80	6	3.22	12	3.58	15.5	62	8	5	2	4	4	9	14	14	0	3	2
December	30.05	30.91	28.73	2.18	35.8	41.6	30.5	11.1	61	−1	61	80	6	3.74	13	2.62	15.6	62	6	6	3	5	3	8	16	15	0	4	3
Mean	30.02				48.9	55.3	43.6	11.6				82	6				14.6												
Total														38.44	134				71	90	43	62	72	171	117	104	0	28	66

BLANK PAGE

INDEX

NUMBER IN PARENTHESES IMMEDIATELY FOLLOWING ANY ITEM IN THIS INDEX IS NUMBER OF THE LARGEST SCALE U. S. COAST AND GEODETIC SURVEY CHART ON WHICH THAT FEATURE APPEARS

A

	Page
Abagadasset Point, Bath to, Kennebec River (314, 1204)	215
Abagadasset Point to Courthouse Point, Kennebec River (288)	215
Abbott Rock Beacon (240)	269
Accuracy of charts	2
Accuracy of radiobeacon bearings	22
Addison (305)	94
Agencies, Sales	2
Aids to navigation (*see also* name of place)	9
Cape Cod Canal	320
Suggestions as to and defects in	12
Aircraft distress signals	31
Airy Ledge (309)	144
Alden Rock (312)	149
Allen Cove, Blue Hill Bay (307)	131
Allen Cove, Deer Island Thorofare (227)	140
Allen Island (312)	186
Allen Shoal (312)	151
Alley Island (307)	130
Ames Cove (310)	164
Amesbury	253
Amesbury Point (235)	157
Ammen Rock (1106)	40, 49
Anchorage areas (*see also* name of place)	7, 44
Anchorage buoys	10
Anderson Ledge (330)	251
Andrews Island, Penobscot Bay (312)	166, 167
Andrews Island, Deer Island Thorofare (227)	141
Andrews Point (243)	259
Annisquam (233)	258
Harbor Lighthouse (233)	258
River, Directions (233)	258
River and Canal (233)	257
Appendix	325
Apple Island Flats (246)	281
Appledore Island (330)	250
Approaching Cape Cod (1208)	316
Approaching or standing along the coast between Portland and Cape Cod	48
Approaching or standing along the coast of Maine, eastward of Portland	47
Arey Cove, Frenchman Bay (317)	107
Arey Cove, Vinalhaven Island (309)	154
Ark, The (314)	201
Army Engineers, U. S.	7, 327
Arrowsic Island (230)	205
Ash Island (312)	167
Asia Rip (1107)	37
Atlantic (246)	302
Atlantic coast:	
Current tables	4
Distances between ports	326
Tide tables	4
Atlantis Canyon (1107)	39
Augusta (289)	216
Augusta, Courthouse Point to, Kennebec River (289)	216
Avery Rock (303)	82
Avery Rock Lighthouse (303)	82
Avery Rock to Machiasport, Machias River from (303)	84

B

Babbidge Island (235)	156
Back Cove (325)	232
Back River, Barter Island (314)	209
Back River, Duxbury Bay (245)	308
Back River, Kennebec River (230, 314)	205, 214
Back River Cove (313)	191
Bagaduce River and Castine Harbor (311)	178
Bailey Island (315)	224
Bailey Ledge, Baileys Mistake (1201)	77
Bailey Ledge, St. George River (312)	188
Baileys Mistake (1201)	77
Baker Island, Frenchman Bay (306)	117
Baker Island Lighthouse (306)	118

Page

Baker Islands, Swans Island (308) 125
Baker and Harbor Islands, To enter inside (308) 125
Bakers Island (240) 267
Bakers Island Lighthouse (240) 267
Bald Head, Campobello Island (801) 67
Bald Head, Cape Small (314) 212
Bald Head Cliff (1205) 241
Bald Head Ledge (314) 212
Bald Hill (311) 183
Bald Porcupine Island (318) 114, 115
Bald Rock (305) 102
Bald Rock Ledge (306) 114
Ballast Island (304) 88
Ballast Island Ledge (304) 88
Ballaststone Ledge (315) 222
Bangor (311) 181
Bangor, Directions, Crosby Narrows to (311) 183
Bantam Ledge (225) 149
Bantam Rock (314) 200
Lighted Whistle Buoy, Sailing directions, Cape Ann to (1106) 52
Lighted Whistle Buoy, Sailing directions, Portland Lightship to (1204) 52
Bar Harbor, Cobscook Bay (801) 73
Bar Harbor, Eastern Bay to (306) 114
Bar Harbor, Mt. Desert Island (318) 114
Bar Harbor to Otter Cove (306) 115
Bar Island, Bar Harbor (318) 114, 115
Bar Island, Blue Hill Bay (307) 131
Bar Island, Machias (303) 82
Bar Island, Muscongus Bay (313) 193
Bar Island, St. George River (312) 187
Bar Island Ledge (313) 192
Bar Ledge (231) 237
Bare Island (227) 142
Barley Ledge (311) 165
Barnstable Harbor (339) 313
Coast, Plymouth to (1208) 312
Barred Island, Deer Island Thorofare (227) 141
Barred Islands, East Penobscot Bay (309) 153
Barrel, The (225) 148
Barter Island (314) 209
Barter Island Ledges (227) 142
Bartlett Harbor (310) 162
Bartlett Island and Narrows (307) 129
Bartlett Rock (243) 259
Barton Ledge (305) 93, 94, 99
Basin, The, Dingley Island (315) 221
Basin, The, Vinalhaven Island (235) 159
Basket Island, Casco Bay (315) 228
Basket Island, Saco Bay (231) 238
Basket Ledge, Lower and Upper (315) 228
Bass Harbor (307) 128
Bar (307) 128
Bar through Casco Passage to, Sailing directions (228, 308) 60
Bar to Petit Manan via direct route, Sailing directions (305, 306) 61
Bar to Petit Manan via Western Way, Sailing directions (305, 306) 61
Head Lighthouse (307) 128
Bass River (240) 270
Bass Rock (240) 275
Bassing Beach (242) 305
Bates Island (315) 226
Bath (230) 214
Abagadasset Point to, Kennebec River (314, 1204) 215
Boothbay Harbor to, Directions, Inside Passage (230) 205
Boothbay Harbor to, Inside Passage (230) 204
Kennebec River to (314) 211
Batson Ledge (304) 92
Bay Ledge, Deer Island Thorofare (227) 142
Bay Ledge, off No Mans Land (225) 149
Bay of Fundy, Currents 41
Bay View (233) 258
Baypoint (314) 213
Bayside post office (Northport Camp Ground) (311) 175
Bayville (314) 201
Beach (*see* name of place.)
Beach Ledge, Swans Island (308) 123
Beach Ledges, off Penobscot Bay (225) 148
Beacons:
Colors of lights for 11
Day 12
Beal Island (304) 89
Bean Island and Ledge (306) 111
Bear Island, New Meadows River (315) 220
Bear Island, Northeast Harbor (306) 120
Bearings:
Accuracy of radiobeacon 22
Conversion of radio to Mercator 23
Radio, from other vessels 23
Beaver Island (313) 195
Belfast (319) 175
Bay (319) 175
Bay and Passagassawakeag River (319) 175
Bay and Passagassawakeag River, Directions (319) 176
Bell buoys 10

Page
Bellamy River (229) 249
Belle Isle Inlet (246) 281
Benjamin River (309) 138
Benner Island (312) 186
Bernard (307) 128
Berry Cove (306) 113
Berry Island (314) 209
Beverly (240) 270
Creek (Bass River) (240) 270
Harbor (240) 269
Harbor, Boston Lightship to, Sailing directions (240, 1207) 299
Harbor, Directions (240) 273
Harbor bridges (240) 270
Harbors, Marblehead, Salem, and (240) 266
Harbors, Marblehead, Salem, and, Directions (240) 272
Bibb Rock (1205) 241
Bibber Rocks (315) 227
Bickford Island (1205) 240
Bickford Point (304) 89
Biddeford (231) 237
Biddeford Pool (231) 238
Big Black Ledge (305) 104
Big Moose Island (317) 107
Big Pot (305) 93
Billings Cove (309) 138
Billingsgate Island (581) 314
Bills Island (309) 143
Biological Experimental Station (306) 113
Birch Harbor (305) 104
Birch Island, Blue Hill Bay (307) 129
Birch Island, Casco Bay (315) 227
Birch Island, Muscle Ridge Channel (312) 167
Birch Islands, Pleasant Bay (305) 93, 94, 99
Bird Island Anchorage, Boston, Sailing directions, Deer Island Light to (246) 295
Bird Rock (307) 132
Black Head (304) 90
Black Horse Island (309) 144
Black Island, Casco Passage (227, 307) 127, 130
Black Island, Muscongus Bay (313) 194
Black Island, off Blue Hill Bay (308) 122
Black Ledge, Chandler Bay (304) 87
Black Ledge, Fox Islands Thorofare (235) 156
Black Ledge, Narraguagus Bay (305) 95
Black Ledges, Great Wass Island (304) 91
Black Ledges, Little Machias Bay (303) 80
Black Point Cove (303) 79
Black Rock, Blue Hill Bay (307) 132

Page
Black Rock, East Quoddy Head (801) 70
Black Rock, Gloucester (233) 262
Black Rock, Matinic Island (312) 150
Black Rock, off Nash Island (304) 92
Black Rock, off Port Clyde (312) 185
Black Rock Channel, Boston (246) 278
Black Rock Channel, Boston, Currents (246) 288
Black Rock Channel, Nahant (240) 275
Black Rocks, Matinicus Island (225) 149
Black Rocks, The, Sheepscot Bay (314) 206
Black Rocks, York Harbor (228) 243
Blacksnake, North (315) 220
Blacksnake Ledge (315) 222
Blaney Rock (240) 274
Blonde Rock (1000) 39
Blubber Island (312) 187
Blue Hill (307) 131
Blue Hill Bay (307) 127
Directions (307, 308) 134
East side (307) 129
Islands off (308) 122
Light (307) 130
West side (307) 130
Blue Hill Harbor (307) 131
Bluff Head (801) 71
Bluff Island (231) 237
Bobs Cove (303) 80
Bog Brook Cove (303) 79
Bois Bubert Island (305) 95, 97
Bold Dick (315) 219
Bold Island Ledges (227) 141
Bonny Chess Ledge (305) 102
Boohoo Ledge (240) 265
Boon Island (1205) 241
Boon Island Ledge and Lighthouse (1205) 242
Boot Cove (1201) 77
Booth Bay and Linekin Bay (314) 200
Booth Bay, Islands and rocks off (314) 200
Boothbay Harbor (230) 202
Bath to, Inside Passage (230) 204
Bath to, Inside Passage, Directions (230) 205
Directions (230) 203
Yacht Club (230) 202
Boston
See Boston Harbor
See Boston Lightship
Bridges 288
East (248) 282
Island (230) 208
Lighthouse (246) 279
Lighthouse and Point Allerton, Currents between (246) 287

Page

Boston—Continued.
- Meteorological table 342
- New York Harbor to 35
- Pilots 284
- South (248) 282
- Weather 288
- Yarmouth to 48

Boston Harbor
- Anchorage regulations 285, 286
- Anchorages (246, 248) 286
- Approaching 292
- Bird Island Anchorage (248) 286
- Bridge regulations 290
- Cape Ann, Approaching from (1207) 292
- Cape Cod, Approaching from (1207) 292
- Castle Island Anchorage (246) 286
- Currents 287
- Explosive Anchorage (246) 286
- Fog, Entering in 293
- General remarks on approaching 292
- Harbor regulations 285, 287
- Inner (248) 281
- Long Island Anchorage (246) 286
- Main Ship Channel (248) 281
- Marblehead to (240) 274
- Outer, and approaches (246) 276
- Presidents Roads Anchorage (246) 286
- *See* Sailing Directions, Tables 9–17 293
- Tidal current charts 287
- Tidal currents off 292

Boston Lightship (1207) 276
- Cape Cod to, Sailing directions (1207) 50
- Cashes Ledge to, Sailing directions (70, 1000, 1106) 300
- Currents 41
- Beverly Harbor to, Sailing directions (240, 1207) 299
- Brazil Rock to, Sailing directions (70, 1000) 300
- Cape Ann to, Sailing directions (1207) 51
- Cape Cod Canal to, Northbound, Sailing directions (1207, 1208) 50
- Cape Cod Canal to, Southbound, Sailing directions (1207, 1208) 50
- Deer Island Lighthouse to, via Broad Sound North Channel, Sailing directions (246, 1207) 294
- Deer Island Lighthouse to, via Broad Sound South Channel. Sailing directions (246, 1207) 294

Page

Boston Lightship—Continued.
- Deer Island Lighthouse to, via The Narrows, Sailing directions (246, 1207) 295
- Fippennies Ledge to, Sailing directions (70, 1000, 1106) 300
- Georges Shoal to, Sailing directions (70, 1000, 1107) 300
- Lynn Channel Entrance to, Sailing directions (240, 1207) 298
- Nova Scotia, fishing banks to, Sailing directions (70, 1000, 1106, 1107) 300
- Platts Bank, Sailing directions (70, 1000, 1106) 300
- Yarmouth Harbor to, Sailing directions (70, 1000, 1106) 300

Boulders, The (309) 137
Boundary Ledge (304) 86
Boundary marks 64
Bowden Ledge (303) 121
Bowditch Ledge (240) 267
Boxam Ledge (308) 125
Brace Cove (243) 261
Bracketts Channel (310) 164
Bracy Cove (306) 120
Bradbury Island (309) 153
Bradford 253
Brandies, The (309) 144
Brant Rock (245) 307
Brant Rock Coast Guard Station (245) 307
Brazil Rock (1000) 39
Brazil Rock, Boston Lightship to, Sailing Directions (70, 1000) 300
Breakers, The (310) 161
Breaking Ledge (304) 87
Breeches buoy, Rescue with 14
Bremen (313) 193
Brewer (311) 181
Brewster Point Ledge (320) 170
Bridge regulations (*see also* name of place) 32, 290
Bridges:
- Back Cove (325) 232
- Beverly Harbor (242) 270
- Boston and locality 288
- Cape Cod Canal 319
- Charles River 289
- Chelsea Creek 288
- Dorchester Bay 289
- Fore River (325) 232
- Fort Point Channel, Boston 289
- Foxhall (Saugus River) (240) 276
- General Edwards (Saugus River) (240) 275
- Malden River 288
- Merrimack River 253
- Mystic River 289
- Neponset River 289
- Portland Harbor (325) 232

Page

Bridges—Continued.
Portsmouth to Kittery (329) 245
Presumpscot River (325) 232
Reserved Channel, Boston 289
Sasanoa River (230) 204
Saugus River 275
South Channel, Charlestown 288
Townsend Gut (230) 204
Weymouth Back River 289
Weymouth Fore River 289
Brig Ledge (225) 147
Brigham Cove (315) 221
Brimbles (240) 268
Brimstone Island (308) 125
Broad Cove, Casco Bay (315) 228
Broad Cove, Medomak River (313) 191
Broad Cove, Moose Island (801) 66
Broad Cove, St. George River (312) 188
Broad Sound (246) 277
Currents, Boston (246) 287
Entrance North Channel to Cape Ann, Sailing directions (1207) 51
Entrance North Channel to entrance Lynn Channel, Sailing directions (240, 1207) 298
North Channel (246) 277
North Channel, Boston Lightship to Deer Island Lighthouse via, Sailing directions (246, 1207) 294
South Channel (246) 277
South Channel, Boston Lightship to Deer Island Lighthouse via (246, 1207) 294
Broken Cove (315) 226
Brooking Bay (230) 205
Brooklin (309) 137
Brothers, The, Englishman Bay (304) 85
Brothers, The, off Port Clyde (312) 185
Brothers, The, Saco Bay (231) 236
Brown Bank (1000) 39
Brown Cow, East (315) 219
Brown Cow, The (309) 143
Brown Cow, West (315) 226
Browney Island (304) 92
Browns Bank (245) 308
Browns Head (313) 194
Browns Head Ledge (313) 192
Browns Head Lighthouse (235) 158
Browns Island (289) 216

Page

Brush Island Channel, Cohasset (242) 305
Brush Island Ledge (242) 305
Buck Harbor (309) 139
Buckle Island, Deer Island Thorofare (227) 142
Buckle Island, York Narrows (308) 124
Bucks Harbor (303) 82
Bucks Neck (Smalls Point) (303) 82
Bucksport (311) 180
Fort Point to, Directions (311) 182
Winterport to, Directions (311) 182
Bull Ledge (230) 208
Bull Rock (1106, 1201) 47, 78
Bulldog, The (313) 196, 197
Bulletins:
Cape Cod Canal 35
Local weather, radio 18
Major weather, radio 18
Bumkin Island (246) 304
Bunker Cove (304) 86
Bunker Harbor (305) 104
Bunker Ledge (305) 94, 104
Buoys 3, 10
Breeches 14
Caution regarding 11
Colors of lights for 11
Reflectors 12
Significance of light characteristics 11
Station 10
Bureau of Marine Inspection and Navigation, U. S. 330
Burial Islet (801) 66
Burnt Coat Harbor (308) 124
Directions (308) 124
Lighthouse (308) 124
Burnt Coat Island (315) 220
Burnt Cove (227) 141
Burnt Island, Booth Bay (314) 201
Burnt Island, East Penobscot Bay (309) 153
Burnt Island, Merchant Row (309) 143
Burnt Island, St. George River (312) 186
Burnt Island, Seal Harbor (312) 167
Burnt Island Ledge (312) 167
Bushy Islet (315) 221
Bustins Island (315) 227
Butter Island (309) 153
Byard Point (309) 138

