

CHAPTER 4

NAUTICAL PUBLICATIONS

INTRODUCTION

400. Hardcopy vs. Softcopy Publications

The navigator uses many textual information sources when planning and conducting a voyage. These sources include notices to mariners, summary of corrections, sailing directions, light lists, tide tables, sight reduction tables, and almanacs. Historically, this information has been contained in paper or so-called “hardcopy” publications. But electronic methods of production and distribution of textual material are now commonplace, and will soon replace many of the navigator’s familiar books. This volume’s CD-ROM version is only one of many. Regardless of how technologically advanced we become, the printed word will always be an important method of communication. Only the means of access will change.

While it is still possible to obtain hard-copy printed publications, increasingly these texts are found on-line or in the form of Compact Disc-Read Only Memory (CD-ROM’s). CD-ROM’s are much less expensive than printed publications to reproduce and distribute, and on-line publications have no reproduction costs at all for the producer, and only minor costs to the user, if he chooses to print them at all. Also, a few CD-ROM’s can hold entire libraries of in-

formation, making both distribution and on-board storage much easier.

The advantages of electronic publications go beyond their cost savings. They can be updated easier and more often, making it possible for mariners to have frequent or even continuous access to a maintained publications database instead of receiving new editions at infrequent intervals and entering hand corrections periodically. Generally, digital publications also provide links and search engines to quickly access related information.

Navigational publications are available from many sources. Military customers automatically receive or requisition most publications. The civilian navigator obtains his publications from a publisher’s agent. Larger agents representing many publishers can completely supply a ship’s chart and publication library. On-line publications produced by the U.S. government are available on the Web.

This chapter will refer generally to printed publications. If the navigator has access to this data electronically, his methods of access and use will differ somewhat, but the discussion herein applies equally to both electronic and hard-copy documents.

NAUTICAL TEXTS

401. *Sailing Directions*

National Imagery and Mapping Agency *Sailing Directions* consist of 37 *Enroutes* and 5 *Planning Guides*. *Planning Guides* describe general features of ocean basins; *Enroutes* describe features of coastlines, ports, and harbors.

Sailing Directions are updated when new data requires extensive revision of an existing volume. These data are obtained from several sources, including pilots and foreign *Sailing Directions*.

One book comprises the *Planning Guide* and *Enroute* for Antarctica. This consolidation allows for a more effective presentation of material on this unique area.

The *Planning Guides* are relatively permanent; by contrast, *Sailing Directions (Enroute)* are frequently updated. Between updates, both are corrected by the *Notice to Mariners*.

402. *Sailing Directions (Planning Guide)*

Planning Guides assist the navigator in planning an extensive oceanic voyage. Each of the Guides provides useful information about all the countries adjacent to a particular ocean basin. The limits of the *Sailing Directions* in relation to the major ocean basins are shown in Figure 402.

Planning Guides are structured in the alphabetical order of countries contained within the region. Information pertaining to each country includes Buoyage Systems, Currency, Government, Industries, Holidays, Languages, Regulations, Firing Danger Areas, Mined Areas, Pilotage, Search and Rescue, Reporting Systems, Submarine Operating Areas, Time Zone, and the location of the U.S. Embassy.

403. *Sailing Directions (Enroute)*

Each volume of the *Sailing Directions (Enroute)*

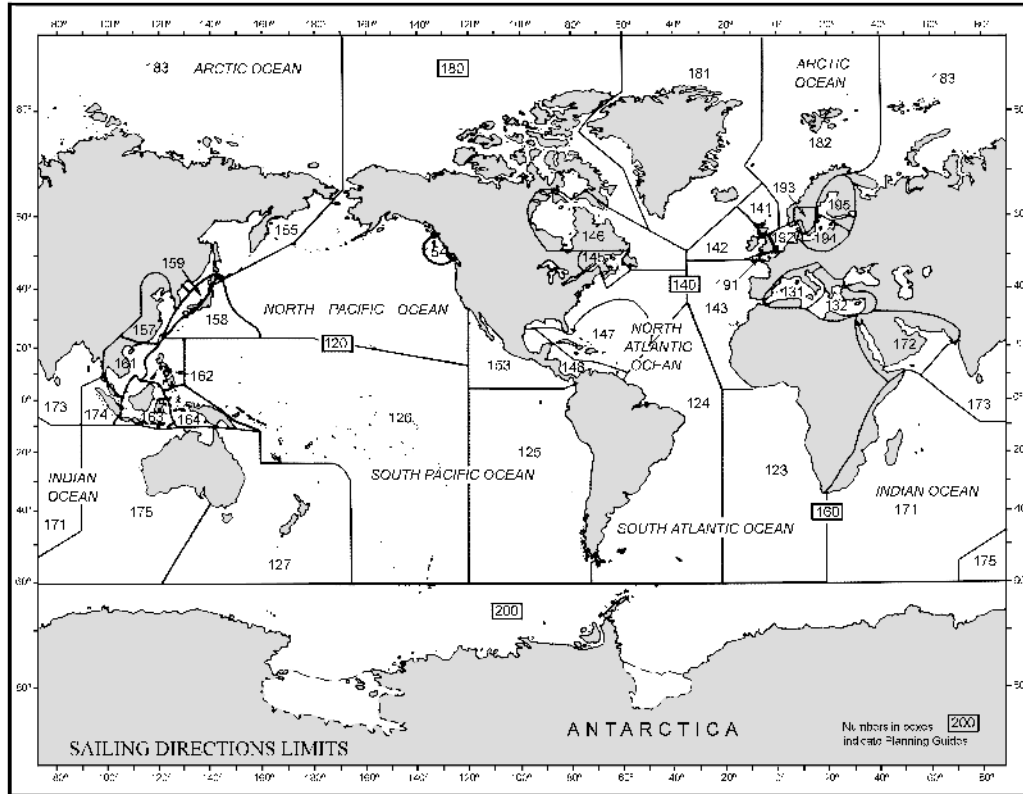


Figure 402. Sailing Directions limits in relation to the major ocean basins.