C

Cadillac Mountain (306) 106
Calais (801) 71
Eastport to, Sailing directions (801) 76
Distances between ports, Cape Cod to 326
West Quoddy Head to (801) 64

Calderwood Island (235) 156
Caldwell Island (312) 187
Calf Island, Boston Harbor (246) 279
Calf Island, Frenchman Bay (306) 109
Calf Island Bar (306) 109
Calton Point (304) 87

Page

Cambridge (248) 282
Camden (321) 171
Harbor (321) 171
Harbor, Directions (321) 172
Saturday Cove to (310) 173
Yacht Club (321) 171
Camel Ground (314) 212
Camp Island (227) 143
Campobello Island
Currents, along eastern side of 73
Currents, northwestern side of 73
North of (801) 69
South of (801) 65
Canal Breakwater Light (251) 318
Canyons, Offshore, (1107) 39
Cape Ann (243) 258
Approaching Boston Harbor from (1207) 292
Bantam Rock Lighted Whistle Buoy to, Sailing directions (1106) 52
Boston Lightship to, Sailing directions (1207) 51
Cape Cod Canal to, Sailing directions (1207, 1208) 50
Cape Cod to, Sailing directions (1207) 51
Coming from the vicinity of 47
Entrance Broad Sound North Channel to, Sailing directions (1207) 51
Lighted Whistle Radiobeacon Buoy (1206) 261
Lighthouse (243) 261
Matinicus Rock direct to, Sailing directions (1106) 52
Merrimack River to (1206) 256
Plymouth Entrance and, General description of coast between 42
Portland Lightship to, Sailing directions (1205, 1206) 51
Portsmouth to, Sailing directions (1206) 51
Cape Carter (309) 138
Cape Cod
Approaching (1208) 316
Approaching Boston Harbor from (1207) 292
Between Portland and, General Remarks 49
Boston Lightship to, Sailing directions (1207) 50
Calais, Maine, to, Distances between ports 326
Cape Ann or, Coming from the vicinity of 47
Cape Ann to, Sailing directions (1207) 51
See Cape Cod Bay and Cape Cod Canal
Distances between ports 326

Page

Cape Cod—Continued.
Lifeboat stations, St. Croix River to 329
Lighthouse (580) 315
Portland and, Between 48
St. Croix River to 1
Wrecks on 44
Cape Cod Bay (1208) 307
Ice in (1208) 307
Shores, of General description 42
Cape Cod Canal (251) 318
Aids to navigation (251) 320
Authority of officers 321
Boston Lightship to, Sailing directions (1207, 1208) 50
Boston office 321
Bridges 319
Cape Ann to, Sailing directions (1207, 1208) 50
Clearance 322
Clearance signals 322
Coast Guard Station (251) 320
Communications 321
Currents 319
Deposit of refuse 324
Dimensions of Canal and approach channels (251) 319
Fish and game 324
General information 318
Information Bulletin 321
Limits (251) 321
Location (251) 318
Management of boats 323
Monthly Bulletin 35
Mooring basins (251) 319
Pilots 321
Radio telephone 321
Railroad bridge signals 322
Regulations 321
Small boat basin (251) 320
Speed 323
Statistics 324
Terminal facilities (251) 320
Tides 319
Tolls 321
Towage 321
Tows 322
Traffic lights (251) 320
Trespass upon Canal property 324
Two-way traffic 320
Vessels allowed passage 321
Weather signals 320
Cape Elizabeth
Lighthouse (315) 229
Muscongus Bay to (1204) 196
Penobscot Bay and, General description of coast between 42
Portsmouth and, General description of coast between 42
Portsmouth to (1205) 236

Page
Cape Harbor (314) 200
Cape Hatteras, Vessels coming from, Routes for 49
Cape Hedge (243) 261
Cape Island (314) 200
Cape Jellison (311) 177
Cape Neddick (228) 242
Harbor (228) 242
Harbor, Saco Bay to (1205) 239
Harbor, York River to (228) 242
Lighthouse (228) 242
Nubble (228) 242
Cape Newagen (314) 200
Cape Porpoise (1205) 240
Harbor (1205) 239
Harbor, Directions (1205) 240
Cape Rosier (309) 137
East Penobscot Bay to (309) 151
Cape Sable (1000) 39
Route coming from vicinity of 47
Cape Small (314) 212
Cow Island to, Sailing directions (315) 54
Fisherman Island Passage to, Sailing directions (314) 55
Harbor (315) 219
Cape Split Harbor (304) 90
Cape Wash (303) 80
Cape Wash Islands (303) 80
Capitol (post office) (314) 201
Capitol Island (314) 201
Captains Hill (245) 310
Captains of the Ports, U. S. Coast Guard 328
Card Ledge (314) 201
Carlisle Point (313) 198
Carlow Island (801) 68
Carrying Place Cove, Pleasant Bay (305) 102
Carryingplace Cove, Small Point Harbor (315) 220
Carryingplace Cove, West Quoddy Head (1201) 77
Carryingplace Head (315) 220
Carryingplace Island (304) 90
Carver Cove (235) 156
Carvers Harbor (310) 159
Carvers Harbor, Directions (310) 160
Casco Bay:
Directions (315) 228
Eastern part (315) 219
Western part (315) 225
Casco Island (801) 70
Casco Passage (227) 127
Bass Harbor Bar, Sailing directions to (227, 308) 60
Deer Island Thorofare, Sailing directions through (227, 308) 58
Merchant Row to, Sailing directions (308, 309) 59
Owls Head to, via Eggemoggin Reach, Sailing directions (227, 308–310) 59
York Narrows to (227) 127

Page
Cashes Ledge (1106) 40
Boston Lightship to, Sailing directions (70, 1000, 1106) 300
Castle, The (305) 101, 102
Castle Island (248) 282
Castine (311) 178
Castine Harbor, Directions (311) 178
Casualties to lightships 12
Cat Ledges (314) 206
Cat Island (240) 268
Channel (240) 266
Channel, Islands and rocks along (240) 267
Cathance River (1204) 215
Caution:
Approaching radiobeacons 13
In using small-scale charts 3
In using tide tables 4
Radio bearings from a ship 23
Regarding buoys 11
Cedar Island, Isles of Shoals (330) 250
Cedar Island, Laireys Narrows (310) 161
Cedar Island Ledge (330) 251
Cedar Ledges (315) 222
Cedar Point (232) 306
Cedargrove (Dresden Landing) (289) 216
Center Hill Point (1208) 312
Centre Harbor (309) 137
Chamberly Island (305) 94
Chandler Bay (304) 87
Englishman Bay and, Directions (304) 88
Nash Island to (304) 88
Chandler Cove (315) 228
Chandler River (304) 87
Channel (*See* name of place)
Channel depths, Reporting of changes in 1
Channel Rock, Blue Hill Bay (307) 130
Channel Rock, Eggemoggin Reach (309) 137
Channel Rock, Fox Islands Thorofare (235) 156
Channel Rock, Great Wass Island (304) 91, 92
Channel Rock, Merchant Row (309) 143
Channel Rock, Two Bush Channel (312) 166
Charity Ledge (315) 223
Charles River (248) 282
Charles River Dam (248) 283
Charlestown (248) 282
Charlestown Navy Yard (248) 282
Chart agencies, U. S. Coast and Geodetic Survey 325
Chart numbers:
70 37
225 147–149, 155
227 127, 140–143
228 242, 243

Page

Chart numbers—Continued.
229 — 249
230 — 202–205, 207–209, 214, 215
231 — 236–239
232 — 305, 306
233 — 257, 258, 261–264
235 — 156–159
240 — 265–276
242 — 304, 305
243 — 257–265
245 — 307–312
246 — 276–304
248 — 281–292
251 — 318–324
288 — 215
289 — 216–217
303 — 77–84
304 — 84–92
305 — 93–105
306 — 105–122
307 — 113, 114, 127–136
308 — 122–127, 134–136
309 — 127, 137–145, 151–156
310 — 156–165, 168–175
311 — 165, 166, 175–183
312 — 149–151, 166–168, 184–189
313 — 190–200
314 — 200–215
315 — 219–235
317 — 107, 108
318 — 114, 115
319 — 175–176
320 — 168–170
321 — 170–173
325 — 230–235
329 — 244–248
330 — 250, 251
331 — 252–256
339 — 313
580 — 314–316
581 — 313, 314
801 — 64–76
1000 — 37–46
H. O. 1057 — 78
1106 — 39, 78
1107 — 37–39
1201 — 77–100
1202 (see also 309) — 101–136
1203 (see also 309) — 146–189
1204 — 190–235
1205 — 236–243
1206 — 244–264
1207 — 265–306
1208 — 307–324
3075 — 39
3076 — 39

Charts — 2
Catalogs of — 26
Caution in using small-scale — 3
Champlain Canal — 36
Coast, General — 3
Correction by hand of — 3
Edition date of — 3

Page

Charts—Continued.
Erie Canal — 36
Fishing industry (3075, 3076) — 39
General — 3
Great Lakes — 36
Harbor — 3
Issue date of — 3
Lake Champlain — 36
Large scale — 7
Mississippi River — 36
Nautical — 3, 26
New York State canals — 36
Plane of reference for soundings on — 3
Print date of — 3
Radiobeacon — 9
Sailing — 3
Scales of — 3
Tidal current — 5, 26

Chatto Island (309) — 137
Chelsea (248) — 282
Chelsea Creek (248) — 284
Cherry Island Bar (240) — 276
Cherry Islet (801) — 70
Cherryfield (305) — 97
Chesapeake Bay, Vessels coming from — 49
Chimney Rock (231) — 236
Chittenden Rock (242) — 305
Chocolate Shoal (801) — 70
Chops (314) — 215
Christmas Cove (313) — 197
Chubb Islet (240) — 266
Clam Cove, West Penobscot Bay (320) — 170
Clam Cove, Western Passage (801) — 68
Clam Island (313) — 191
Clapboard Island (315) — 228
Clark Cove, Damariscotta River (313) — 198
Clark Cove, West of Muscle Ridge Channel (312) — 184
Clark Island, Duxbury Bay (245) — 308
Clark Island, West of Muscle Ridge Channel (312) — 184
Clark Ledge, Eastport (801) — 67
Clark Ledges, Prospect Harbor (305) — 104
Clark Point, Southwest Harbor (306) — 119
Clarke Point, Johns River (313) — 196
Cliff (Crotch) Island (315) — 226
Clough Point (314) — 209
Clous Ledge (230) — 208
Clubs (Yacht) — 331
Coast and Geodetic Survey, U. S — 1, 8, 325
Chart agencies — 325
Field Stations — 1, 285, 325
Planimetric maps — 327
Variation of compass table — 327

Page

Coast Guard, U. S. 9, 328
Air Station 328
Buoy depots 328
Captains of the Ports 328
District Commander 328
Lifeboat stations 329
Lifesaving stations 13, 329
Radio direction finder stations 328
Coast Pilots, U. S. 26, 35, 325
Cobscook Bay (801) 72
Cobscook Bay and tributaries, currents 74
Cocheco River (229) 249
Cod Ledges (317) 107
Codhead Ledge (304) 85
Cohasset Harbor (242) 304
Colbeth Rock (303) 82
Colby Ledge (227) 142
Colby Pup (227) 142
Coles Ledge (305) 93
Collection districts and ports of entry 15, 329
Collins Rock (225) 149
Colors of lights for buoys and beacons 11
Colt Ledge (309) 144
Columbia Falls (305) 94
Columbia Ledge (1202) 105
Commercial Point (246) 301
Commonwealth Pier (248) 282
Communications (*See* name of place)
Compass:
Change in variation of 29
Deviation 30
Error by use of navigational ranges, Determination of 3
Factors affecting use of the magnetic 29
Variation of the 327
Compass Island Ledge (310) 163
Conary Nub (307) 132
Concord Point (1206) 251
Condon Point (309) 139
Cone Island (304, 305) 92, 93
Coney Island (240) 268
Coney Ledge (240) 268
Conomo Point (243) 257
Conroys Cove (801) 67
Conversion of radio bearings to Mercator bearings 23
Conversion tables, Feet, fathoms and meters 338
Conversion tables, True to magnetic courses 335
Coombs Point (311) 166
Coot Island (227) 143
Corea (305) 104
Corea Harbor (305) 104
Corps of Engineers, U. S. Army 7, 327
Corsair Canyon (1107) 39
Courses and distances (*See* Directions)

Page

Courthouse Point, Abagadasset Point to, Kennebec River (288) 215
Courthouse Point to Augusta, Kennebec River (289) 216
Cousins Island (315) 227
Cousins River (315) 228
Cow and Calf Ledge (307) 131
Cow Island, Cape Small to, Sailing directions (315) 54
Cow Island, Portland to, Sailing directions (315, 325) 53
Cowyard (245) 308
Cox Head (314) 213
Cozy Harbor (314) 207
Crabtree Ledge (306) 111
Crabtree Point Ledge (235) 157
Cradle Cove (310) 164
Cranberry Harbor (306) 118
Cranberry Island Bar (306) 118
Cranberry Island Coast Guard Station (306) 118
Cranberry Isles (306) 118
Criehaven (225) 147
Crockett Cove, Deer Isle (227) 141
Crockett Cove, Vinalhaven Island (235) 158
Crockett Point (235) 158
Cromwell Cove (318) 114
Crosby Narrows to Bangor, Directions (311) 183
Crosby Narrows to Winterport, Directions (311) 183
Cross Island Narrows (303) 80
Cross Island Narrows to Machias River, Directions (303) 84
Cross Jack Ledge (1106) 78
Cross River (314) 209
Crotch (Cliff) Island (315) 226
Crotch Island (227) 140, 141
Crotch Island Ledge (315) 226
Crow Cove (310) 165
Crow Island, Blue Hill Bay (308) 123
Crow Island, Casco Bay (315) 226
Crow Island, Frenchman Bay (317) 108
Crow Island, Johns Bay (313) 196
Crow Island, off Great Cranberry Island (306) 118
Crow Point (246) 304
Crumple Island (304) 92
Cubby Hole (235) 157
Cuckolds, The (314) 200
Cuckolds Lighthouse, The (314) 200
Curlew Rock (304) 92
Cultivator Shoal (1107) 38
Cummings Cove (801) 68
Cummings Head (304) 92
Cundy Harbor (315) 221
Currant Island (305) 96
Current:
Charts, Tidal 5, 26
Tables 4, 26

Page

Current—Continued.
Velocity due to wind—North Atlantic coast, Table of 5
Currents (*see also* name of place 4
Bay of Fundy 41
Black Rock Channel, Boston (246) 288
Boston Harbor 287
Boston Lighthouse and Point Allerton, Between (246) 287
Boston Lightship 41
Broad Sound, Boston (246) 287
Campobello Island, Along eastern side of 73
Campobello Island, Along northwestern side of 73
Cobscook Bay and tributaries 74
Deer Island Light and Long Island Head Boston, Between (246) 287
Deer Point, Above 74
Gallups Island and Long Island Head, Boston (246) 288
Georges Bank, Over 40
Georges Bank and Brown Bank, Between 41
Georges Island and Gallups Island, Boston, Between (246) 288
Grand Manan Channel 41, 73
Gulf of Maine 40
Hypocrite Channel, Boston (246) 287
Lubec Narrows, Northward of 74

Page

Currents—Continued.
Lubec Narrows, Through 73
Main Ship Channel, Boston (246, 248) 287
Maine Coast, Alongshore 42
Moon Head and Long Island, Boston Harbor, Between (246) 288
Mount Desert, Eastward of 41
Mount Desert and Portland, Along the coast between 41
Nantasket Gut and Roads (246) 287
Nova Scotia, Off 41
Portland Lightship 41
Quoddy Roads, Approaching entrance to 73
St. Croix River 74
St. Croix River, Western passage of 74
St. Croix River and approaches 73
South Channel, Boston (246) 287
Stellwagen Bank, Over 42
Thompson Island and Spectacle Island, Boston, Between (246) 288
Wind 5
Curtis Island (321) 172
Curtis Island Light (321) 172
Cushing (312) 188
Cushing Island (325) 230
Customs (*see also* name of place) 15
Customs ports of entry, U. S. 329
Cutler (303) 79
Cutler Cove (312) 188

D

Damariscotta (313) 199
Damariscotta River (313) 196
Damariscotta River, Directions (313) 199
Damariscotta River Narrows (313) 198
Damariscove Island (314) 200
Dangers, Reporting of 1
Dangers in northern approach to Portsmouth (1205) 241
Dansbury Reef (231) 239
Danvers River (240) 270
Danversport (240) 270
Dark Harbor (310) 163
Darling Island and Ledge (307) 132
Davis Island, Georges Islands (312) 187
Davis Island, Johns Bay (313) 196
Davis Island, Sheepscot River (314) 211
Davis Straits (312) 187
Fisherman Island Passage to, Sailing directions (313) 55

Davis Straits—Continued.
Owls Head to, via Muscle Ridge Channel, Sailing directions (312) 56
Day beacons 12
Deadman Point (306) 118
Deep Cove, Moose Island (801) 66
Deep Cove, Port Clyde (312) 187
Deer Island, Boston (246) 280
Deer Island, Little Machais Bay (303) 79
Deer Island, Passamaquoddy Bay (801) 68
Deer Island Flats (246) 281
Deer Island Light and Long Island Head, Boston Currents between (246) 287
Deer Island Light to Bird Island Anchorage, Boston, Sailing directions (246) 295
Deer Island Light to Quincy (Weymouth Fore River), Sailing directions (246) 297