contains numbered sections along a coast or through a strait. Figure 403a illustrates this division. Each sector is sub-divided into paragraphs and discussed in turn. A preface with information about authorities, references, and conventions used in each book precedes the sector discussions. Each book also provides conversions between feet, fathoms, and meters, and an Information and Suggestion Sheet.

The Chart Information Graphic, the first item in each sector, is a graphic key for charts pertaining to that area. See Figure 403b. The graduation of the border scale of the chartlet enables navigators to identify the largest scale chart for a location and to find a feature listed in the Index-Gazetteer. These graphics are not maintained by *Notice to Mariners*; one should refer to the chart catalog for updated chart listings. Other graphics may contain special information on anchorages, significant coastal features, and navigation dangers.

A foreign terms glossary and a comprehensive Index-Gazetteer follow the sector discussions. The Index-Gazetteer is an alphabetical listing of described and charted features. The Index lists each feature by geographic coordinates and sector paragraph number.

U.S. military vessels have access to special files of data reported via official messages known as Port Visit After Action Reports. These reports, written in text form according to a standardized reporting format, give complete details of recent visits by U.S. military vessels to all foreign

ports visited. Virtually every detail regarding navigation, services, supplies, official and unofficial contacts, and other matters is discussed in detail, making these reports an extremely useful adjunct to the *Sailing Directions*. These files are available to “.mil” users only, and may be accessed on the Web at: <http://cnsl.spear.navy.mil>, under the “Force Navigator” link. They are also available via DoD’s classified Web.

404. Coast Pilots

The National Ocean Service publishes nine *United States Coast Pilots* to supplement nautical charts of U.S. waters. Information comes from field inspections, survey vessels, and various harbor authorities. Maritime officials and pilotage associations provide additional information. *Coast Pilots* provide more detailed information than *Sailing Directions* because *Sailing Directions* are intended exclusively for the oceangoing mariner. The *Notice to Mariners* updates *Coast Pilots*.

Each volume contains comprehensive sections on local operational considerations and navigation regulations. Following chapters contain detailed discussions of coastal navigation. An appendix provides information on obtaining additional weather information, communications services, and other data. An index and additional tables complete the volume.