Page

Deer Island Lighthouse (246) 280
Boston Lightship to, via Broad Sound North Channel, Sailing directions (246, 1207) 294
Boston Lightship to, via Broad Sound South Channel, Sailing directions (246, 1207) 294
Boston Lightship to, via The Narrows, Sailing directions (246, 1207) 295
Deer Island Thorofare (227) 140
Casco Passage to, Sailing directions through (227, 308) 58
Entering from eastward, Directions (227) 141
Light (227) 141
Merchant Row and, Islands between (227) 142
Deer Island to Dorchester Bay, Sailing directions (246) 296
Deer Isle, Sedgwick Bridge (309) 138
Deer Isle Yacht Club (309) 152
Deer Point (801) 67
Deer Point, Currents above 74
Delaware Bay, New York Harbor to 35
Delaware Bay, Routes for 49
Dennys Bay (801) 72
Dennysville (801) 72
Derby Wharf (240) 269
Determination of compass error by the use of navigational ranges 3
Deviation of the Compass 30
Devils Back (246) 280
Devils Head, Eggemoggin Reach (309) 137
Devils Head, St. Croix River (801) 71
Devils Head Ledge (309) 137
Dexter Ledge (225) 148
Diamond Cove (325) 231
Diamond Island Ledge and Roads (325) 231
Diamond Rock (309) 154
Diamond Rock Ledge (309) 154
Dice Head Lighthouse (311) 178
Dictator Ledge (314) 201
Dillingham Ledge (321) 172
Dingley Island (315) 221
Direction finder stations, Radio 328
Direction of current due to wind 5
Directions, Sailing:
Annisquam River (233) 258
Bangor, Crosby Narrows to (311) 183
Bass Harbor Bar to Petit Manan via direct route, Table 5H (305, 306) 61
Bass Harbor Bar to Petit Manan via Western Way, Table 5H1 (305, 306) 61

Page

Directions, Sailing—Continued.
Belfast Bay and Passagassawakeag River (319) 176
Beverly, Salem, and Marblehead Harbors (240) 272
Beverly Harbor (240) 273
Blue Hill Bay (307, 308) 134
Boothbay Harbor (230) 203
Boothbay Harbor from eastward through Fisherman Island Passage (313, 314, 230) 203
Boothbay Harbor to Bath, Inside Passage (230) 205
Boston Lightship to Beverly Harbor, Table 16 (240, 1207) 299
Boston Lightship to Brazil Rock, Table 17 (70, 1000) 300
Boston Lightship to Cape Ann, Table 2 (1207) 51
Boston Lightship to Cape Cod Canal — South-bound, Table 1A (1207, 1208) 50
Boston Lightship to Cashes Ledge, Table 17 (70, 1000, 1106) 300
Boston Lightship to Deer Island Lighthouse via Broad Sound North Channel, Table 9 (246, 1207) 294
Boston Lightship to Deer Island Lighthouse via Broad Sound South Channel, Table 9A (246, 1207) 294
Boston Lightship to Deer Island Lighthouse via The Narrows, Table 9B (246, 1207) 295
Boston Lightship to Entrance Lynn Channel, Table 14 (240, 1207) 298
Boston Lightship to Frippennies Ledge, Table 17 (70, 1000, 1106) 300
Boston Lightship to Georges Shoal, Table 17 (70, 1000, 1107) 300
Boston Lightship to Platts Bank, Table 17 (70, 1000, 1106) 300
Boston Lightship to various fishing banks and points in Nova Scotia, Table 17 (70, 1000, 1106, 1107) 300
Boston Lightship to Yarmouth Harbor, Table 17 (70, 1000, 1106) 300
Broad Sound, entrance North Channel to entrance Lynn Channel, Table 14A (240, 1207) 298
Broad Sound, North Channel entrance to Cape Ann, Table 1E (1207) 51

Page

Directions, Sailing—Continued.
Bucksport, Fort Point to (311) 182
Bucksport to Winterport (311) 182
Burnt Coat Harbor (308) 124
Camden Harbor (321) 172
Cape Ann to Bantam Rock Lighted Whistle Buoy, Table 3D (1106) 52
Cape Ann to Matinicus Rock direct, Table 3C (1106) 52
Cape Ann to Portland Lightship, Table 3 (1205, 1206) 51
Cape Ann to Portsmouth, Table 3A (1206) 51
Cape Cod Canal to Plymouth 311
Cape Cod to Boston Lightship, Table 1B (1207) 50
Cape Cod to Cape Ann, Table 1D (1207) 51
Cape Cod Canal to Cape Ann, Table 1C (1207, 1208) 50
Cape Cod Canal to Boston Lightship — North-bound, Table 1 (1207, 1208) 50
Cape Porpoise Harbor (1205) 240
Cape Small to Fisherman Island Passage, Table 5B (314) 55
Carvers Harbor (310) 160
Carvers Harbor, from Rockland through Laireys Narrows and The Reach (310) 161
Casco Bay (315) 229
Casco Passage, through, to Bass Harbor Bar, Table 5G (227, 308) 60
Castine Harbor (311) 178
Cow Island to Cape Small, Table 5A (315) 54
Crosby Narrows, Winterport to (311) 183
Crosby Narrows to Bangor (311) 183
Cross Island Narrows (303) 80
Damariscotta River (313) 199
Davis Straits to Owls Head via Muscle Ridge Channel, Table 5D (312) 56
Deer Island Light to Bird Island Anchorage, Boston, Table 10 (246) 295
Deer Island Light to Quincy (Weymouth Fore River), Table 12 (246) 297
Deer Island Thorofare, Entering from eastward (227) 141
Deer Island Thorofare, Entering from westward (227) 141
Deer Island Thorofare, through, to Casco Passage, Table 5F (227, 308) 58

Page

Directions, Sailing—Continued.
Deer Island to Dorchester Bay, Table 11 (246) 296
Douglas Island Harbor (305) 96
Dyer Bay, entering from eastward (305) 102
Dyer Bay, entering from westward (305) 102
Dyer Island Narrows (305) 95
East Penobscot Bay (309) 154
Eastport to Calais, Table 8 (801) 76
Englishman and Chandler Bays (304) 88
Entrance Broad Sound North Channel to Cape Ann, Table 1E (1207) 51
Entrance Broad Sound North Channel to Entrance Lynn Channel, Table 14A (240, 1207) 298
Entrance Lynn Channel to Lynn, Table 15 (240) 299
Fisherman Island Passage, From eastward through (313, 314, 230) 203
Fisherman Island Passage to Davis Straits, Table 5C (313) 55
Fort Point to Bucksport (311) 182
Frenchman Bay (306) 116
Gilkey Harbor (310) 164
Gloucester Harbor (233) 264
Gouldsboro Bay (305) 103
Gouldsboro Bay, from eastward entering through Eastern Way (305) 103
Gouldsboro Bay from westward, entering through Eastern Way (305) 103
Harrington Bay (305) 99
Jericho Bay from southward (308) 126
Johns Bay (313) 196
Kennebec River 217
Little River (303) 79
Lynn Channel entrance to Lynn, Table 15 (240) 299
Machias Bay and River (303) 83
Mackerel Cove (308) 124
Marblehead, Beverly, and Salem Harbors (240) 272
Marblehead Harbor (240) 273
Merchant Row to Casco Passage, Table 5F1 (308, 309) 59
Merrimack River 255
Mistake Harbor (304) 91
Moosabec Reach to West Quoddy Head, Table 5J (303, 304, 1201) 63
Mt. Desert Narrows (307) 113
Mud Hole Channel (304) 91

Page

Directions, Sailing—Continued.
Muscongus Bay (313) 193
Muscongus Bay from westward (313) 194
Muscongus Bay to Medomak River (313) 194
Muscongus Sound from eastward (313) 194
Muscongus Sound from southward or westward (313) 194
Nantasket Roads to Quincy (Weymouth Fore River) via Nantasket Gut, Table 13 (246) 298
Narraguagus Bay (305) 99
New Meadows River (315) 221
North Haven Island, Passage north of (309) 153
Northwest Harbor (309) 153
Owls Head through Fox Islands Thorofare, Table 5E (235, 309, 310) 57
Owls Head to Casco Passage via Eggemoggin Reach, Table 5F2 (227, 308–310) 59
Passagasawakeag River and Belfast Bay (319) 176
Penobscot River (311) 182
Petit Manan through Moosabec Reach, Table 5I (304, 305) 62
Pigeon Hill Bay (305) 97
Pleasant Bay (305) 99
Plymouth, Cape Cod Canal to 311
Plymouth Harbor from Boston (1207, 1208) 311
Plymouth Harbor from Cape Ann (1207, 1208) 311
Port Clyde (312) 186
Portland Harbor 234
Portland Lightship to Bantam Rock Lighted Whistle Buoy, Table 3E (1204) 52
Portland Lightship to West Quoddy Head, Table 4 (1106, 1201) 53
Portland to Cow Island, Table 5 (315 or 325) 53
Portsmouth Harbor 248
Prospect Harbor, Entering from eastward (305) 105
Prospect Harbor, Entering from westward (305) 105
Portsmouth to Portland Lightship, Table 3B (1205) 52
Rockland Harbor (320) 170
Roque Island Harbor (304) 86
St. George River (312, 313) 188
Salem, Marblehead, and Beverly Harbors (240) 272
Salem Harbor (240) 272
Seal Harbor (312) 167

Page

Directions, Sailing—Continued.
Sheepscot River (314) 210
Southwest Harbor (306) 121
Southwest Harbor from eastward, northward of Sutton Island (306) 121
Southwest Harbor from westward through Western Way (306) 121
Stockton Harbor (311) 177
Sullivan Harbor and Taunton Bay (306) 111
Taunton Bay and Sullivan Harbor (306) 111
Thread of Life, To pass through (313) 196
Two Bush Channel 174
Union River (307) 134
Webber Cove (307) 133
Wellfleet Harbor (581) 314
West Penobscot Bay 173
West Quoddy Head to Eastport via Head Harbor Passage, Table 7 (801) 76
West Quoddy Head to Eastport, via Lubec Channel, Table 6 (801) 75
Winter Harbor (317) 108
Winterport, Bucksport to (311) 182
Winterport to Crosby Narrows (311) 183
Wood Island Harbor (231) 238
York Harbor (228) 243
York Narrows, Through (227) 127
Distances between ports 6, 325, 326
Distress, Ships in 22
Distress, Small craft in 22
Distress signals used by submarine and aircraft 31
Dix Island (312) 166, 167
Dix Island Harbor (312) 167
Dochet Island (801) 71
Dockage (*See* name of place.)
Dodge Point (320) 168
Dodge Point Ledge (320) 168
Dodge Rock (243) 259
Dog Island (801) 67
Dogfish Head (230) 207
Dogfish Island and Ledges (235) 158
Dogfish Rocks (303) 81
Dorchester Bay (246) 300
Dorchester Bay, Sailing directions, Deer Island to (246) 296
Double Shot Island (304) 85
Douglas Island Harbor (305) 96
Douglas Island Ledge (305) 96
Douglas Islands (305) 96
Dover (229) 249
Dover and Exeter, Portsmouth to (229) 249
Dram Island (306) 110
Dread Ledge (240) 274
Dredged Channels 2

Page

Dresden Landing (Cedargrove) (289) 216
Drinkwater Point (315) 228
Drisco Islands (304) 92
Drum Island (308) 122
Drums, The (308) 122
Drunkard Ledge, Fox Islands Thorofare (235) 158
Drunkard Ledge, Jericho Bay (308, 309) 125, 143
Drunkers Ledges (315) 223
Dry Breakers (240) 267
Dry Money Ledge (308) 123
Dry Salvages (243) 260
Drydocks and marine railways, List of 332
Duck Cove (307) 128
Duck Island (330) 250
Duck Rocks (312) 151
Duck Trap Harbor (310) 173
Dudley Island (801) 66
Dumpling Islands (235) 157
Dunham Point (309) 152
Dunham Point Ledge (309) 152
Durham (229) 249
Duxbury (245) 309
Bay (245) 308
Pier Lighthouse (245) 308
Plymouth, and Kingston Harbors (245) 307
Dyer Bay (305) 101
Entering from eastward, Directions (305) 102
Entering from westward, Directions (305) 102
Dyer Harbor (305) 101
Dyer Island (305) 93, 95
Dyer Island Narrows, Directions (305) 95
Dyer Neck (305) 103

E

Eagle (309) 153
Eagle Island, Blue Hill Bay (307) 130
Eagle Island, Casco Bay (315) 226
Eagle Island, East Penobscot Bay (309) 152, 153
Eagle Island, off Marblehead (240) 268
Eagle Island, Saco Bay (231) 237
Eagle Island Ledge (315) 226
Eagle Island Lighthouse (309) 153
East Barge (307) 131
East Blue Hill (307) 132
East Boothbay (313) 198
East Boston (248) 282
East Braintree (246) 303
East Branch, Kennebec River (314) 215
East Brown Cow (315) 219
East Bunker Ledge (306) 121
East Dennis (581) 314
East Machias (303) 79, 83
East Machias River (303) 83
East Mark Ledge (227) 141
East Penobscot Bay (309) 152, 154
Cape Rosier to (309) 151
Directions (309) 154
Jericho Bay to (309) 137
East Point (228) 243
East Quoddy Head (801) 69
East Rock (801) 69
East Shag Rock (242) 305
East Sullivan (306) 110
Eastern Bay, Frenchman Bay (306) 112
Eastern Bay off Great Wass Island (304) 91
Eastern Bay, Sullivan Harbor to (306) 112
Eastern Bay to Bar Harbor (306) 114
Eastern Black Ledge (225) 148
Eastern Channel, Cohasset (242) 305
Eastern Channel, Eastern River (311) 179
Eastern Duck Rock (312) 151
Eastern Ear (309) 144
Eastern Ear Ledge (309) 144
Eastern Egg Rock (313) 193
Eastern Head, Isle au Haut (309) 144
Eastern Head, Moose Cove (303) 78
Eastern Head Ledges (303) 78, 79
Eastern Island (305) 102
Eastern Knubble (303) 79
Eastern Ledge, Damariscotta River (313) 198
Eastern Ledge, Penobscot Bay (225) 147
Eastern Ledges (304) 87
Eastern Neck (246) 303
Eastern Point Harbor (306) 110
Eastern Point Lighthouse (233) 261
Eastern River (Eastern Channel) (311) 179
Eastern Way (Ship Channel) (305) 102
Eastport (801) 67
Calais to, Sailing directions (801) 76
Meteorological table 340
West Quoddy Head to, via Head Harbor Passage, Sailing directions (801) 76
West Quoddy Head to, via Lubec Channel, Sailing directions (801) 75
Ebenecook Harbor (230) 207
Egg Rock, Frenchman Bay (317) 107
Egg Rock, Jericho Bay (227) 127
Egg Rock, Nahant (240) 274
Egg Rock, off Great Wass Island (304) 92
Egg Rock, Penobscot Bay (310) 162

Page

Egg Rock, Pigeon Hill Bay (305) 97
Egg Rock Ledge, Penobscot Bay (310) 162
Egg Rock Light, Frenchman Bay (317) 107
Egg Rock Whistle Buoy, Frenchmay Bay (317) 107
Eggemoggin (309) 138
Eggemoggin Reach (309) 137
Eggemoggin Reach, Sailing directions, Owls Head to Casco Passage via (227, 308–10) 59
Ellingwood Rock (314) 212
Ellisville Harbor (1208) 312
Ellsworth (307) 134
Emerson Point (243) 261
Emery Cove (306) 113
Emery Islands (320) 168
Enchanted Island (227) 143
Englishman Bay (304) 84
Chandler Bay and (304) 84
Chandler Bay and Directions (304) 88
Moose Cove to (303) 78
Nash Island to (304) 84
Englishman River (304) 86
Enos Ledge (242) 305
Ensign Islands (310) 163
Essex (243) 257
Essex Bay and River (243) 257
Essex Bays, Ipswich and (243) 257
Ewe Island (309) 143
Ewin Narrows (315) 224
Exeter (229) 249
Exeter, Portsmouth to Dover and (229) 249
Exeter River (229) 249

F

Fairways 10
Farrel Island (227) 142, 156
Farnham Rock (245) 307
Federal Communications Commission 17
Ferry Beach (231) 237
Fessenden Ledge (304) 89
Fiddler Ledge (235) 158
Field Stations, U. S. Coast & Geodetic Survey 1, 285, 325
Fifield Point (227) 141
Fifth Rock (304) 87
Finns Ledge (246) 277
Fippennies Ledge (1106) 40
Fippennies Ledge, Boston Lightship to, Sailing directions (70, 1000, 1106) 300
First Cliff (232) 306
Fish and Wildlife Service, U. S. (Gloucester) (233) 262
Fish and Wildlife Service Office and Stations 330
Fish Point (313) 195
Fish Point Ledge (235) 157
Fish weirs 33
Fisherman Island, Booth Bay (314) 200
Fisherman Island, Muscle Ridge Channel (312) 166
Fisherman Island, off Great Wass Island (304) 92
Fisherman Island Passage, Booth Bay (314) 201
Fisherman Island Passage, Directions from eastward through (313, 314, 230) 203
Fisherman Island Passage, Muscle Ridge Channel (312) 168
Fisherman Island Passage, Sailing directions, Cape Small to (314) 55
Fisherman Island Passage to Davis Straits, Sailing directions (313) 55
Fishhawk Islet (314) 201
Fishing industry charts (3075, 3076) 39
Fishing Island (329) 245
Fishing Point (240) 274
Fishing Rock (1205) 241
Fishing Rocks (1205) 241
Fishing structures and appliances, Regulations for 33
Five Islands (314) 207
Five Islands Harbor (314) 207
Flag Island (315) 220
Flag Island, Upper (315) 225
Flag Island Ledge (315) 220
Flanders Bay (306) 109
Flat Bay (305) 95
Flat Ground (243) 260
Flat Island, East of Great Wass Island (304) 92
Flat Island, Penobscot Bay (310) 165
Fletcher Neck (231) 239
Flint Island (305) 93, 100
Flint Island Narrows (305) 93
Floating equipment (*See* name of place.)
Flye Island Ledge (307) 131
Flying Passage (313) 191
Flying Point (240) 268
Fog Island (309) 143
Fog Signals, Hours of operation of 334
Fogs (*see also* name of place) 33
Folly Cove (243) 259
Folly Ledge (310) 160
Folly Island, Blue Hill Bay (307) 129
Folly Island, off Cape Porpoise (1205) 240
Fore River (325) 231
Fore River, Bridges (325) 232
Forest City Landing (325) 231
Fort, The (313) 195
Fort Georges (325) 231

Page
Fort Independence (248) 282
Fort Island, Deer Island Thorofare (227) 141
Fort Island, Pleasant River (305) 94
Fort Knox (311) 180
Fort Pickering Lighthouse (240) 269
Fort Point, Damariscotta River (313) 198
Fort Point, Penobscot River (311) 179
Fort Point Channel (248) 282
Fort Point Cove (311) 179
Fort Point Ledge (311) 179
Fort Point Lighthouse (311) 179
Fort Point to Bucksport, Directions (311) 182
Fort Popham (314) 213
Fort Sewall (240) 269
Fort Winthrop (248) 282
Foss Ledges (1206) 251
Foster Channel (303) 81
Foster Cove (313) 196
Foster Ledges (225) 149
Foster Island, Machias Bay (303) 81
Foster Island, Narraguagus Bay (305) 94, 95
Foster Point (315) 220
Fourfoot Rock (230) 208
Fourth Cliff (1207) 306
Fox Point (246) 301
Fox Islands Thorofare (235) 156
Fox Islands Thorofare, Sailing directions, Owls Head through (235, 309, 310) 57
Foxhall Bridge (240) 276
Frankfort (311) 180
Frankfort Flats (311) 180
Franklin (306) 111
Franklin Island Lighthouse (313) 193
Freeman Rock (304) 91
Freeport River (315) 227
French Island (315) 227
Frenchboro (308) 123
Frenchman Bay, Directions (306) 116
Frenchman Bay, east side, Winter Harbor to Sullivan Harbor (306) 109
Frenchman Bay, General information (306) 106
Friar Bay and Head (801) 66
Friar Roads (Eastport Harbor) (801) 67, 69
Friendship (313) 190
Friendship Harbor and Island (313) 190
Frost Island (801) 68
Frost Ledge (801) 68
Fuller Rock (314) 212

G

Gales Ledge and Point (240) 265
Gallups Island (246) 280
Gallups Island and Georges Island, Boston, Currents between (246) 288
Gallups Island and Long Island Head, Boston, Currents between (246) 288
Gangway Ledge (314) 201
Gangway Passage (242) 305
Gannet Rock (1106) 78
Gannet Rock Light (1106) 78
Gap Head (243) 260
Garden Island (312) 166
Garden Island Ledge (312) 166
Gardiner (289) 216
Gardiner, South (289) 216
Garrison Island (313) 190
Gay Cove and Island (312) 187
General Edwards Bridge (240) 275
George Head Island (227) 142
George Island (315) 222
Georges Bank (1107) 38
Georges Bank and Brown Bank, Currents between 41
Georges Bank currents 40
Georges Harbor (312) 186
Georges Island, Boston Harbor (246) 280
Georges Island and Gallups Island, Boston, Currents between (246) 288
Georges Islands, Penobscot Bay (312) 186
Georges Islands, Muscle Ridge Channel to (312) 184
Georges Shoal (1107) 38
Georges Shoal, Boston Lightship to, Sailing directions (70, 1000, 1107) 300
Georgetown, West (314) 214
Georgetown Island (230) 205
German Bank (1106) 39
Gig Rock (312) 187
Gilbert Canyon (1107) 39
Gilbert Head (314) 213
Gilkey Harbor, Directions (310) 164
Gilpatrick Cove (306) 120
Gleason Cove (801) 68
Gloucester
Breakwater Light (233) 261
Coast Guard Station (233) 262
Harbor (233) 261
Harbor, Directions (233) 264
Harbor to Lynn Harbor (240) 265
Plymouth to (1207) 265
Portsmouth to (1206) 244

Page

Goat Island, Kennebec River (314) 214
Goat Island, Portsmouth (329) 245
Goat Island Lighthouse (1205) 240
Gong buoys 10
Googins Ledge (306) 112
Goose Cove (307) 128, 130
Goose Cove Rock (307) 128
Goose Island (310) 163
Goose Island, Lower and Upper (315) 226
Goose Nest (315) 226
Goose Nest Ledge (315) 226
Goose River (321) 171
Goose Rock, Casco Bay (315) 219
Goose Rock, Penobscot Bay (310) 163
Goose Rock Passage (230) 205
Goose Rocks Lighthouse (235) 158
Gooseberry Island, Merchant Row (227) 142
Gooseberry Island, off Swans Island (308) 125
Gooseberry Island Ledge, Casco Bay (315) 219
Gooseberry Island Ledge, off Swans Island (308) 125
Gooseberry Point (310) 165
Goosefair Bay (1205) 239
Gosport Harbor (330) 250
Gott Island (308) 122
Goudy Ledge (315) 220
Gouldsboro (305) 102
Gouldsboro Bay (305) 102
Directions (305) 103
From eastward, entering through Eastern Way (305) 103
From westward, entering through Eastern Way (305) 103
Gouldsboro Harbor (305) 103
Government services to the navigator 1
Governors Island (248) 282
Governors Island Channel (246) 281
Grampuses, The (242) 305
Grand Beach (231) 237
Grand Manan Bank (1106) 39
Grand Manan Channel (70, 1000, 1106, 1201) 39
Currents 41, 73
Off-lying dangers in southern approach (303) 77
Grand Manan Island (303) 77
Grape Island (246) 303
Grass Head (240) 274
Grass Ledge (309) 154
Graves, The, Boston (246) 279
Graves, The, Penobscot Bay (321) 171
Graves Lighted Whistle Radio Beacon Buoy, The (246) 279
Graves Lighthouse, The (246) 279
Grays Rock (240) 268

Page

Great Aquavitae Beacon (240) 269
Great Bar (304) 88
Great Bay (229) 249
Great Boars Head (1206) 251
Great Brewster (246) 277
Great Brewster Island and Spit (246) 279
Great Chebeag Island (315) 228
Great Cranberry Island (306) 118
Great Diamond Island (325) 231
Great Duck Island (308) 122
Great Duck Island Lighthouse (308) 122
Great Egg Rock (240) 265
Great Faun Bar (246) 280
Great Gott Island (308) 122
Great Haste (240) 267
Great Head, Little Machias Bay (303) 79
Great Head, Mount Desert Island (306) 116
Great (Lower) Hell Gate (230) 205
Great Lakes, Distances on 6
Great Mark Island (315) 224
Great Misery Island (240) 267
Great Moshier Island (315) 227
Great Neck (1206) 256
Great Pig Rocks (240) 268
Great South Channel (1107) 49
Great Spoon (309) 144
Great Spoon Ledge (309) 144
Great Spruce Head (310) 173
Great Spruce Head Island (309) 153
Great Spruce Ledges (304) 88
Great Wass Island (304) 92
Green Harbor (245) 307
Green Harbor River (245) 307
Green Island, Blue Hill Bay (307) 130
Green Island, Boston (246) 280
Green Island, Deer Island Thorofare (227) 143
Green Island, Eastern Bay (304) 91
Green Island, Englishman Bay (304) 85
Green Island, off Tabbott Narrows (304) 92
Green Island, off Vinalhaven Island (310) 159
Green Island, South of Swans Island (308) 125
Green Island Knob (310) 160
Green Island Ledge (304) 85
Green Island Passage (315) 226
Green Island Reef (315) 225
Green Island Seal Ledges (225) 149
Green Islands, Blue Hill Bay (308) 122
Green Islands, Sheepscot River (230) 208
Green Islet (801) 70
Green Ledge, Carvers Harbor (310) 160
Green Ledge, Deer Island Thorofare (227) 141

Page

Green Ledge, Jericho Bay (309) 139, 143
Green Ledge, off Penobscot Bay (225) 147
Green Ledge Light (309) 137
Green Point Shoal (312) 150
Green Rock (304) 92
Greening Island (306) 119
Greenland Cove (313) 193
Greenlaw Cove (309) 137
Greenleaf Ledge (314) 209
Griffin Ledge (312) 187
Griffith Head (314) 206
Griffith Head Ledge (314) 206
Grindel Point (310) 163
Grindel Point Light (310) 164
Grindstone Ledge, Blue Hill Bay (308) 122
Grindstone Ledge, Winter Harbor (317) 108
Grindstone Neck (317) 107
Groveland 253
Gulf of Maine
Currents 40
General description 37
Vessels approaching from southward 49
Gulf Waterway, The Lakes to 36
Gull Ledge (309) 153
Gull Rock, Friendship Harbor (313) 191
Gull Rock, Treat Island (801) 66
Gull Rock Ledge (312) 151
Gull Rocks (305) 97
Gun apparatus, Instructions for use of 13
Gunning Rocks (312) 185
Gurnet (315) 223
Gurnet, Gun Point Cove, The (315) 222
Gurnet Lighthouse (245) 308
Gurnet Point (245) 308
Gut, The (313) 196, 198

H

Haddock Island (313) 192
Haddock Island Kelp Ledge (313) 192, 194
Haddock Ledge, Duck Trap Harbor (310) 173
Haddock Ledge, Penobscot Bay (312) 150
Hadley Point (306) 113
Hadlock Cove (306) 118
Haley Cove (330) 250
Half Tide Rock (1106) 78
Halftide Ledge, Flanders Bay (306) 109
Halftide Ledge, off Trafton Island (305) 96, 100
Halftide Rock (231) 238
Halfway Rock, Casco Bay (315) 223
Halfway Rock, Marblehead (240) 266, 267
Halfway Rock, Penobscot Bay (309) 144
Halfway Rock Lighthouse (315) 223
Halibut Hole (317) 107
Halibut Rock (312) 166
Halibut Rocks (227) 142
Halifax Island (304) 85
Hall Bay (230) 205
Hall Point (306) 110
Hall Quarry (306) 119
Hallowell (289) 216
Hamilton Cove (1201) 77
Hampden (311) 181
Hampton Harbor (1206) 252
Hampton River (1206) 252
Hampton River bridge regulations 252
Hampton Shoal Ledge (1206) 252
Hancock (306) 112
Hancock Point (306) 111
Hand Correction of Charts 3
Handiron Ledge (317) 107
Hangman Islet (246) 301
Hanover (1207) 306
Harbor (*See* name of place.)
Harbor Cove (233) 262
Harbor Island, Buck Harbor (309) 139
Harbor Island, Burnt Coat Harbor (308) 123
Harbor Island, Casco Bay (315) 220
Harbor Island, Merchant Harbor (309) 143, 156
Harbor Island, Muscongus Bay (313) 194
Harbor Island, Naskeag Harbor (308, 309) 125, 137
Harbor Island Ledge (227) 142
Harbor Island Rock (313) 194
Harbor Ledge, Buck Harbor (309) 139
Harbor Ledge, Matinicus Harbor (225) 148
Harbor masters 32, 331
Harbor Regulations (*See* name of harbor.)
Harbor Rock (243) 260
Hardhead Island (309) 153
Harding Ledge, Nantasket (246) 278
Harding Ledge, Sheepscot River (230) 208
Hardwood Island, Blue Hill Bay (307) 129
Hardwood Island, Merchant Row (309) 143
Hardwood Island, Moosabec Reach (304) 89, 90, 92
Hardy Rocks (240) 267
Harpswell, South (315) 225
Harpswell Center (315) 226
Harpswell Harbor (315) 224
Harpswell Sound (315) 223
Harrasecket River (315) 227

Page
Harriman Cove (311) 180
Harrington (305) 95
Bay (305) 94
Bay, Directions (305) 99
River (305) 95
Harris Cove (801) 68
Hart Bar, Island, and Ledge (312) 185
Haskell Island (315) 225
Haskell Ledge (227) 141
Hat Island (308) 125
Hatchett Cove (313) 191
Havener Ledge (313) 191
Haverhill 253
Hawley Ledge (227) 127
Hay Island (313) 196
Hay Ledge (312) 185
Haycock Harbor (1201) 77
Haycock Rock (227) 141
Haynes Point (307) 114
Hbr de Loutre (801) 67
Head Harbor, Isle au Haut (309) 144
Head Harbor, North of Campobello Island (801) 69
Head Harbor, South of Moosabec Reach (304) 90
Head Harbor Island, North of Campobello Island (801) 69
Head Harbor Island, South of Moosabec Reach (304) 90
Head Harbor Light (801) 69
Head Harbor Passage (801) 69
Head Harbor Passage, Sailing directions, West Quoddy Head to Eastport, via (801) 76
Heal Cove (230) 205
Heal Eddy (314) 213
Health and quarantine 16
Health Service, U. S. Public 16, 330
Heart Island (309) 153
Hell Gate, Lower and Upper (230) 205
Hen Cove (315) 222
Hen Island Ledge (315) 221
Hen Islet (315) 221
Hendricks Harbor (314) 207
Hendricks Head Lighthouse Tower (abandoned) (314) 207
Herman Harbor (314) 206
Heron Island, Damariscotta River (313) 197
Heron Island, Frenchman Bay (317) 107
Heron Island, off Blue Hill Bay (308) 125
Heron Neck Ledge (310) 161
Heron Neck Light (310) 159
Hewell Island (312) 167
Hewes Ledge and Point (310) 165
Herrick Bay (307) 131
Herriman Point (307) 131
Herring Bay (801) 69
Herring Cove (580) 316
Herring Gut (Port Clyde) (312) 185
Herring Ledge (225) 149
Herring River (1207) 306
Hickey Island (304) 85
Higgins Beach (231) 237
High Clam Ledge (312) 166
High Island, Johns River (313) 196
High Island, Muscle Ridge Channel (312) 166
High Pine Ledge (245) 307
Hills Point (801) 71
Hilton Point (314) 209
Hingham Bay (246) 302
Hingham Harbor (246) 304
Hockomock Bay (230) 205
Hockomock Channel (313) 191
Hodgdon Island and Ledge (314) 209
Hodgkin Cove (233) 258
Hog Island, Eggemoggin Reach, Eastern end (309) 137
Hog Island, Eggemoggin Reach, Western end (309) 139
Hog Island, Hingham Bay (246) 303
Hog Island, Machias Bay (303) 82
Hog Island, Muscongus Sound (313) 192
Hog Island, West Penobscot Bay (310) 165
Hogshead, The (225) 148
Holbrook Ledge (314) 201
Holly Cove (303) 80
Holmes Bay (303) 82
Holmes Cove (303) 79
Hooper Island (312) 187
Hooper Point (312) 189
Hooper Shoal (312) 150
Hope Island (315) 226
Horse Island (315) 225
Horseman Ledge (309) 144
Horseshoe Cove (309) 139
Horseshoe Ledge (308) 122
Hospital Islet (801) 69
Hospital Point (240) 274
Hospitals, Marine 330
Houghs Neck (246) 302
Hours of operation of fog signals 334
House Cove (303) 79
House Island, Manchester (240) 265
House Island, Portland (325) 231
Howard Bay (303) 82
Howard Ledges (309) 139
Howard Point (312) 189
Hughes Beach (303) 79
Hull (246) 302
Hulls Cove (306) 114
Humarock (1207) 306
Hungry Island (313) 194
Hunting Island (314) 201
Hurricane Ledge (312) 166
Hurricane Sound (310) 160
Hurricanes, West Indies 18
Hydrographer Canyon (1107) 39
Hydrographic office, U. S. 6, 8, 327
Hypocrite Channel (246) 278
Hypocrite Channel currents, Boston (246) 287
Hypocrites, The (314) 200

I

	Page
Ice (*see also* name of place)	34, 36
Ice reports, Radio	20
Immigration and Naturalization offices, U. S	330
Important	*facing* 1
Independence Island (314)	201
Indian Cove (303)	82
Indian Creek (310)	159
Indian Island, North of Campobello Island (801)	70
Indian Island, Penobscot Bay (321)	171
Indian Ledge (225)	148
Indian Point, Blue Hill Bay (307)	130
Indian Point, Penobscot River (311)	183
Indian River (304)	89
Information, Local general	32
Information, Radiotelephonic weather	19
Information Bulletin, Cape Cod Canal	321
Inland waterways	35
Inner and Middle Breakers (240)	267
Inner Bay Ledges (235)	158
Inner Breaker (225)	147
Inner Dawes Ledge (308)	122
Inner Green Island (315)	225
Inner Harbor, Gloucester (233)	262
Inner Harbor, Prospect Harbor (305)	104
Inner Heron Island (313)	197
Inner Heron Island Ledge (313)	197
Inner Ledge, Camden (321)	172
Inner Ledge, Isle au Haut Thorofare (309)	145
Inner Shag Ledge (312)	187
Inside Route Pilot	35
Inspectors, Radio	17
Inspectors, Supervising and Local, Offices of	15, 330
Instructions to mariners in case of shipwreck	13
International Boundary marks	64
Intracoastal Waterways	85
Ipswich (1206)	256
Ipswich and Essex Bays (243)	257
Ipswich River (1206)	256
Iron Bound Island (306)	109
Island End River (248)	283
Isle au Haut and off-lying dangers (309)	144
Isle au Haut Bay (309)	151
Isle au Haut Thorofare (309)	144
Isle au Haut Village (309)	145
Isle of Springs (230)	205
Isles of Shoals (330)	250
Approaching and passing (330)	251
Isles of Shoals Lighthouse (330)	251
Islesboro Harbor (310)	165
Islesboro (Long Island) (310)	163
Islesboro (Long Island), North end (311)	165
Islesford (306)	118
Issue date of charts	3