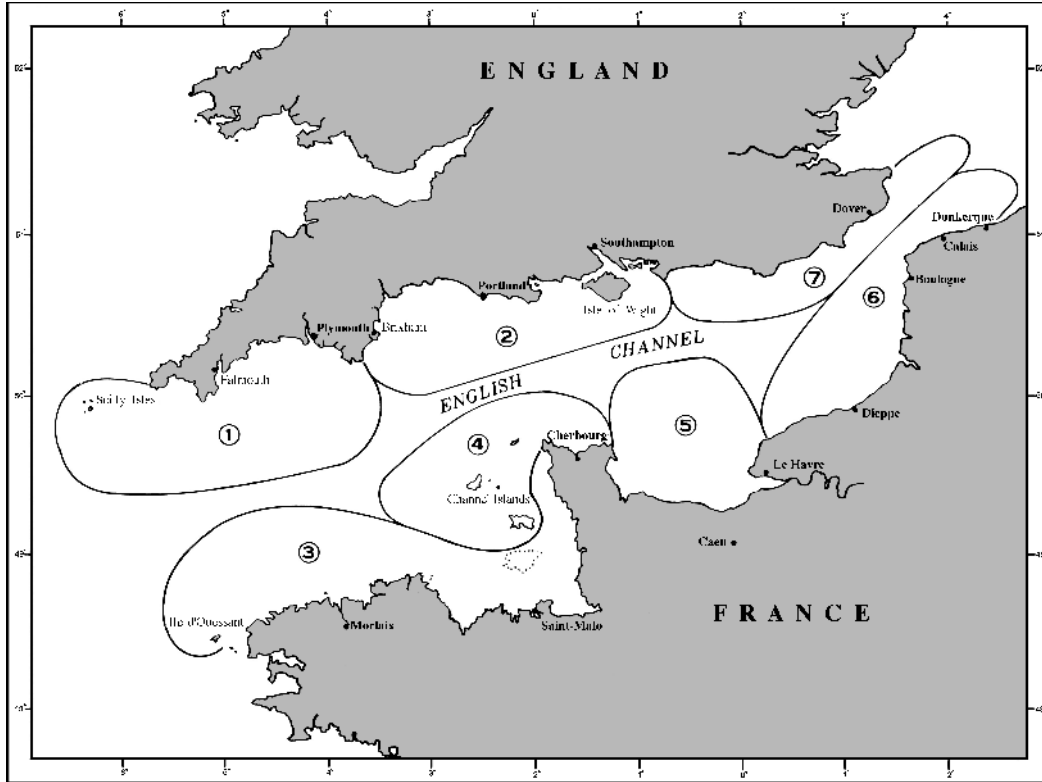
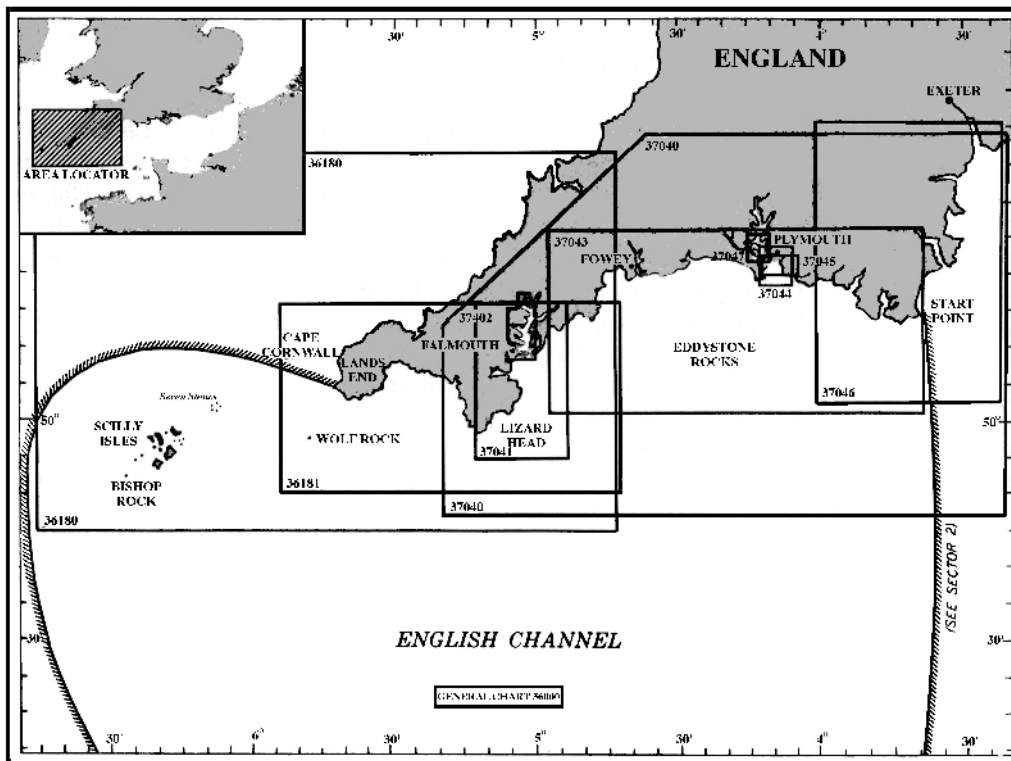


Figure 403a. Sector Limits graphic.



Additional chart coverage may be found in CATP2 Catalog of Nautical Charts.

Figure 403b. Chart Information graphic.

405. Other Nautical Texts

The government publishes several other nautical texts. NIMA, for example, publishes *Pub. 1310, Radar Navigation and Maneuvering Board Manual* and *Pub. 9, American Practical Navigator*.

The U.S. Coast Guard publishes *Navigation Rules* for international and inland waters. This publication, officially known as Commandant Instruction M16672.2d, contains the Inland Navigation Rules enacted in December 1980 and effective on all inland waters of the United States including the Great Lakes, as well as the *International Regulations for the Prevention of Collisions at Sea*, enacted in 1972 (1972 COLREGS). Mariners should ensure that they have the updated issue. The Coast Guard also publishes comprehensive user's manuals for the Loran and GPS navigation systems; *Navigation and Vessel Inspection Circulars*; and the *Chemical Data Guide for Bulk Shipment by Water*.

The Government Printing Office provides several publications on navigation, safety at sea, communications,

weather, and related topics. Additionally, it publishes provisions of the Code of Federal Regulations (CFR) relating to maritime matters. A number of private publishers also provide maritime publications.

The International Maritime Organization, International Hydrographic Organization, and other governing international organizations provide information on international navigation regulations. Chapter 1 gives these organizations' addresses. Regulations for various Vessel Traffic Services (VTS), canals, lock systems, and other regulated waterways are published by the authorities which operate them. Nautical chart and publication sales agents are a good source of information about publications required for any voyage. Increasingly, many regulations, whether instituted by international or national governments, can be found online. This includes regulations for Vessel Traffic Services, Traffic Separation Schemes, special regulations for passage through major canal and lock systems, port and harbor regulations, and other information. A Web search can often find the textual information the navigator needs.

USING THE LIGHT LISTS

406. Light Lists

The United States publishes two different light lists. The U.S. Coast Guard publishes the *Light List* for lights in U.S. territorial waters; NIMA publishes the *List of Lights* for lights in foreign waters.

Light lists furnish detailed information about navigation lights and other navigation aids, supplementing the charts, *Coast Pilots*, and *Sailing Directions*. Consult the chart for the location and light characteristics of all navigation aids; consult the light lists to determine their detailed description.

The *Notice to Mariners* corrects both lists. Corrections which have accumulated since the print date are included in the *Notice to Mariners* as a *Summary of Corrections*. All of these summary corrections, and any corrections published subsequently, should be noted in the "Record of Corrections."

A navigator needs to know both the identity of a light and when he can expect to see it; he often plans the ship's track to pass within a light's range. If lights are not sighted when predicted, the vessel may be significantly off course and standing into danger.

A circle with a radius equal to the visible range of the light usually defines the area in which a light can be seen. On some bearings, however, obstructions may reduce the range. In this case, the obstructed arc might differ with height of eye and distance. Also, lights of different colors may be seen at different distances. Consider these facts both when identifying a light and predicting the range at which it can be seen.

Atmospheric conditions have a major effect on a light's range. Fog, haze, dust, smoke, or precipitation can

obscure a light. Additionally, a light can be extinguished. Always report an extinguished light so maritime authorities can issue a warning and make repairs.

On a dark, clear night, the visual range is limited by either: (1) luminous intensity, or (2) curvature of the Earth. Regardless of the height of eye, one cannot see a weak light beyond a certain luminous range. Assuming light travels linearly, an observer located below the light's visible horizon cannot see it. The Distance to the Horizon table gives the distance to the horizon for various heights of eye. The light lists contain a condensed version of this table. Abnormal refraction patterns might change this range; therefore, one cannot exactly predict the range at which a light will be seen.

407. Finding Range and Bearing of a Light at Sighting

A light's **luminous range** is the maximum range at which an observer can see a light under existing visibility conditions. This luminous range ignores the elevation of the light, the observer's height of eye, the curvature of the Earth, and interference from background lighting. It is determined from the known **nominal range** and the existing visibility conditions. The nominal range is the maximum distance at which a light can be seen in weather conditions where visibility is 10 nautical miles.

The U.S. Coast Guard *Light List* usually lists a light's nominal range. Use the Luminous Range Diagram shown in the *Light List* and Figure 407a to convert this nominal range to luminous range. Remember that the luminous ranges obtained are approximate because of atmospheric or background lighting conditions. To use the Luminous Range

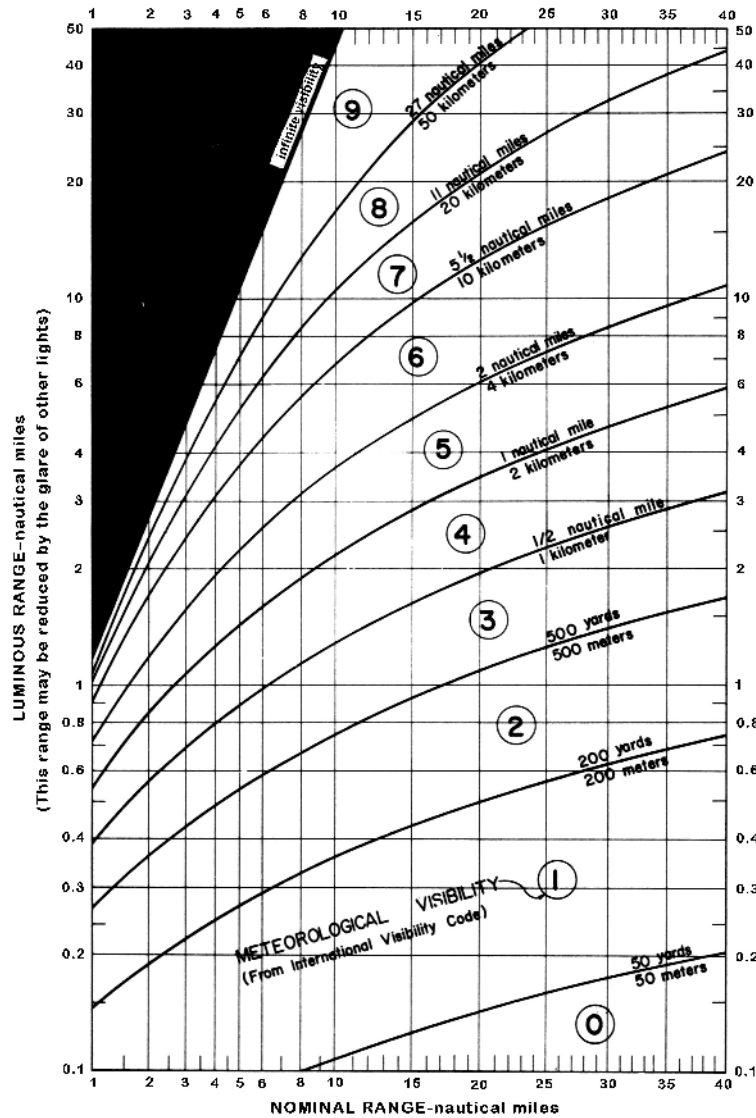


Figure 407a. Luminous Range Diagram.

Diagram, first estimate the meteorological visibility by the Meteorological Optical Range Table, Figure 407b. Next, enter the Luminous Range Diagram with the nominal range on the horizontal nominal range scale. Follow a vertical line until it intersects the curve or reaches the region on the diagram representing the meteorological visibility. Finally, follow a horizontal line from this point or region until it intersects the vertical luminous range scale.

Example 1: The nominal range of a light as extracted from the Light List is 15 nautical miles.