J

Jack Rock (314)	213
Jackson Ledge (305)	98
Jameson Point (313)	190
Jamestown Point (320)	169
Jamison Ledge (315)	220
Jaquish Gut (315)	223
Jaquish Island (315)	223
Jed Islands (307)	132
Jeffreys Ledge (1106)	40
Jenks Ledge (312)	187
Jenny Island (315)	222
Jenny Ledge (315)	222
Jericho Bay (308)	125
Directions from southward (308)	126
East Penobscot Bay (309)	137
Petit Manan to (1202)	101
Jerry Ledge (305)	95
Jewell Island (315)	226
Jewett Cove (230)	209
Jims Head (1201)	77
Jo Leighton Ground (305)	98
Job Island (310)	163
Joe Beach Ledge (240)	275
John Island, Bartlett Narrows (307)	129
John Island, Merchant Row (227)	143, 156
John Island, off Swans Island (308)	123
John Island Dry Ledge (308)	123
John Island Sunken Ledge (308)	123
Johns Bay (313)	195
Johns Bay, Directions (313)	196
Johns Island, Casco Passage (227)	127
Johns Island, Johns Bay (313)	195
Johns River (313)	196
Johnson Bay (801)	66
Johnson Cove (801)	68
Johnson Rock (315)	225
Jones Garden Island (313)	193
Jones River (245)	309
Jonesboro (304)	87
Jonesport (304)	89
Jordan Island (306)	109
Jordan Island Bar (306)	109
Jordan River (307)	113

Page

Jordans Delight (305) 96
Jordans Delight Ledge (305) 95
Joy Bay and Cove (305) 103
Jumper Ledge (304) 85
Juniper Point (240) 274
Junk of Pork, Casco Bay (315) 225
Junk of Pork, Flanders Bay (306) 110
Junken Ledge (225) 149

K

Keene (Lower) Narrows (313) 193
Kelley Point (304) 89
Kelp Ledge, Damariscotta River (313) 198
Kelp Ledges, Port Clyde (312) 187
Kendall Head (801) 68
Kenduskeag River (311) 181
Kennebec River (314) 211
- Abagadasset Point to Bath (314, 1204) 215
- Abagadasset Point to Courthouse Point (288) 215
- Anchorages 216
- Augusta to Courthouse Point (289) 216
- Bath to (314) 211
- Bath to Abagadasset Point (314, 1204) 215
- Bridges at Bath 218
- Coast Guard Station (314) 213
- Courthouse Point to Abagadasset Point (288) 215
- Courthouse Point to Augusta (289) 216
- Currents 217
- Directions 217
- East Branch 215

Kennebec River—Continued.
- Freshets 216
- Ice 217
- Islands and rocks off the entrance (314) 212
- Tides 217
- West Branch 215

Kennebunk Beach (1205) 241
Kennebunk River (1205) 240
Kennebunkport (1205) 240
Kent Cove and Ledge (235) 157
Kettle Island (243) 265
Kidder Point (311) 177
Kimball Island and Rock (309) 144
Kingston (245) 309
Kingston, Duxbury, and Plymouth Harbors (245) 307
Kingston Bay (245) 309
Kittery (329) 245
Kittery Point (329) 245
Kittery to Portsmouth bridges (329) 245
Knight Island (304) 91
Knowles Rocks (313) 195
Knubble Bay (230) 205
Kollegewidgwok Yacht Club (307) 133

L

Ladle, The (305) 93, 99
Laireys Island (310) 161
Laireys Narrows (235) 159
Lakeman Harbor (304) 86
Lakes to Gulf Waterway 36
Lamoine Beach (306) 113
Lamp Islet (307) 130
Lamprey River (229) 249
Landfalls 42
Lane Island (310) 159
Lanes Cove (243) 258
Lanesville (243) 258
Large Green Island (225) 149
Large scale charts 7
Larrabee (303) 82
Larrabee Cove (303) 82
Lasell Island (310) 163
Latty Cove (307) 128
Lawrence Cove (311) 180
Lazygut Ledge (227) 141
Leadbetter Island (235) 159
Leadbetter Narrows (235) 158
Ledge, The (801) 71
Letite Passage (801) 71
Lewis Rock (306) 121
Libby Islands (303) 81
Libby Islands Lighthouse (303) 81
Liberty Point (801) 65, 71
Liberty Point Ledge (801) 65
Life car, Rescue with 14
Lifeboat or surfboat, Rescue with 13
Lifeboat Stations, St. Croix River to Cape Cod 329
Lifesaving stations, Massachusetts Humane Society 32
Lifesaving stations, U. S. Coast Guard 13, 329
Light characteristics, Significance of 11
Light lists 9, 27
Lighterage (*See* name of place.)
Lighthouse Tenders 12
Lights for buoys and beacons, Colors of 11
Lightships 12
Lime Island (310) 163
Lincolnville (310) 173
Linekin Bay (314) 201
Linekin Bay, Booth Bay and (314) 200
Linekin Neck (314) 201

Page
Lines Island (314) 215
Little Bangs Island (315) 226
Little Bay (229) 249
Little Birch Island (315) 225
Little Black Island (308) 122
Little Black Ledge (305) 104
Little Boars Head (1206) 251
Little Bustins Island (315) 227
Little Calf Island (306) 109
Little Camp Island (227) 142
Little Chebeag Island (315) 228
Little Cranberry Island (306) 118
Little Diamond Island (325) 231
Little Dochet Island (801) 71
Little Duck Island (308) 122
Little Faun Bar (246) 280
Little Gott Island (308) 122
Little Green Island (312) 149
Little Harbor (329) 245
Little Haste (240) 267
Little Holly Cove (303) 80
Little Island (313) 192
Little Kennebec Bay (304) 85
Little Ledge (305) 102
Little Machias Bay (303) 79
Little Mark Island (315) 224
Little Mystic River (South Channel) (248) 283
Little Nahant (240) 274
Little Nahant Beach (240) 274
Little Neck (1206) 256
Little Pig Rocks (240) 268
Little River, Damariscotta River (313) 197
Little River, West Quoddy Head (303) 79
Directions (303) 79
Island (303) 79
Ledge (Eastern Head) (303) 79
Lighthouse (303) 79
Little River Rock (231) 237
Little Sail Rock (801) 64
Little Salvages (243) 261
Little Sheepscot River (230) 205
Little Spoon (309) 144
Little Spruce Ledge (304) 88
Little Thorofare (235) 156
Little Whaleboat Island (315) 226
Little Wood Island (315) 219
Littlejohn Island (315) 227
Littles Point (Phillips Point) (240) 274
Lobster pots 33
Lobster Rock, Beverly Harbor (240) 271
Lobster Rock, Cape Porpoise (1205) 240
Local general information 32
Local Inspectors, Marine Inspection and Navigation 16, 330
Local magnetic disturbance 30
Local services 32
Local weather bulletins, radio 18

Page
Locust Island (313) 191
Londoner, The (243) 261
Long and Swans Islands, Passage between (308) 123
Long Cove, Damariscotta River (313) 198
Long Cove, Searsport (311) 177
Long Cove, Sheepscot River (230) 209
Long Cove, Tenants Harbor (312) 184
Long Cove Ledge (311) 177
Long Island, Blue Hill Bay (307) 131
Long Island, Boston, Currents between Moon Head and (246) 288
Long Island, Boston Harbor (246) 280
Long Island, Casco Bay (315) 228
Long Island, Islesboro (310) 163
Long Island, Islesboro, North end (311) 165
Long Island, off Blue Hill Bay (308) 123
Long Island Head, Boston, Currents between Deer Island Light and (246) 287
Long Island Head, Boston, Currents between Gallups Island and (246) 288
Long Island Head Lighthouse (246) 280
Long Island Hub (307) 131
Long Island Ledge (311) 166
Long Ledge, Casco Bay (315) 220
Long Ledge, Casco Passage (227) 127
Long Ledge, Deer Island Thorofare (227) 141
Long Ledge, Flanders Bay (306) 110
Long Ledge, Little Machias Bay (303) 80
Long Ledge, off Grand Manan Island (1106) 78
Long Ledge, Seal Harbor (312) 167
Long Ledge, Western Way (306) 118
Long Point (306) 118
Long Point Cove (303) 79
Long Point Lighthouse (580) 315
Lookout (309) 145
Lookout Point (1208) 312
Lopaus Point (307) 129
Lord Rock (307) 134
Lovell Island (246) 280
Lowell Cove (315) 223
Lowell Ledge (320) 169
Lowell Rock (321) 171
Lower Basket Ledge (315) 228
Lower Gangway Ledge (312) 167
Lower Goose Island (315) 226
Lower (Great) Hell Gate (230) 205
Lower (Keene) Narrows (313) 193
Lower Mark Island (314) 206

Page

Lubec (801) 65
Channel (801) 65
Channel, West Quoddy Head to Eastport, via, Sailing directions (801) 75
Lighthouse (801) 65
Narrows (801) 65
Narrows, Currents northward of 74
Narrows, Currents through 73
Luce Cove (311) 183
Lunging Island (330) 250
Lunt Harbor (308) 123
Lurcher Shoal (1106) 39
Lydonia Canyon (1107) 39

Lynn
Beach (240) 274
Channel entrance to Boston Lightship, Sailing directions (240, 1207) 298
Channel entrance to entrance Broad Sound North Channel, Sailing directions (240, 1207)) 298
Channel entrance to, Sailing directions (240) 299
Harbor (240) 275
Harbor, Gloucester Harbor to (240) 265
Harbor, Western channel of (240) 275

M

Machias (303) 83
Bay (303) 79
Bay and River (303) 80
Bay and River, Directions (303) 83
River (303) 82
River from Avery Rock to Machiasport (303) 84
Seal Island (303) 77
Seal Island Light (303) 77
Machiasport (303) 83
Mack Point (311) 176
Mackerel Cove, Bailey Island (315) 224
Mackerel Cove, Swans Island (308) 123
Mackerel Cove, Swans Island, Directions (308) 124
Mackerel Ledge (225) 148
Mackerel Rock (305) 96
MacMahan (230) 205
Macmaster Island (801) 71
Magnetic compass, Factors affecting use of the 29
Magnetic Courses, Conversion Tables, True to 335
Magnetic disturbance, Local 30
Magnolia (243) 265
Magnolia Harbor (243) 265
Mahoney Island and Ledge (307) 130
Main Ship Channel, Beverly (240) 266
Main Ship Channel, Islands and rocks along (240) 267
Main Ship Channel currents, Boston, (246, 8) 287
Maine Coast, Routes and directions eastward of Portland 47
Major weather bulletins 18
Malaga Island (315) 220
Malcolm Ledge (225) 147
Malden River (248) 284
Man Island (304) 90
Man-of-War Head (801) 67
Manana Island (312) 150
Manchester (240) 265
Manchester Harbor (240) 265
Manchester Point (306) 119
Mann Rock (240) 269
Manomet Hill (245) 310
Manomet Point (1208) 312
Manset (306) 119
Maple Juice Cove (312) 187
Maps, Planimetric 6, 327
Maquoit Bay (315) 227
Maraspin Creek (339) 313
Marblehead (240) 269
Beach (240) 268
Beverly, and Salem Harbors (240) 266
Beverly, and Salem Harbors, Directions (240) 272
Channel (240) 267
Channel, Islands and rocks along (240) 268
Harbor (240) 268
Harbor, Directions (240) 273
Island (312) 166
Lighthouse (240) 268
Neck (240) 269
Rock (240) 268
to Boston Harbor (240) 274
Margie Rock (801) 67
Marine Hospitals 330
Marine Inspection and Navigation 15
Marine Inspection and Navigation Offices, U. S. Bureau of 330
Marine Laboratory, University of Maine (306) 113
Marine Laboratory, University of New Hampshire (330) 250
Marine Railways and Drydocks, List of 332
Mariner (post office) (315) 228
Mariners, Instructions in case of shipwreck 13
Mariners, Notice to 9, 27
Mark Island, Casco Bay (315) 219
Mark Island, Deer Island Thorofare (227) 141

Page

Mark Island, Lower, Sheepscot River (314) 206
Mark Island, Moosabec Reach (304) 88
Mark Island, West Penobscot Bay (310) 163
Mark Island, Winter Harbor (317) 107
Mark Island Ledge, Casco Bay (315) 219
Mark Island Ledge, Sheepscot River (230) 208
Marsh Cove (225) 147
Marsh Harbor and Island (313) 193
Marsh River (311) 180
Marshall Island and Ledge (308) 125
Marshall Point (311) 165
Marshall Point Lighthouse (312) 185
Martin Point (313) 191
Martinsville (312) 185
Marvin Island (329) 245
Mary Ann Rocks (1208) 312
Mason Bay (304) 87
Massachusetts Bay from the sea, Approaching 48
Massachusetts Humane Society lifesaving stations 32
Matinicus (225) 148
Matinicus Harbor (225) 148
Matinicus Island (225) 147
Matinicus Island lighted bell buoy (225) 148
Matinicus Rock (225) 147
Matinicus Rock direct, Sailing directions, Cape Ann to (1106) 52
Matinicus Rock Lighthouse (225) 147
Mayo Beach (581) 314
McFarland Island (230) 202
McFarlands Cove (313) 196
McFarlands Ledges (313) 196
McGee Island (312) 187
McGlathery (227) 142
McHeard Cove (307) 132
McIntosh Ledge (310) 163
McKinley (307) 128
Meadow Point (306) 113
Measured mile course between Thompson and Spectacle Island (246) 281
Medical advice by radio 22
Medomak (313) 191
Medomak River (313) 191
Medomak River, Muscongus Bay to (313) 194
Meduncook River (313) 190
Mercator bearings, Conversion of radio to 23
Merchant Island (309) 143
Merchant Row (309) 143
Merchant Row, Islands between Deer Island Thorofare and (227) 142
Merchant Row to Casco Passage, Sailing directions (308, 309) 59
Mere Point (315) 227
Mere Point Bay and Neck (315) 227
Mericoneag Sound (315) 223
Merrill Ledge (314) 209
Merrimack River (331) 252
Bridges 253
Cape Ann to (1206) 256
Directions 255
Newburyport Harbor and (331) 252
Merrimacport 253
Merriman Ledge (309) 139
Merrymeeting Bay (314, 1204) 215
Meteorological tables:
Boston, Mass 342
Eastport, Maine 340
Nantucket, Mass 343
Portland, Maine 341
Metinic Green Island (312) 150
Metinic Island (312) 150
Metinic Island Ledge (312) 150
Middle and Inner Breakers (240) 267
Middle Bay (315) 226
Middle Brewster Island (246) 279
Middle Ground (801) 65
Middle Ground Rock (315) 222
Middle Ledge, Schoodic Harbor (306) 105
Middle Ledge, Sheepscot River (230) 208
Middle Mark Island (230) 208
Middle Rock (309) 153
Middle Shoal (303) 78
Mile Ledge (314) 212
Miles Channel (245) 309
Milk Island (243) 261
Mill Cove, Campobello Island (801) 69
Mill Cove, St. Croix River (801) 71
Mill Cove, Union River (307) 134
Mill River, Annisquam River (233) 258
Mill River, Harrington River (305) 95
Millbridge (305) 97
Millet Island (227) 143
Mingo Beach (240) 273
Mingo Rock (330) 250
Ministerial Island (315) 226
Mink Island, Blue Hill Bay (307) 132
Mink Island, Cross Narrows (303) 78
Mink Island, Pleasant Bay (305) 94
Minot Islands and Ledge (310) 164
Minots Ledge Lighthouse (242) 305
Minturn (308) 124
Miscellaneous navigational publications 28
Mississippi River charts 36
Mistake Harbor, Directions (304) 91
Mistake Island (304) 91
Mitchell Cove (307) 128
Mitchell Point (305) 97
Mitchell Rock (243) 259

Page

Money Cove (Schooner Brook Cove) (303) 79
Monhegan (312) 151
Monhegan Harbor (312) 151
Monhegan Island (312) 150
Monhegan Island Lighthouse (312) 150
Monroe Island (320) 168
Monthly bulletins, Cape Cod Canal 35
Montsweag Bay, Sheepscot River (230, 314) 205, 209
Moon Head (246) 302
Moon Head and Long Island, Boston, Currents between (246) 288
Moon Ledge black buoy (306) 112
Moore Harbor (309) 144
Moore Point (315) 227
Moosabec Reach (304) 88
Islands and channels south of (304) 90
Petit Manan through (304, 305) 62
to West Quoddy Head, Sailing directions (303, 304, 1201) 63
Moose Cove (303) 77, 78
Moose Cove, West Quoddy Head to (1201) 77
Moose Cove to Englishman Bay (303) 78
Moose Island, Blue Hill Bay (307) 129
Moose Island, Deer Island Thorofare (227) 140
Moose Island, Eastport (801) 66, 68
Moose Peak Lighthouse (304) 91
Moose River (303) 78
Morgan Bay (307) 132
Morse River (314) 212
Morton Ledge (1201) 77
Moser Ledge (313) 192
Mosquito Harbor, Head, and Island (312) 185
Motions, The (314) 200
Moulton Ledge (305) 101
Mount Agamenticus (1205) 241
Mount Battie (321) 172
Mount Desert, Currents eastward of 41
Mount Desert and Portland, Currents along the coast between 41
Mount Desert Island (306) 106
Mount Desert Lighthouse (1202) 105
Mount Desert Narrows (307) 113
Mount Desert Post Office (Somesville) (306) 119
Mount Desert Rock (1202) 105
Mount Megunticook (310) 173
Mountain Head (303) 82
Mountainville (309) 137
Mouse Island, Booth Bay (314) 201
Mouse Island, Penobscot Bay (310) 163
Mud Hole (304) 91
Mud Hole Channel, Directions (304) 91
Murphy Ledge (313) 190
Murr Ledges (1106) 78
Murray Hill (314) 201
Murray Rock (1205) 242
Muscle Ridge Channel (312) 167
Muscle Ridge Channel, Sailing directions, Davis Straits to Owls Head via (312) 56
Muscle Ridge Channel, Two Bush Channel and (312) 166
Muscle Ridge Channel to Georges Islands, Coast from (312) 184
Muscongus Bay (313) 190
Cape Elizabeth to (1204) 190
Directions (313) 193
Directions from westward (313) 194
Medomak River to, Directions (313) 194
West side (313) 192
Muscongus Harbor (313) 193
Muscongus Island (313) 192
Muscongus Sound (313) 192
From eastward, Directions (313) 194
From southward or westward, Directions (313) 194
Mystic River (248) 283

N

Nahant (240) 274
Nahant Bay (240) 274
Nahant Harbor (240) 275
Nantasket Beach (246) 304
Nantasket Gut (246) 302
Nantasket Gut, Sailing directions, Nantasket Roads to Quincy (Weymouth Fore River) via (246) 298
Nantasket Gut currents (246) 287
Nantasket Hill (246) 277, 303
Nantasket Roads (246) 280
Nantasket Roads, Currents (246) 287
Nantasket Roads to Quincy (Weymouth Fore River) via Nantasket Gut, Sailing directions (246) 298
Nantucket meteorological table 343
Nantucket shoals (1107) 37
Nantucket Shoals Lightship (1107) 37
Narraguagus Bay (305) 93, 95
Narraguagus Bay, Anchorages (305) 98
Narraguagus Bay, Directions (305) 99
Narraguagus Lighthouse Tower (305) 96

Page

Narraguagus River (305) 97
Narrows, Boston Lightship to Deer Island Lighthouse, Sailing directions (246, 1207) 295
Narrows, Damariscotta River (313) 198
Narrows, The (246) 278
Narrows Island Ledge (305) 93
Narrows Lighthouse (246) 279
Nash Island (305) 93
  Chandler Bay to (304) 88
  Englishman Bay to (304) 84
  Lighthouse (304) 88, 93
  Petit Manan to (305) 93
Naskeag (309) 137
Naskeag Harbor (309) 137
Naskeag Point (307) 131
Naturalization offices, U. S. Immigration and 330
Nautical charts 3, 26
Naval Trial Course, Monroe Island (320) 168
Naval Trial Courses (Provincetown) (580) 315
Navigable waters, Protection of 29
Navigation, Aids to (*see also* name of place) 9
Navigation:
  Defects in aids to 12
  Marine Inspection and 15, 330
  Suggestions as to aids to 12
Navigational ranges, Determination of compass error by the use of 3
Navigational publications 25
Navigational warnings, radiotelegraphic 21
Navigator, Government services to the 1
Navy Island (801) 71
Navy Yard, Charlestown, U. S. (248) 282
Navy Yard, Portsmouth, U. S. (329) 245
Neck, The (312) 167
Ned Island (317) 107
Negro Island, Linekin Bay (314) 201
Negro Island, Saco Bay (231) 238
Negro Ledge (231) 238
Neponset River (246) 301
New Harbor (313) 192
New Harbor Dry Ledges (313) 192
New Harbor Sunken Ledges (313) 198
New Inlet (1207) 306
New Meadows 221
New Meadows River (315) 220
New Meadows River, Directions (315) 221
New York, Vessels coming from, Routes for 49
New York Harbor, Boston to 35
New York Harbor to Delaware Bay 35
New York State Canal System 35

Page

Newagen (314) 200
Newbury Old Town (1206) 256
Newburyport (331) 253
  Coast from Portsmouth (1206) 251
  Harbor, Merrimack River and (331) 252
  Harbor Lighthouse (331) 253
Newcastle, Maine (313) 199
Newcastle, N. H. (329) 245
Newcastle Island (329) 245
Newcomb Point (303) 83
Newmarket (229) 249
Newport Cove and Ledge (306) 116
Nightcap Island (305) 93, 94, 99
Nightcap Ledge (305) 94
Nixes Mate (246) 280
No Mans Island (227) 142
No Mans Land (225) 147, 148
Nobscusset Point (339) 313
Normans Woe (233) 262
Normans Woe Rock (233) 262
North and South Gooseberry Islets (240) 267
North Blacksnake (315) 220
North Brooksville (311) 178
North Castine (311) 178
North Channel, Broad Sound (246) 277
North Cutler (303) 80
North Dennis (339) 313
North Deer Isle (309) 138
North Hancock (306) 112
North Haven (235) 157
North Haven Island, Directions passage north of (309) 153
North Haven Island, North coast (310) 162
North Islesboro (310) 165
North Jenny Ledge (315) 222
North Ledge (315) 222
North Pier (331) 255
North Plymouth (245) 310
North Popplestone Ledge (309) 143
North River, Beverly Harbor (240) 270
North River, Fourth Cliff (1207) 306
North Rock, North of Campobello Island (801) 69
North Rock, off Machias Seal Island (303) 77
North Shoal (303) 78
North Sugarloaf (314) 213
North Truro (580) 315
Northeast Grave (246) 279
Northeast Harbor (306) 120
Northeast Ledges (321) 172
Northeast Passage (321) 172
Northeast Point (321) 172
Northeast Point Light (321) 172
Northeast Pond Ledge (312) 166
Northern Triangles (312) 149
Northport (310) 173
Northport Camp Ground (Bayside post office) (311) 175

Page

Northport Yacht Club (311) 175
Northwest Cove (307) 130
Northwest Harbor, Cross Island (303) 81
Northwest Harbor, Deer Isle (309) 152
Norton Island (312) 167
Norton Island Ledge, Pleasant Bay (305) 93
Norton Island Ledges, Wheeler Bay (312) 184
Norwood Cove (306) 119
Notice to Mariners 9, 27
Nova Rocks (304) 89
Nova Scotia, Currents off 41
Nova Scotia, Boston Lightship to various fishing banks and points in, Sailing directions (70, 1000, 1106, 1107) 300
Nubble Channel, The (246) 278
Nubbles Islet (801) 69
Nut Islet (246) 302

O

Oak Island (309) 153, 154
Oak Point, Blue Hill Bay (307) 130
Oak Point, Penobscot River (311) 183
Oak Point, St. Croix River (801) 71
Oak Reef (1205) 241
Obstructions 10
Ocean Point (314) 201
Ocean View (243) 259
Oceanographer Canyon (1107) 39
Oceanville (227) 140
Odom Ledge (311) 179, 182
Old Harbor, Penobscot Bay (310) 160
Old Harbor, South Boston (246) 300
Old Man, Little Machias Bay (303) 80
Old Man, Prospect Harbor (305) 104
Old Man Ledge, Georges Islands (312) 186
Old Orchard Beach (231) 237
Offlying dangers in southern approach to Grand Manan Channel (303) 77
Offshore buoys 10
Offshore canyons (1107) 39
Offshore shoals and banks, Gulf of Maine (1000) 37
Ogunquit Beach (1205) 241
Oil bunkering (*See* name of place.
Old Cellar Rock (1206) 252
Old Cilley Ledge (312) 185
Old Cove (225) 148
Old Henry (330) 250
Old Horse Ledge (312) 187
Old Point (306) 112
Old Prince, The (231) 240
Old Proprietor (231) 236
Old Whale Ledge (306) 116
Old Woman (305) 104
Old Woman Ledge (312) 186
Opechee Island (307) 130
Operating Areas, Submarine (1206) 244
Orcutt Harbor (309) 139
Orland (311) 179
Orland River (311) 179
Orono Island, York Narrows (227, 308) 127, 123
Orr Island (315) 224
Orrington (311) 181
Otis Cove (312) 187
Otter Cliff Ledge (306) 116
Otter Cove (306) 116
Otter Cove, Bar Harbor to (306) 115
Otter Island, Harrington Bay (305) 95, 99
Otter Island, Two Bush Channel (312) 167
Otter Island Ledge (312) 167
Otter Ledge (308) 123
Otter Point (306) 116
Outer Brewster Island (246) 279
Outer Dawes Ledge (308) 122
Outer Green Island (315) 225
Outer Heron Island (313) 199
Outer Ledge (321) 172
Outer Minot (242) 305
Outer Sand Island (304) 92
Outer Scrag Ledge, Merchant Row (309) 143
Outer Shag Ledge, off Hooper Island (312) 187
Oven Mouth (314) 209
Owls Head (320) 168, 169
Bay, Harbor, Ledge, and Light (320) 168
Casco Passage to, via Eggemoggin Reach, Sailing directions (227, 308–310) 59
Davis Straits to, via Muscle Ridge Channel, Sailing directions (312) 56
Through Fox Islands Thorofare, Sailing directions (235, 309, 310) 57
Oyster River (229) 249

P

Page Rock (801) 67
Pamet River (580) 316
Pancake Ground (233) 263
Parker Cove (311) 166
Parker Head (314) 213
Parker River (1206) 256
Passagasawakeag River (319) 175
Passagasawakeag River and Belfast Bay, Directions (319) 176
Passamaquoddy Bay (801) 69, 70

	Page
Patten Bay (307)	133
Peak Island (325)	231
Peaked Cliff (1208)	312
Peaked Hill Bar (1208)	317
Pell Island (309)	143
Pemaquid (313)	195
Beach and Harbor (313)	195
Ledge and Neck (313)	192
Point Lighthouse (313)	192
River (313)	195
Pemberton (246)	302
Pembroke (801)	72
Pennamaquan River (801)	72
Penobscot (311)	178
Penobscot Bay (1203)	146
Approaches (1203)	146
Cape Elizabeth and	42
Islands and rocks southward, off (225)	147
Islands and rocks southwestward, off (312)	149
North end (311)	175
West Quoddy Head to, General description	42
Penobscot Bay (West), Directions	173
Penobscot Bay (West), East side of (310)	159
Penobscot River (311)	179
Penobscot River, Directions (311)	182
Penobscot Yacht Club (311)	181
Pepperell Cove (329)	245
Perch Island (314)	201
Perkins Island (314)	213
Perry Cove (235)	157
Petit Manan, Nash Island to (305)	93
Petit Manan, West Quoddy Head to (1201)	77
Petit Manan Bar, Island, Lighthouse, Point, and Pool (305)	98
Petit Manan through Moosabec Reach, Sailing directions (304, 305)	62
Petit Manan to Jericho Bay (1202)	101
Petit Manan to Schoodic Island (305)	101
Petit Manan via direct route, Sailing directions, Bass Harbor Bar to (305, 306)	61
Petit Manan via western way, Sailing directions, Bass Harbor Bar to (305, 306)	61
Pettis Rocks (314)	214
Phillips Point (Littles Point) (240)	274
Phippsburg (314)	214
Phoebe Island (227)	143
Pickering Island (309)	153
Pickett Ledge (240)	265
Pierson Ledge (304)	85
Pig Rock (246)	302
Pigeon Cove (243)	259
Pigeon Ground (225)	149
Pigeon Hill (305)	97
Pigeon Hill Bay (305)	93, 97
Pigeon Rock (243)	259
Pilgrim Ledge (240)	265
Pilgrim Monument (580)	315
Pilot, U. S. Inside Route Coast	35
Pilots (*see also* name of place)	32
Boston	284
Cape Cod Canal	321
Lynn, Salem, and Beverly	276
Office, Nahant (240)	275
Pinkham Bay (305)	101
Piscataqua River above Portsmouth (229)	249
Placentia Island (308)	122
Plane of reference for soundings on charts	3
Planimetric maps	6, 327
Platts Bank (1106)	40
Platts Bank, Boston Lightship to, Sailing directions (70, 1000, or 1106)	300
Pleasant Bay (305)	93
Anchorages (305)	99
Directions (305)	99
Pleasant Cove (313)	198
Pleasant Cove Ledges (313)	198
Pleasant Point (801)	68
Pleasant Point Gut (312)	187
Pleasant River (305)	94
Pleasure Bay (248)	282
Plum Island River, Sound (1206)	256
Plummer Island (304)	92
Plymouth (245)	309
Bay (245)	308
Beach (245)	308
Cordage Co. Wharf (245)	309
Entrance between Cape Ann and, General description of coast	42
Gloucester to (1207)	265
Gurnet Lighthouse (245)	308
Plymouth Harbor (245)	309
Boston from, Directions (1207, 1208)	311
Cape Ann from, Directions (1207, 1208)	311
Sailing directions (245)	310
Point (*See* name of place.)	
Point Allerton (246)	279
Point Allerton, Currents between Boston Lighthouse and (246)	287
Point Francis (305)	103
Poland Ledges (313)	192
Poland North Ledge (313)	193
Poland South Ledge (313)	193
Pomp Island (304)	90
Pond Cove (304)	87
Pond Island, Blue Hill Bay (307)	130
Pond Island, Blue Hill Bay, Passage north of (307)	130
Pond Island, Casco Bay (315)	223

Page

Pond Island, Eggemoggin Reach (309) 139
Pond Island, Kennebec River (314) 212
Pond Island, Narraguagus Bay (305) 96, 100
Pond Island Ledges (315) 223
Pond Island Lighthouse (314) 213
Pond Island Shoal (314) 212
Pool Hill (243) 258
Pool, The, Biddleford (231) 238
Pool, The, Great Cranberry Island (306) 118
Pool, The, Haycock Harbor (1201) 77
Pope Head (240) 267
Pope Islet (801) 70
Popes Folly (801) 66
Popham Beach (314) 213
Porcupine Dry Ledge (318) 114
Port (*See* name of place.)
Port and terminal charges at United States Ports 8
Port Clyde, Directions (312) 186
Port Clyde (Herring Gut) (312) 185
Port Clyde Village (312) 185
Port Series 7, 327
Port Series No. 24, Portsmouth 245
Porter Landing (315) 227
Porterfield Ledge (321) 171
Portland (325) (*see also* Portland Harbor and Portland Lightship) 231
Cape Cod and, Coast between 48, 49
Cow Island to, Sailing directions (315, 325) 53
Directions, eastward of 47
Meteorological table 341
Port of (325) 232
Routes eastward of 47
Wrecks eastward of 43
Yacht Club (325) 233
Portland Harbor (325) 230
Bridges (325) 232
Directions (325) 234
Portland Head Lighthouse (325) 230
Portland Lightship (315) 229
Bantam Rock Lighted Whistle Buoy to, Sailing directions (1204) 52
Cape Ann to, Sailing directions (1205, 1206) 51
Currents 41
Portsmouth to, Sailing directions (1205) 52
West Quoddy Head to, Sailing directions (1106, 1201) 53
Ports, Distances between 6
Ports of Entry, Customs 329
Ports of entry and collection districts 15

Page

Portsmouth (329) 245
Anchorages (329) 247
Cape Ann to, Sailing directions (1206) 51
Cape Elizabeth and, Coast between 42
Cape Elizabeth to (1205) 236
Coast southward of 42
Dover and Exeter to (229) 249
Gloucester to (1206) 244
Harbor (329) 244
Harbor, Directions 248
Harbor Lighthouse (329) 244
Kittery to, Bridges (329) 245
Newburyport, Coast to (1206) 251
Offshore dangers in northern approach to (1205) 241
Piscataqua River above (229) 249
Portland Lightship to, Sailing directions (1205) 52
Pot Rock (305) 93
Potato Island (227) 142
Potato Ledge (227) 141
Potts Harbor (315) 225
Powderhorn Island (230) 208
Powderhorn Ledge (230) 208
Powderhorn South Ledge (230) 208
Powow River 253
Pratts Island (314) 207
Preble Island (306) 110
Preface IX
President Roads (246) 281
Presumpscot River (325) 232
Pretty Marsh Harbor (307) 129
Prevailing winds 33
Prince Gurnet (315) 224
Prospect Ferry (311) 180
Prospect Harbor (305) 104
Prospect Harbor, Directions, entering from eastward (305) 105
Prospect Harbor, Directions, entering from westward (305) 105
Prospect Harbor Lighthouse (305) 104
Protection of navigable waters 29
Prout Neck (231) 237
Provincetown (580) 316
Provincetown Harbor (580) 314
Public Health Service, U. S. 16, 330
Publications:
Miscellaneous navigational 28
Navigational 25
[illegible] 27
Pulpit [illegible]or (310) 162
Pulpit Ledge (317) 108
Pulpit Rock, Off Englishman Bay (304) 85
Pulpit Rock, Penobscot Bay (310) 162
Pumpkin Cove Ledge (313) 192
Pumpkin Island (313) 199
Pumpkin Island abandoned light tower (309) 137

540625 O - 43 - 35

Q

	Page
Quarantine, Boston	285
Quarantine anchorage buoys	10
Quarantine and health (*see also* name of place)	16
Quarantine Rocks (246)	280
Quarantine Stations (*see also* name of place)	331
Quincy Bay (246)	301
Quincy Great Hill (246)	302
Quincy Point (246)	303
Quincy (Weymouth Fore River), Sailing directions, Deer Island Light to (246)	297
Quincy (Weymouth Fore River) via Nantasket Gut, Sailing directions, Nantasket Roads to (246)	298
Quoddy Roads (801)	64
Quoddy Roads, Currents approaching entrance to	73
Quoddy Roads to St. Croix River (801)	65
Quoddy Village (801)	68
Quohog Bay (315)	222