Required: The luminous range when the meteorological visibility is (1) 11 nautical miles and (2) 1 nautical mile.

Solution: To find the luminous range when the meteo-

rological visibility is 11 nautical miles, enter the Luminous Range Diagram with nominal range 15 nautical miles on the horizontal nominal range scale; follow a vertical line upward until it intersects the curve on the diagram representing a meteorological visibility of 11 nautical miles; from this point follow a horizontal line to the right until it intersects the vertical luminous range scale at 16 nautical miles. A similar procedure is followed to find the luminous range when the meteorological visibility is 1 nautical mile.

Answers: (1) 16 nautical miles; (2) 3 nautical miles.

A light's **geographic range** depends upon the height of both the light and the observer. The sum of the observer's dis-

Code No.	Weather	Yards
0	Dense fog	Less than 50
1	Thick fog	50-200
2	Moderate fog	200-500
3	Light fog	500-1000
		Nautical Miles
4	Thin fog	1/2-1
5	Haze	1-2
6	Light Haze	2-5 1/2
7	Clear	5 1/2-11
8	Very Clear	11.0-27.0.
9	Exceptionally Clear	Over 27.0

From the International Visibility Code.

Figure 407b. Meteorological Optical Range Table.

tance to the visible horizon (based on his height of eye) plus the light's distance to the horizon (based on its height) is its geographic range. See Figure 407c. This illustration uses a light 150 feet above the water. Table 12, Distance of the Horizon, yields a value of 14.3 nautical miles for a height of 150 feet. Within this range, the light, if powerful enough and atmospheric conditions permit, is visible regardless of the height of eye of the observer. Beyond 14.3 nautical miles, the geographic range depends upon the observer's height of eye. Thus, by the Distance of the Horizon table mentioned above, an observer with height of eye of 5 feet can see the light on his horizon if he is 2.6 miles beyond the horizon of the light. The geographic range of the light is therefore 16.9 miles. For a height of 30 feet the distance is $14.3 + 6.4 = 20.7$ miles. If the height of eye is 70 feet, the geographic range is $14.3 + 9.8 = 24.1$ miles. A height of eye of 15 feet is often assumed when tabulating lights' geographic ranges.

To predict the bearing and range at which a vessel will initially sight a light first determine the light's geographic range. Compare the geographic range with the light's luminous range. The lesser of the two ranges is the range at which the light will first be sighted. Plot a visibility arc centered on the light and with a radius equal to the lesser of the geographic or luminous ranges. Extend the vessel's track until it intersects the visibility arc. The bearing from the intersection point to the light is the light's predicted bearing at first sighting.

If the extended track crosses the visibility arc at a small angle, a small lateral track error may result in large bearing and time prediction errors. This is particularly apparent if the vessel is farther from the light than predicted; the vessel may pass the light without sighting it. However, not sighting a light when predicted does not always indicate the vessel is farther from the light than expected. It could also mean that atmospheric conditions are affecting visibility.

Example 2: The nominal range of a navigational light

120 feet above the chart datum is 20 nautical miles. The meteorological visibility is 27 nautical miles.

Required: The distance at which an observer at a height of eye of 50 feet can expect to see the light.

Solution: The maximum range at which the light may be seen is the lesser of the luminous or geographic ranges. At 120 feet the distance to the horizon, by table or formula, is 12.8 miles. Add 8.3 miles, the distance to the horizon for a height of eye of 50 feet to determine the geographic range. The geographic range, 21.1 miles, is less than the luminous range, 40 miles.

Answer: 21 nautical miles. Because of various uncertainties, the range is rounded off to the nearest whole mile.

When first sighting a light, an observer can determine if it is on the horizon by immediately reducing his height of eye. If the light disappears and then reappears when the observer returns to his original height, the light is on the horizon. This process is called **bobbing a light**.

If a vessel has considerable vertical motion due to rough seas, a light sighted on the horizon may alternately appear and disappear. Wave tops may also obstruct the light periodically. This may cause the characteristic to appear different than expected. The light's true characteristics can be ascertained either by closing the range to the light or by increasing the observer's height of eye.

If a light's range given in a foreign publication approximates the light's geographic range for a 15-foot observer's height of eye, one can assume that the printed range is the light's geographic range. Also assume that publication has listed the lesser of the geographic and nominal ranges. Therefore, if the light's listed range approximates the geographic range for an observer with a height of eye of 15 feet, then assume that the light's limiting range is the geographic range. Then, calculate the light's true geographic range using the actual observer's height of eye, not the assumed height of eye of 15 feet. This calculated true geographic range is the range at which the light will first be sighted.

Example 3: The range of a light as printed on a foreign chart is 17 miles. The light is 120 feet above chart datum. The meteorological visibility is 10 nautical miles.

Required: The distance at which an observer at a height of eye of 50 feet can expect to see the light.