R

	Page
Raccoon Cove (306)	112
Race Point Coast Guard Station (580)	315
Race Point Lighthouse (580)	315
Racer Rock (801)	67
Radio	17
Accuracy of radiobeacon bearings	22
Bearings	22
Bearings from other vessels	23
Bearings to Mercator bearings, Conversion of	23
Derelicts, Reporting	21
Direction finder stations	328
Ice reports	20
Inspectors	17
Legal responsibility	17
Local weather bulletins	18
Major weather bulletins	18
Medical advice by	22
Navigational warnings, Radiotelegraphic	21
Publications	27
Reports from ships (weather and hydrographic)	20
Responsibility	17
Responsibility of shipmasters	17
Service documents	17
Service log	17
Ships in distress	22
Small craft in distress	22
Stations, U. S. Naval shore	18
Storm warnings	18, 20
Supervision	17
Table of corrections for conversion of radio to mercator bearings	25
Telephone navigational warnings	21
Time signals, United States system of	21
Weather information, Radiotelephonic	19
Weather reports	18, 20
West Indies hurricanes	18
Radiobeacon bearings, Accuracy of	22
Radiobeacon charts	9
Radiobeacons	12
Caution in approaching	13
Radiotelephone	21
Radiotelephonic broadcasts of weather information	19
Ragged Island, Casco Bay (315)	222
Ragged Island, off Penobscot Bay (225)	147
Ragged Neck Point (1206)	251
Rainsford Island (246)	280
Ram Head (246)	280
Ram Head Flats (246)	280
Ram Island, Booth Bay (314)	200
Ram Island, Casco Bay (315)	223, 224
Ram Island, Foster Channel (303)	81
Ram Island, Kennebec River (314)	214
Ram Island, Merchant Row (309)	143
Ram Island, off Great Wass Island (304)	90, 92
Ram Island, off Swans Island (308)	123
Ram Island, Saco Bay (231)	236, 237
Ram Island Ledge, Merchant Row (309)	143
Ram Island Ledge, Saco Bay (231)	238
Ram Island Ledge, Sheepscot River (230)	209
Ram Island Ledge Lighthouse (315)	230
Ram Island Light (314)	214
Ram Island Lighthouse (314)	200
Ram Islet, off Manchester (240)	268
Ram Islet, Penobscot Bay (320)	170
Rams Horn Rock (240)	271
Randolph (289)	216
Raspberry Island (305)	94
Reach, The (310)	159
Red Beach (801)	71
Red Point (308)	123

Page
Red Rock (240) 274
Reflectors on buoys and beacons 12
Regulations:
Anchorage area (*see also* name of place 7
Bridge 32
Cape Cod Canal 321
Fishing structures and appliances 33
Relief Stations, U. S. Public Health Service 16, 330
Repairs (*see also* name of place) 32
Reporting of dangers, shoals, changes in channel depths, etc 1
Reports:
Derelicts 21
Radio ice 20
Radio weather 18, 20
Weather and Hydrographic from ships 20
Rescue with breeches buoy or life car 14
Rescue with lifeboat or surfboat 13
Reserved Channel (248) 282
Resolution Island (310) 163
Responsibility of shipmasters, radio regulations 17
Revere (240) 276
Revere Beach (240) 276
Rexhame (1207) 306
Richmond (288) 215
Richmond Island (231) 236
Richmond Island Harbor (231) 236
Richs Point (309) 144
Ridley Cove (315) 222
Riggs Cove (230) 205
Riggsville (Robinhood) (230) 205
Ringtown Island (308) 125
Ripley (305) 94
Ripley Islands (305) 99
Ripley Neck (305) 94, 99
Roaring Bull, Marblehead Channel (240) 268
Roaring Bull, Penobscot Bay (312) 150
Roaring Bull, Prospect Harbor (305) 104
Roaring Bull Ledge (309) 144

Page
Roaring Bulls (246) 280
Robbinston (801) 71
Roberts Harbor (309) 154
Robinhood Cove (230) 205
Robinhood (Riggsville) (230) 205
Robinson Cove (313) 196
Robinson Point (309) 145
Robinson Rock (310) 163
Rock Harbor (581) 314
Rock Island (227) 143
Rockland (320) 169
Rockland Breakwater Light (320) 169
Rockland Harbor (320) 168
Rockland Harbor, Directions (320) 170
Rockport (243) 260
Rockport and Camden (321) 170
Rockport Harbor, Maine (321) 170
Rockport Harbor, Mass. (243) 260
Rocks Nose (228) 243
Rocky Neck (233) 262
Rocky Point (245) 308
Rogers Point (305) 103
Rogue Island (315) 220
Rogues Island (315) 226
Roque Island Harbor (304) 85
Roque Bluffs (304) 86
Roque Island Harbor, Directions (304) 86
Roque Island Ledge (304) 88
Ross Island (313) 192
Round Island, Mackerel Cove (308) 123
Round Island, Merchant Row (227) 141, 142
Round Pond (313) 193
Round Rock, Casco Bay (315) 222
Round Rock, Quoddy Roads (801 65
Round Rock Shoal (233) 261
Routes (*See* directions.)
Rowley (1206) 256
Rowley River (1206) 256
Royal River (315) 228
Rumell Island (307) 128
Russ Island (227) 143
Rutherford Island (313) 195, 196
Rye Harbor and Ledge (1206) 251

S

Sabbathday Harbor (310) 165
Saco (231) 237
Bay (231) 236
Bay and vicinity (231) 236
Bay to Cape Neddick Harbor (1205) 239
River (231) 237
Saddle Island (310) 163
Saddleback Island (227) 141
Saddleback Ledge, Merchant Row (309) 143
Saddleback Ledge, Quohog Bay (315) 222
Saddleback Ledge Lighthouse (309) 152
Saddleback Ledge Shoal (309) 154
Sagadahoc Bay (314) 213
Sagamore Beach (1208) 312
Sagamore Head (246) 304
Sail Rock (801) 64
Sailing directions (*See* Directions, Sailing.)

Page
St. Andrews (801) 70
St. Croix River (801) 69, 71
and approaches, Currents 73
Currents 74
Cape Cod to 1
Cape Cod to, Lifeboat stations 329
Quoddy Roads to (801) 65
St. George River, Directions (312, 313) 188
St. George River and Thomaston (312) 186
St. Helena Island (227) 143
St. Lawrence River, Troy to 36
St. Mary Ledge (1106) 78
St. Stephen (801) 71, 72
Salem, Beverly, and Marblehead Harbors (240) 266
Salem, Beverly, and Marblehead Harbors, Directions (240) 272
Salem Harbor (240) 269
Salem Harbor, Directions (240) 272
Sales agencies 2
Salisbury Beach (1206) 251
Sally Islands (305) 102
Salsbury Cove (306) 113
Salt Island (243) 261
Salt Island Ledge (243) 261
Salt Pond (307) 131
Salt Rock (240) 265
Salter Island (314) 213
Salvage (*See* name of place.)
Sammy Rock (240) 268
Sand Beach, The (306) 116
Sand Cove, Great Wass Island (304) 91, 92
Sand Cove, Prospect Harbor (305) 104
Sand Cove, Vinalhaven Island (310) 159
Sand Cove, Winter Harbor (317) 108
Sand Island, Casco Bay (315) 226
Sand Island, Merchant Row (227) 143, 156
Sand Island, off Great Wass Island (304) 92
Sand Islet (307) 131
Sand Ledge Buoy (304) 89
Sandy Bay (243) 259
Sandy Bay Ledge (243) 260
Sandy Cove (1201) 77
Sandy Ledge (801) 70
Sandy Neck Lighthouse (339) 313
Sandy Point (311) 180
Sandypoint (311) 179
Sandwich Harbor (1208) 312
Saquish Head and Neck (245) 308
Sargentville (309) 138
Sasanoa River (230) 205
Sasanoa River, Bridge over (230) 204
Satan Rock (240) 267
Saturday Cove (310) 173
Saturday Cove, Camden to (310) 173
Saugus River bridges (240) 275
Saull Rock (240) 266

Page
Sawyer Cove (307) 129
Sawyer Island (230) 205
Sawyer Ledge (309) 145
Scabby Island Ledge (304) 85
Scabby Islands (304) 84
Scales of Charts 3
Scarboro River (231) 237
Scargo Hill (339) 313
Schoodic Harbor and Island (306) 105
Schoodic Head (306) 106
Schoodic Island, Petit Manan to (305) 101
Schoodic Ledge (306) 105
Schoodic Peninsula (306) 106
Schoodic Yacht Club (Calais) (801) 71
Schooner Brook Cove (Money Cove) (303) 79
Schooner Cove (801) 69
Schooner Head (306) 116
Schooner (Old Whale) Ledge (306) 116
Scituate Coast Guard Station (232) 306
Scituate Harbor (232) 305
Scorton Harbor and Ledge (1208) 313
Scotts Landing (309) 138
Scrag Island (308) 125
Scraggy Island (227) 142
Scraggy Ledge (309) 143
Sculpin Ledge (307) 132
Sculpin Ledge Channel (246) 278
Sea Wall Point (304) 84
Seal Bay (309) 154
Seal Cove, Blue Hill Bay (307) 129
Seal Cove, Cape Elizabeth (231) 236
Seal Cove, Damariscotta River (313) 198
Seal Cove, Fox Islands Thorofare (235) 157
Seal Cove, Swans Island (308) 124
Seal Harbor, Long Island (310) 165
Seal Harbor, Mount Desert Island (306) 121
Seal Harbor, Muscle Ridge Channel, Directions (312) 167
Seal Harbor lighted buoy (306) 121
Seal Island, off Long Island (310) 165
Seal Island, off Penobscot Bay (225) 147
Seal Ledge, Blue Hill Bay (307) 132
Seal Ledge, Fox Islands Thorofare (235) 158
Seal Ledge, Rockland Harbor (320) 169
Seal Ledge, Roque Island Harbor (304) 86
Seal Rock, Kennebec River (314) 214
Seal Rocks, Linekin Bay (314) 201
Seal Rocks, off Cape Elizabeth (231) 236

Page

Seal Rocks, off Great Wass Island (304) 92
Seahorse Rock (304) 92
Sears Island (311) 177
Sears Island Ledge (311) 177
Searsport (311) 176
Searsport and Stockton Harbors (311) 176
Seashore Ledge (303) 82
Seavey Island, Maine (312) 187
Seavey Island, N. H. (329) 245
Seavey Ledges (312) 184
Sebasco (315) 220
Sebasco Estates (315) 220
Sebasco Harbor (315) 220
Second Cliff (232) 306
Second Island (227) 141
Sedgwick (309) 138
Seguin Island (314) 212
Seguin Island Lighthouse (314) 212
Seguin Ledges (314) 212
Seguin SSW Ledge (314) 212
Sellers Rock (309) 152
Serial No. 444, Distances between United States Ports 6
Service documents, International Telecommunication Convention 17
Services, Local 32
Services to the navigator, Government 1
Sesuit Harbor (581) 313
Seven Hundred Acre Island (310) 164
Shabbit Island (304) 90, 92
Shabbit Island Ledge (304) 90
Shabby Island (227) 141
Shag Island (305) 99
Shag Islet (305) 95
Shag Ledge, off Little Kennebec Bay (304) 85
Shag Ledge, off Penobscot Bay (225) 148
Shag Rock, Kennebec River (314) 213
Shag Rock, off Englishman Bay (304) 85
Shag Rock, Rockland Harbor (320) 169
Shag Rocks, Entrance to Boston Harbor (246) 279
Shag Rocks, off Nahant (240) 275
Shank Painter Bar (580) 315
Shark Island (313) 193
Sheep Island, Blue Hill Bay (307) 130
Sheep Island, Dyer Bay (305) 101, 102
Sheep Island, Penobscot Bay (320) 168
Sheep Island, Tabbott Narrows (304) 90
Sheep Porcupine Island (318) 114, 115
Sheephead Ledges (309) 152

Page

Sheepscot (1204) 210
River (230, 314) 206, 207
River, Directions (314) 210
River, Northern Part (314) 209
River above Wiscasset (314) 210
Sherman Cove (321) 171
Ship and Barges Ledge (307) 131
Ship Channel (Eastern Way) (305) 102
Ship Island (307) 131
Shipping Commissioners, U. S. 16, 330
Ships, Weather and hydrographic reports from (*see also* vessels) 20
Ships in distress 22
Shipstern Island (305) 96, 100
Shipwreck, Instructions to mariners in case of 13
Shoals, Reporting of 1
Shooting Ledge (306) 112
Shoppee Island (304) 86
Shorey Cove (304) 86
Signals, Radio time 21
Signals, Wreck 15
Signals for surveying vessels 45
Signals used by submarine and aircraft, Distress 31
Significance of light characteristics 11
Simms Rock (305) 98
Simon Gurnet (315) 224
Sister Island, Casco Bay (315) 227
Sister Island, off Blue Hill Bay (308) 123
Sister Island Ledge (315) 227
Sisters, The, Davis Straits (312) 187
Sisters, The, Seal Cove (231) 236
Sisters, The, Sheepscot River (314) 206
Skillings River (306) 112
Sloop Ledge (314) 206
Small, Cape (314) 212
Small craft in distress 22
Small craft warning 34
Small Point (315) 219
Small Point Harbor (315) 219
Small scale charts, Caution in using 3
Smalls Point (303) 82
Smedrick Ledge (314) 200
Smith Cove, Gloucester Harbor (233) 262
Smith Cove, Vinalhaven Island (309) 154
Smutty Nose Island (307) 130
Smuttynose Island (330) 250
Snippershan Ledge (225) 155
Snows Rock Beacon (304) 89
Snug Cove (801) 66
Somes Harbor and Sound (306) 119
Somesville (Mt. Desert post office) (306) 119
Sorrento (306) 110
Sorrento Harbor (306) 110

Page

Soundings on charts, Plane of reference for 3
South Blue Hill (307) 131
South Boston (248) 282
South Breaker, off Penobscot Bay (225) 147
South Breaker, Two Bush Channel (312) 166
South Brewer (311) 181
South Bristol (313) 198
South Brooksville (309) 139
South Bunker Ledge (306) 118
South Channel, Broad Sound (246) 277
South Channel, Kingston Bay (245) 309
South Channel, Little Mystic River (248) 283
South Channel, Marblehead Channel (240) 267
South Channel currents, Boston (246) 287
South Freeport (315) 227
South Gardiner (289) 216
South Gooseberry Islet (240) 267
South Gouldsboro (306) 109
South Harpswell (315) 225
South Islesboro (310) 164
South Ledge, Blue Hill Bay (307) 132
South Ledge, Casco Bay (315) 222
South Pier (331) 255
South Portland (325) 231
South River, New Inlet (1207) 306
South River, Salem (240) 269
South Robbinston (801) 71
South Sugarloaf (314) 213
South Thomaston (312) 167
South Trescott (1201) 77
Southeast Breaker (312) 150
Southeast Harbor, Deer Isle (227) 140
Southeast Harbor, Gloucester Harbor (233) 262
Southeast Ledge (1106, 1201) 78
Southeast Rock (305) 98
Southeast Shoal (303) 77
Southern Harbor (235) 157
Southern Mark Island (309) 143
Southern Mark Island Ledge (227) 142
Southern Triangles (312) 150
Southport (230) 204
Southport Yacht Club (314) 207
Southwest Harbor, Deer Isle (309) 152
Southwest Harbor, Mt. Desert Island (306) 118, 119
Southwest Harbor, Mt. Desert Island, Directions (306) 121
Southwest Harbor, Mt. Desert Island and approaches (306) 117
Southwest Head (303) 77
Soward Island (306) 110
Spar buoys 10
Sparrow Island (227) 142
Sparrow Island Ledges (227) 142

Page

Spears Rock (320) 169
Special buoys 10
Special signals for surveying vessels 45
Spectacle and Thompson Islands measured mile course (246) 281
Spectacle Island, Boston (246) 281
Spectacle Island, Boston, Currents between Thompson Island and (246) 288
Spectacle Island, Frenchman Bay (317) 107
Spectacle Islands, Eggemoggin Reach (309) 139
Spectacle Islands, Sheepscot River (230) 208
Spectacles Islet (801) 69
Spirit Ledge (308) 125
Spoon Ledge (309) 154
Sprague Ledge (311) 165
Sprague River (314) 212
Spring Hill Beach (1208) 312
Spring Point Ledge Lighthouse (325) 231
Spruce Head, Duck Trap Harbor (310) 173
Spruce Head, Seal Harbor (312) 167
Spruce Island, Deer Island Thorofare (227) 143
Spruce Island, East Quoddy Head (801) 70
Spruce Island, Penobscot Bay (310) 164
Spruce Point (314) 201
Spruce Point Ledges (314) 201
Sprucehead Island (312) 167
Spurling Cove (306) 118
Squantum (246) 302
Squantum Point (246) 301
Squaw Point (311) 177
Squire Point (304) 88
Squirrel Cove and Island (314) 201
Stage Island, Kennebec River (314) 213
Stage Island, Saco Bay (231) 238
Stage Island Bay (314) 213
Stage Island Harbor (1205) 239
Stage Island Shoal (231) 238
Stage Neck (228) 243
Standish Monument (245) 310
Stanley Ledge (304) 92
Staple Ledge (308) 123
Star Island (330) 250
Starboard Cove (303) 81
Starboard Island Ledge (303) 81
Starboard post office (303) 82
Station buoys 10
Stations:
Lifesaving 13, 329
Massachusetts Humane Society Lifesaving 32
Public Health Service relief 16, 330
Quarantine 331
Radio direction finder 328
Storm warning display, List of 333

Page

Stave Island, Casco Bay (315) 226
Stave Island, Eggemoggin Reach (309) 138
Stave Island, Frenchman Bay (306) 109
Stave Island Harbor (306) 109
Stave Island Ledge (315) 226
Steels Harbor Island (304) 91
Steels Ledge (319) 175
Stellwagen Bank (1106) 40
Stellwagen Bank, Currents over 42
Stellwagen Ledges (1207) 276
Stellwagen Rock (1208) 312
Steuben (305) 102, 103
Steuben Harbor (305) 103
Stevens Island (304) 92
Stimpsons Island (235) 156
Stinson Neck (227) 140
Stockbridge Point (315) 227
Stockman Island (315) 226
Stockton Harbor, Directions (311) 177
Stockton Springs (311) 177
Stone Horse Ledge (305) 101
Stone Island (303) 81
Stone Island Ledge (303) 81
Stonehorse Rocks (1208) 312
Stonington (227) 140
Storm warnings:
Display stations, List of 333
Radio 18, 20
Straitsmouth Island and Lighthouse (243) 260
Stratten Island (231) 237
Straw Point (1206) 251
Strawberry Hill (246) 277, 304
Strout Island (305) 95, 99
Strout Island Ledges, and Narrows (305) 95
Sturdivant Island (315) 228
Sturdivant Island Ledge (315) 228
Submarine distress signals 31
Submarine operating areas (1206) 244
Submarine trial course, Provincetown (580) 315
Sugar Loaves (235) 157, 158
Sugarloaf, North and South (314) 213
Suggestions as to aids to navigation 12
Sullivan (306) 111
Bay and Taunton Bay, Directions (306) 111
Falls (306) 111
Harbor (306) 111
Harbor, Frenchman Bay, east side, Winter Harbor to (306) 109
Harbor to Eastern Bay (306) 112
Summer Harbor (306) 109
Sunken Black Ledge (235) 156
Sunken Duck Rock (312) 151
Sunken Ledge (246) 301
Sunken Money Ledge (308) 123
Sunset (309) 152
Supervising Inspector 330
Surfboat or lifeboat, Rescue with 13
Surry (307) 133
Surveying vessels, Special signals for 45
Surveys 44
Sutton (306) 120
Sutton Island (306) 120
Sutton Island, Directions, Southwest Harbor from eastward, northward of (306) 121
Swampscott (240) 274
Swan Island (288) 215
Swans Island (308) 123, 124
Swans Islands, Passage between Long and (308) 123
Sylvester Cove (309) 152
System of buoyage, colors, shapes, and numbers 10

T

Tables:
Corrections for conversion of radio to Mercator bearings 25
Compass variation 327
Conversion, Feet, fathoms, and meters 338
Conversion, True to magnetic courses 335
Current 4, 26
Current velocity due to wind, North Atlantic coast 5
Distances between ports, Calais to Cape Cod 326
Hours of operation of fog signals 334
Marine railway and drydock capacities 332
Meteorological 340–343
Tables—Continued.
Significance of light characteristics 11
See Tables—Sailing directions.
Tide 4, 26
Variations of the compass 327
Tables—Sailing directions (*See* Directions, Sailing.)
Tarbox Landing (314) 209
Tarritime Yacht Club (310) 164
Taunton Bay, Directions, Sullivan Harbor and (306) 111
Temple Heights (311) 175
Tenants Harbor (312) 184
Tenants Harbor Beacon (312) 184
Tenants Harbor Lighted Bell Buoy (312) 184

Page
Tenders, Lighthouse 12
Tenpound Island, Gloucester (233) 262
Tenpound Island, Off Penobscot Bay (225) 147, 148
Terminal charges at United States ports 8
Thacher Island (243) 261
The Ark (314) 201
The Barrel (225) 148
The Basin, Dingley Island (315) 221
The Basin, Vinalhaven Island (235) 159
The Black Rocks (314) 206
The Boulders (309) 137
The Brandies (309) 144
The Breakers (310) 161
The Brothers, Englishman Bay (304) 85
The Brothers, Off Port Clyde (312) 185
The Brothers, Saco Bay (231) 236
The Brown Cow (309) 143
The Bulldog (313) 196, 197
The Castle (305) 101, 102
The Cuckolds (314) 200
The Cuckolds Lighthouse (314) 200
The Drums (308) 122
The Fort (313) 195
The Grampuses (242) 305
The Graves, Boston (246) 279
The Graves, Penobscot Bay (321) 171
The Graves Lighted Whistle Radiobeacon Buoy (246) 279
The Graves Lighthouse (246) 279
The Gurnet (315) 222
The Gut (313) 196, 198
The Hogshead (225) 148
The Hypocrites (314) 200
The Ladle (305) 93, 99
The Ledge (801) 71
The Londoner (243) 261
The Motions (314) 200
The Narrows (246) 278
The Narrows, Sailing directions, Boston Lightship to Deer Island Lighthouse via (246, 1207) 295
The Neck (312) 167
The Nubble Channel (246) 278
The Old Prince (231) 240
The Pool, Biddeford (231) 238
The Pool, Great Cranberry Island (306) 118
The Pool, Haycock Harbor (1201) 77
The Reach (310) 159
The Sand Beach (306) 116
The Sisters, Davis Straits (312) 187
The Sisters, Seal Cove (231) 236
The Sisters, Sheepscot River (314) 206
The Thorofare (304) 86
The Thumper (306) 117
The Triangles, Casco Passage (227) 127
The Triangles, Naskeag Harbor (307) 132
Thieves Ledge (246) 278
Thomas Island (307) 113
Thomaston (312) 188
Thomaston, St. George River and (312) 186
Thompson and Spectacle Islands measured mile course (246) 281
Thompson Cove (230) 204
Thompson Island (312) 187
Thompson Island and Spectacle Island, Boston, Currents between (246) 288
Thorofare, The (304) 86
Thread of Life, Directions to pass through (313) 196
Thread of Life Ledges (313) 196
Three Fathom Ledge (225) 147
Thrumcap (315) 225
Thrumcap Island, Eggemoggin Reach (309) 139
Thrumcap Island, Frenchman Bay (306) 115
Thrumcap Island, Johns Bay (313) 196
Thrumcap Ledge (309) 139
Thumper, The (306) 117
Thurston Ledges (313) 195
Tibbett Rock (305) 98
Tidal current charts 5, 26
Tidal current charts for Boston Harbor 287
Tide Tables 4, 26
Tides and currents (*see also* name of place) 4
Time signals, Radio 21
Tinker Island, Blue Hill Bay (307) 131
Tinker Island Ledge (801) 70
Tinker Ledges (309) 138
Tinkers Island, Marblehead Channel (240) 268
Todd Bay (314) 213
Tom Moore Rock (240) 268
Tom Rock (314) 206
Tommy Island (305) 96, 100
Toothacher Cove (308) 124
Torry Islands (309) 137
Towboats 32
Town River Bay (246) 303
Towsend Gut (230) 204
Towsend Gut, Bridge over (230) 204
Trafton Island (305) 96, 99
Trafton Island Ledge (305) 96
Trap Rock (307) 114
Treat Island (801) 66
Trefethen (325) 231
Trenton (307) 130
Trevett (314) 209

Page

Troy to St. Lawrence River 36
True to magnetic courses, Conversion tables 335
Trumpet Island (307) 131
Truro (580) 316
Tuckanuck Ledge (225) 148
Tumbledown Head (305) 99
Tumbler Island (230) 202
Tupper Ledge (307) 134
Turkey Cove (312) 187
Turnip Island, Casco Bay (315) 223
Turnip Island, Johns Bay (313) 196
Turnip Yard (309) 144
Turtle Head (311) 166
Turtle Head Cove (311) 165
Turtle Island (317) 107
Turtle Island Ledge (317) 107
Two Bush Channel (312) 166
Two Bush Channel, Directions 174
Two Bush Channel and Muscle Ridge Channel (312) 166
Two Bush Island (309) 139
Two Bush Island Lighthouse (312) 166
Two Bush Islet (225) 148
Two Bush Ledge, Off Penobscot Bay (225) 148
Twobush Ledge, Casco Bay (315) 222

U

Ultonia Ledge (246) 279
Union River (307) 133
Union River, Directions (307) 134
Union River Bay (307) 133
University of Maine Marine Laboratory (306) 113
University of New Hampshire Marine Laboratory (330) 250
Upper Basket Ledge (315) 228
Upper Flag Island (315) 225
Upper Goose Island (315) 226
Upper Hell Gate (230) 205
Upper Ledge (303) 80
Upper Mark Island (230) 209
U. S. Army Engineers 7, 327
U. S. Bureau of Marine Inspection and Navigation Offices 330
U. S. Coast and Geodetic Survey (*See* Coast and Geodetic Survey, U. S.)
U. S. Coast Guard (*See* Coast Guard, U. S.)
U. S. Customs Ports of Entry 329
U. S. Hydrographic Office (*See* Hydrographic Office, U. S.)
U. S. Navy Yard, Charlestown (248) 282
U. S. Navy Yard, Portsmouth (329) 245
U. S. Public Health Service 16, 330
U. S. Shipping Commissioners 16, 330
U. S. Weather Bureau (*See* Weather Bureau, U. S.)
Use of magnetic compass, Factors affecting the 29
Variation of the compass 29, 327
Velocity of current due to wind 5

V

Verona Island, Penobscot River (311) 179, 180
Verona Park (311) 179
Vessels (*see also* Ships):
- Gulf of Maine from southward, Routes approaching 49
- Northern Europe or British Provinces, Routes from ports in 49

Vessels—Continued.
- Of less than 24 feet draft, Route from southward 49
- Radio bearings from other 23
- Repairs (*see also* name of place) 32
- Special signals for surveying 45

Vinalhaven (310) 159
Vinalhaven Island, Southwest side (310) 159

W

Waldoboro (313) 191
Wallace Cove (1201) 77
Wallace Ledge, (1106, 1201) 78
Warnings:
- Radio storm 18, 20
- Radiotelegraphic navigational 21
- Small-craft 34
- Storm 34

Warren Cove (245) 308
Warren Island (310) 164
Washman Rock (231) 239
Wass Point (305) 94
Water Cove (315) 223
Water Island (304) 92
Waterman Cove and Ledge (235) 157
Waters, Protection of navigable 29
Watertown (248) 283
Watts Cove (312) 188
Waukeag Neck (306) 110

Page
Weare Point (228) 242
Weather (*see also* name of place) 33
Bulletins, Local and major radio 18
Bureau, U. S 9, 333
Information, Radiotelephonic 19
Meteorological tables 340–343
Reports, Radio 18, 20
Weaver Ledge (307) 128
Webb Cove (227) 140
Webber Cove (307) 133
Webber Dry Ledge (313) 192
Webber Sunken Ledge (313) 194
Webhannet River (1205) 241
Webster Head (310) 162
Webster Rock (315) 223
Weir River (246) 304
Welchpool (801) 66
Welker Canyon (1107) 39
Wellfleet (581) 314
Wellfleet Harbor (581) 313, 314
Wellfleet Harbor, Directions (581) 314
Wells Beach (1205) 241
Weskeag River (312) 167
West Barge (307) 131
West Branch, Kennebec River (314) 215
West Brooklin (309) 138
West Brookville (311) 178
West Brown Cow (315) 226
West Deer Isle (227) 141
West Georgetown (314) 214
West Gouldsboro (306) 110
West Halibut Ledges (309) 143
West Halibut Rock (227) 142
West Hogshead Rock (242) 305
West Indies hurricanes 18
West Ledge (1106) 78
West Mark Island Ledge (227) 142
West Pembroke (801) 72
West Penobscot Bay, Directions 173
West Penobscot Bay, East side (310) 159
West Penobscot Bay, West side (310) 168
West Point, Casco Bay (315) 220
West Point, Pretty Marsh Harbor (307) 129
West Pond (317) 107
West Quoddy Head (801) 64
Calais to (801) 64
Eastport to, via Head Harbor Passage, Sailing directions (801) 76
Eastport to, via Lubec Channel, Sailing directions (801) 75
Lighthouse (801) 64
Moosabec Reach to, Sailing directions (303, 304, 1201) 63
Moose Cove to (1201) 77
Penobscot Bay to 42
Petit Manan to (1201) 77
Portland Lightship to, Sailing directions (1106, 1201) 53

Page
West River (304) 89
West Shag Rock (242) 305
West Southport (314) 207
West Sullivan (306) 111
West Tremont (307) 128
West Way, Boston Harbor (246) 302
West Willies (242) 305
Western Bay, Blue Hill Bay (307) 130
Western Bay, off Great Wass Island (304) 92
Western Black Ledge (225) 148
Western Branch (313) 196
Western Channel, Cohasset (242) 305
Western channel of Lynn Harbor (240) 275
Western Deer Island Ledge (227) 142
Western Ear (309) 144
Western Ear Ledge (309) 144
Western Egg Rock, Muscongus Bay (313) 193
Western Egg Rock, off Great Wass Island (304) 92
Western Harbor (233) 262
Western Head (303) 79
Western Island (309) 139
Western Passage, Gouldsboro Bay (305) 102
Western Passage, Passamaquoddy Bay (801) 68, 69
Western Point (228) 243
Western Reef (305) 100
Western Reef (Yellow Ledge) (305) 96
Western Way (306) 118
Western Way, Sailing directions Bass Harbor Bar to Petit Manan, via (305, 306) 61
Whale Ledge (305) 97
Whale Rock (315) 223
Whaleback, No Mans Land (225) 148
Whaleback, off Manchester (240) 266
Whaleback Ledge (227) 141
Whaleback Lighthouse (329) 244
Whaleback Rock (314) 213
Whaleboat Island (315) 226
Wheaton Island (225) 148
Wheeler Bay (312) 184
Wheeler Rock (312) 150
Whistle buoys 10
White Bull (315) 219
White Head, Nantasket Beach (246) 304
White Head, Portland Harbor (325) 230
White Horse Beach (1208) 312
White Horse Island, North of Campobello Island (801) 69
White Horse Island, off Isle au Haut (309) 144
White Island, Isles of Shoals (330) 250

Page

White Island, off East Quoddy Head (801) 69
White Islands, off Damariscotta River Entrance (313) 199
White Ledge, Merchant Row (309) 143
White Ledge, off Manchester (240) 266
White Point (305) 94
Whitehead Island and Lighthouse (312) 167
Whitehead Passage (325) 230
Whiting (801) 73
Whiting Bay (801) 73
Whitmore Neck (227) 140
Whittum Island (230) 208
Widow Island (235) 158
Widows Ledge (303) 80
Wills Strait (315) 224
Wilsons Beach (801) 69
Wind, Table of current velocity due to—North Atlantic coast 5
Wind currents 5
Windmill Point, Campobello Island (801) 67, 69
Windmill Point, Nantasket Gut (246) 302
Winds, Prevailing 33
Winnegance (230) 214
Winnegance Bay (315) 221
Winnegance Creek (230) 214
Winter Harbor, Frenchman Bay (317) 107, 108
Winter Harbor, Vinalhaven Island (309) 154
Winter Harbor, Directions (317) 108
To enter from northward (317) 108
Winter Harbor abandoned lighthouse tower (317) 107
Winter Harbor Cove (317) 108
Winter Harbor to Sullivan Harbor, Frenchman Bay, east side (306) 109
Winterport (311) 180
Winterport, Directions, Bucksport to (311) 182
Winterport to Crosby Narrows, Directions (311) 183
Winthrop Beach (246) 277, 281
Winthrop Head (246) 277
Wire-drag surveys 45
Wiscasset (314) 209
Wiscasset, Sheepscot River Above (314) 210
Wohoa Bay (304) 90
Wollaston Channel (246) 302
Wood End Lighthouse (580) 315
Wood Island, Entrance Kennebec River (314) 213
Wood Island, Small Point Harbor (315) 219
Wood Island, Wood Island Harbor (231) 238
Wood Island Harbor, Directions (231) 238
Wood Island Lighthouse (231) 238
Wooden Ball Island (225) 147
Woolwich (230) 215
Wormell Ledges (801) 65
Wreck Island, Merchant Row (227) 143
Wreck Island, Muscongus Bay (313) 194
Wreck signals 15
Wrecks, Eastward of Portland 43
Wrecks, South of Portland 44
Wrecks on Cape Cod 44
Wylie Rock (314) 201
Wyman (305) 97

Y

Yacht Basin (Allen Cove) (227) 140
Yacht Clubs 331
Yarmouth, Maine (315) 228
Yarmouth, Mass. (339) 313
Yarmouth, Nova Scotia (1106) 89
Yarmouth, Boston to 48
Yarmouth Harbor, Nova Scotia, Boston Lightship to, Sailing directions (70, 1000 or 1106) 300
Yarmouth Ledges (315) 222
Yellow Head (303) 82
Yellow Island, Machias Bay (303) 82, 83
Yellow Island, Stave Island Harbor (306) 109
Yellow Ledge, off Grand Manan (1106) 78
Yellow Ledge, off Swans Island (308) 125
Yellow Ledge, Two Bush Channel (312) 166
Yellow Ledge (Western Reef), Narraguagus Bay (305) 96
Yellow Rock (315) 222
Yellowbirch Head (305) 102
York Beach (228) 242
York Harbor (228) 242, 243
York Harbor, Directions (228) 243
York Harbor, York River above (228) 243
York Island (309) 144
York Landing (315) 228
York Ledge (1205) 242
York Narrows (227) 127
York Narrows, Casco Passage and (227) 127
York Narrows, Directions through (227) 127
York River, Cape Neddick to (228) 242
York River above York Harbor (228) 243

Z

	Page		Page
Zephyr Ledges (225)	148	Zephyr Rock (225)	148

○