Solution: Calculate the geographic range of the light assuming a 15 foot observer's height of eye. At 120 feet the distance to the horizon is 12.8 miles. Add 4.5 miles (the distance to the horizon at a height of 15 feet) to 12.8 miles; this range is 17.3 miles. This approximates the range listed on the chart. Then assuming that the charted range is the

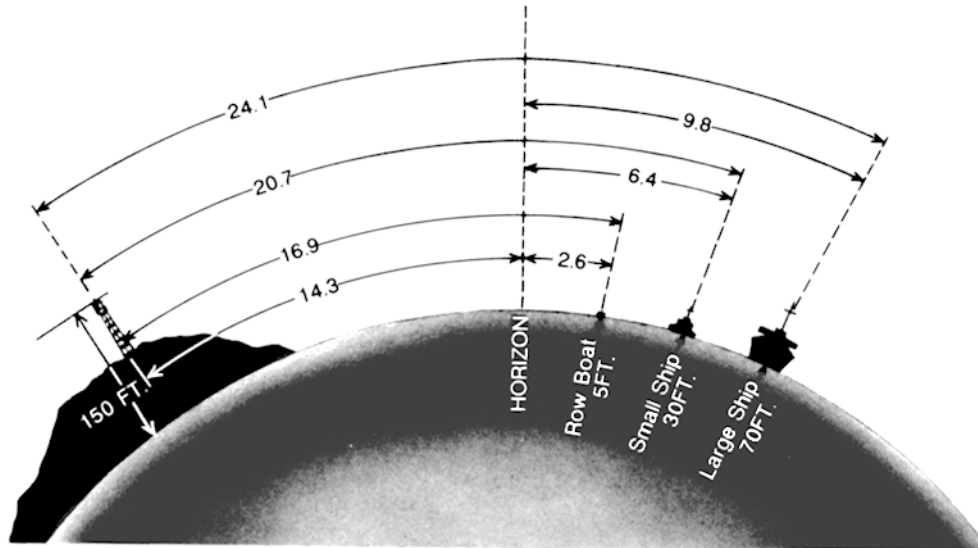


Figure 407c. Geographic Range of a light.

geographic range for a 15-foot observer height of eye and that the nominal range is the greater than this charted range, the predicted range is found by calculating the true geographic range with a 50 foot height of eye for the observer.

Answer: The predicted range = 12.8 mi. + 8.3 mi. = 21.1 mi. The distance in excess of the charted range depends on the luminous intensity of the light and the meteorological visibility.

408. USCG Light Lists

The U.S. Coast Guard *Light List* (7 volumes) gives information on lighted navigation aids, unlighted buoys, radiobeacons, radio direction finder calibration stations, daybeacons, racons, and Loran stations.

Each volume of the *Light List* contains aids to navigation in geographic order from north to south along the Atlantic coast, from east to west along the Gulf coast, and from south to north along the Pacific coast. It lists seacoast aids first, followed by entrance and harbor aids listed from seaward. Intracoastal Waterway aids are listed last in geographic order in the direction from New Jersey to Florida to the Texas/Mexico border.

The listings are preceded by a description of the aids to navigation system in the United States, luminous range diagram, geographic range tables, and other information.

409. NIMA List of Lights, Radio Aids, and Fog Signals

The National Imagery and Mapping Agency publishes the *List of Lights, Radio Aids, and Fog Signals* (usually referred to as the *List of Lights*, not to be confused with the Coast Guard's *Light List*). In addition to information on lighted aids to navigation and sound signals in foreign waters, the NIMA *List of Lights* provides information on storm signals, signal stations, racons, radiobeacons, radio direction finder calibration stations located at or near lights, and DGPS stations. For more details on radio navigational aids, consult *Pub. 117, Radio Navigational Aids*.

The NIMA *List of Lights* generally does not include information on buoys, although in certain instances, a large offshore buoy with a radio navigational aid may be listed. It does include certain aeronautical lights situated near the coast. However, these lights are not designed for marine navigation and are subject to unreported changes.

Foreign notices to mariners are the main correctional information source for the NIMA *Lists of Lights*; other sources, such as ship reports, are also used. Many aids to navigation in less developed countries may not be well maintained. They are subject to damage by storms and vandalism, and repairs may be delayed for long periods.

MISCELLANEOUS NAUTICAL PUBLICATIONS

410. NIMA Radio Navigational Aids (*Pub. 117*)

This publication is a selected list of worldwide radio stations which perform services to the mariner. Topics covered include radio direction finder and radar

stations, radio time signals, radio navigation warnings, distress and safety communications, medical advice via radio, long-range navigation aids, the AMVER system, and interim procedures for U.S. vessels in the event of an outbreak of hostilities. *Pub. 117* is corrected via the

Notice to Mariners and is updated periodically with a new edition.

Though *Pub. 117* is essentially a list of radio stations providing vital maritime communication and navigation services, it also contains information which explains the capabilities and limitations of the various systems.

411. *Chart No. 1*

Chart No. 1 is not actually a chart but a book containing a key to chart symbols. Most countries which produce charts also produce such a list. The U.S. *Chart No. 1* contains a listing of chart symbols in four categories:

- Chart symbols used by the National Ocean Service
- Chart symbols used by NIMA
- Chart symbols recommended by the International Hydrographic Organization
- Chart symbols used on foreign charts reproduced by NIMA

Subjects covered include general features of charts, topography, hydrography, and aids to navigation. There is also a complete index of abbreviations and an explanation of the IALA buoyage system.

412. *NIMA World Port Index (Pub. 150)*

The *World Port Index* contains a tabular listing of thousands of ports throughout the world, describing their locations, characteristics, facilities, and services available. Information is arranged geographically; the index is arranged alphabetically.

Coded information is presented in columns and rows. This information supplements information in the *Sailing Directions*. The applicable volume of *Sailing Directions* and the number of the harbor chart are given in the *World Port Index*. The *Notice to Mariners* corrects this book.

413. *NIMA Distances Between Ports (Pub. 151)*

This publication lists the distances between major ports. Reciprocal distances between two ports may differ due to different routes chosen because of currents and climatic conditions. To reduce the number of listings needed, junction points along major routes are used to consolidate routes converging from different directions.

This book can be most effectively used for voyage planning in conjunction with the proper volume(s) of the *Sailing Directions (Planning Guide)*. It is corrected via the *Notice to Mariners*.

414. *NIMA International Code of Signals (Pub. 102)*

This book lists the signals to be employed by vessels at sea to communicate a variety of information relating to safety, distress, medical, and operational information. This publication became effective in 1969.

According to this code, each signal has a unique and complete meaning. The signals can be transmitted via Morse code light and sound, flag, radio telegraph and telephone, and semaphore. Since these methods of signaling are internationally recognized, differences in language between sender and receiver are immaterial; the message will be understood when decoded in the language of the receiver, regardless of the language of the sender. The *Notice to Mariners* corrects *Pub. 102*.

415. *Almanacs*

For celestial sight reduction, the navigator needs an **almanac** for ephemeris data. The *Nautical Almanac*, produced jointly by H.M. Nautical Almanac Office and the U.S. Naval Observatory, is the most common almanac used for celestial navigation. It also contains information on sunrise, sunset, moonrise, and moonset, as well as compact sight reduction tables. The *Nautical Almanac* is published annually.

The *Air Almanac* contains slightly less accurate ephemeris data for air navigation. It can be used for marine navigation if slightly reduced accuracy is acceptable.

Chapter 19 provides more detailed information on using the *Nautical Almanac*.

416. *Sight Reduction Tables*

Without a calculator or computer programmed for sight reduction, the navigator needs **sight reduction tables** to solve the celestial triangle. Two different sets of tables are commonly used at sea.

NIMA Pub. 229, Sight Reduction Tables for Marine Navigation, consists of six volumes of tables designed for use with the *Nautical Almanac* for solution of the celestial triangle by the **Marcq Saint Hilaire** or **intercept** method. The tabular data are the solutions of the navigational triangle of which two sides and the included angle are known and it is necessary to find the third side and adjacent angle.

Each volume of *Pub. 229* includes two 8 degree zones, comprising 15 degree bands from 0 to 90 degrees, with a 1° degree overlap between volumes. *Pub. 229* is a joint publication produced by the National Imagery and Mapping Agency, the U.S. Naval Observatory, and the Royal Greenwich Observatory.

Sight Reduction Tables for Air Navigation, Pub. 249, is also a joint production of the three organizations above. It is issued in three volumes. Volume 1 contains the values of the altitude and true azimuth of seven selected stars chosen to

provide, for any given position and time, the best celestial observations. A new edition is issued every 5 years for the upcoming astronomical epoch. Volumes 2 (0° to 40°) and 3 (39° to 89°) provide for sights of the Sun, Moon, and planets.

417. Catalogs

A chart catalog is a valuable reference to the navigator for voyage planning, inventory control, and ordering. The catalog is used by military and civilian customers.

The navigator will see the NIMA nautical chart catalog as part of a larger suite of catalogs including aeronautical (Part 1), hydrographic (Part 2), and topographic (Part 3) products. Each Part consists of one or more volumes. Unclassified NIMA nautical charts are listed in Part 2, Volume 1.

This catalog contains comprehensive ordering instructions and information about the products listed. Also listed are addresses of all Map Support Offices, information

on crisis support, and other special situations. The catalog is organized by geographic region corresponding to the chart regions 1 through 9. A special section of miscellaneous charts and publications is included. This section also lists products produced by NOS, the U.S. Army Corps of Engineers, U.S. Coast Guard, U.S. Naval Oceanographic Office, and some foreign publications from the United Kingdom and Canada.

The civilian navigator should also refer to catalogs produced by the National Ocean Service. For U.S. waters, NOS charts are listed in a series of large sheet "charts" showing a major region of the U.S. with individual chart graphics depicted. These catalogs also list charts showing titles and scales. They also list sales agents from whom the charts may be purchased.

NIMA products for the civilian navigator are listed by NOS in a series of regionalized catalogs similar to Part 2 Volume 1. These catalogs are also available through authorized NOS chart agents.

MARITIME SAFETY INFORMATION

418. Notice to Mariners

The *Notice to Mariners* is published weekly by the National Imagery and Mapping Agency (NIMA), prepared jointly with the National Ocean Service (NOS) and the U.S. Coast Guard. It advises mariners of important matters affecting navigational safety, including new hydrographic information, changes in channels and aids to navigation, and other important data. The information in the *Notice to Mariners* is formatted to simplify the correction of paper charts, sailing directions, light lists, and other publications produced by NIMA, NOS, and the U.S. Coast Guard.

It is the responsibility of users to decide which of their charts and publications require correction. Suitable records of *Notice to Mariners* should be maintained to facilitate the updating of charts and publications prior to use.

Information for the *Notice to Mariners* is contributed by: NIMA (Department of Defense) for waters outside the territorial limits of the United States; National Ocean Service (National Oceanic and Atmospheric Administration, Department of Commerce), which is charged with surveying and charting the coasts and harbors of the United States and its territories; the U.S. Coast Guard (Department of Transportation) which is responsible for, among other things, the safety of life at sea and the establishment and operation of aids to navigation; and the Army Corps of Engineers (Department of Defense), which is charged with the improvement of rivers and harbors of the United States. In addition, important contributions are made by foreign hydrographic offices and cooperating observers of all nationalities.

Over 60 countries which produce nautical charts also

produce a notice to mariners. About one third of these are weekly, another third are bi-monthly or monthly, and the rest irregularly issued according to need. Much of the data in the U.S. *Notice to Mariners* is obtained from these foreign notices.

U.S. charts must be corrected only with a U.S. *Notice to Mariners*. Similarly, correct foreign charts using the foreign notice because chart datums often vary according to region and geographic positions are not the same for different datums.

The *Notice to Mariners* consists of a page of **Hydrograms** listing important items in the notice, a chart correction section organized by ascending chart number, a publications correction section, and a summary of broadcast navigation warnings and miscellaneous information.

Mariners are requested to cooperate in the correction of charts and publications by reporting all discrepancies between published information and conditions actually observed and by recommending appropriate improvements. A convenient reporting form is provided in the back of each *Notice to Mariners*.

Notice to Mariners No. 1 of each year contains important information on a variety of subjects which supplements information not usually found on charts and in navigational publications. This information is published as *Special Notice to Mariners Paragraphs*. Additional items considered of interest to the mariner are also included in this *Notice*.

419. Summary of Corrections

A close companion to the *Notice to Mariners* is the

Summary of Corrections. The *Summary* is published in five volumes. Each volume covers a major portion of the Earth including several chart regions and their subregions. Volume 5 also includes special charts and publications corrected by the *Notice to Mariners*. Since the *Summaries* contain cumulative corrections, any chart, regardless of its print date, can be corrected with the proper volume of the *Summary* and all subsequent *Notice to Mariners*.

420. The Maritime Safety Information Website

The NIMA **Maritime Safety Information Website** provides worldwide remote query access to extensive menus of maritime safety information 24 hours a day. The Maritime Safety Information Website can be accessed via the NIMA Homepage (www.nima.mil) under the Safety of Navigation icon or directly at <http://pollux.nss.nima.mil>.

Databases made available for access, query and download include Chart Corrections, Publication Corrections, NIMA Hydrographic Catalog Corrections, Chart and Publication Reference Data (current edition number, dates, title, scale), NIMA *List of Lights*, U.S. Coast Guard *Light Lists*, World Wide Navigational Warning Service (WWNWS) Broadcast Warnings, Maritime Administration (MARAD) Advisories, Department of State Special Warnings, Mobile Offshore Drilling Units (MODUs), Anti-Shipping Activity Messages (ASAMs), *World Port Index*, and *Radio Navigational Aids*. Publications that are also made available as Portable Document Format (PDF) files include the U.S. *Notice to Mariners*, U.S. *Chart No. 1*, *The American Practical Navigator*, *International Code of Signals*, *Radio Navigational Aids*, *World Port Index*, *Distances Between Ports*, *Sight Reduction Tables for Marine Navigation*, *Sight Reduction Tables for Air Navigation*, and the *Radar Navigation and Maneuvering Board Manual*.

Navigators have online access to, and can download, all the information contained in the printed *Notice to Mariners* including chartlets. Information on this website is updated daily or weekly according to the *Notice to Mariners* production schedule. Broadcast Warnings, MARAD Advisories, ASAMs and MODUs are updated on a daily basis; the remaining data is updated on a weekly basis.

Certain files, for example U.S. Coast Guard *Light List* data, are entered directly into the database without editing and the accuracy of this information cannot be verified by NIMA staff. Also, drill rig locations are furnished by the companies which operate them. They are not required to provide these positions, and they cannot be verified. However, within these limitations, the Website can provide information 2 weeks sooner than the printed *Notice to Mariners*, because the paper *Notice* must be printed and mailed after the digital version is completed and posted on the Web.

Users can provide suggestions, changes, corrections or comments on any of the Maritime Safety Information

Division products and services by submitting an online version of the Marine Information Report and Suggestion Sheet.

Access to the Maritime Safety Information Website is free, but the user must pay the applicable charges for internet service. Any questions concerning the Maritime Safety Information Website should be directed to the Maritime Safety Information Division, Attn.: NSS STAFF, Mail Stop D-44, NIMA, 4600 Sangamore Rd., Bethesda, MD, 20816-5003; telephone (1) 301-227-3296; fax (1) 301-227-4211; e-mail webmaster_nss@nima.mil.

421. Local Notice to Mariners

The **Local Notice to Mariners** is issued by each U.S. Coast Guard District to disseminate important information affecting navigational safety within that District. This Notice reports changes and deficiencies in aids to navigation maintained by the Coast Guard. Other marine information such as new charts, channel depths, naval operations, and regattas is included. Since temporary information of short duration is not included in the NIMA *Notice to Mariners*, the *Local Notice to Mariners* may be the only source for it. Since correcting information for U.S. charts in the NIMA *Notice* is obtained from the Coast Guard local notices, there is a lag of 1 or 2 weeks for NIMA *Notice* to publish a correction from this source.

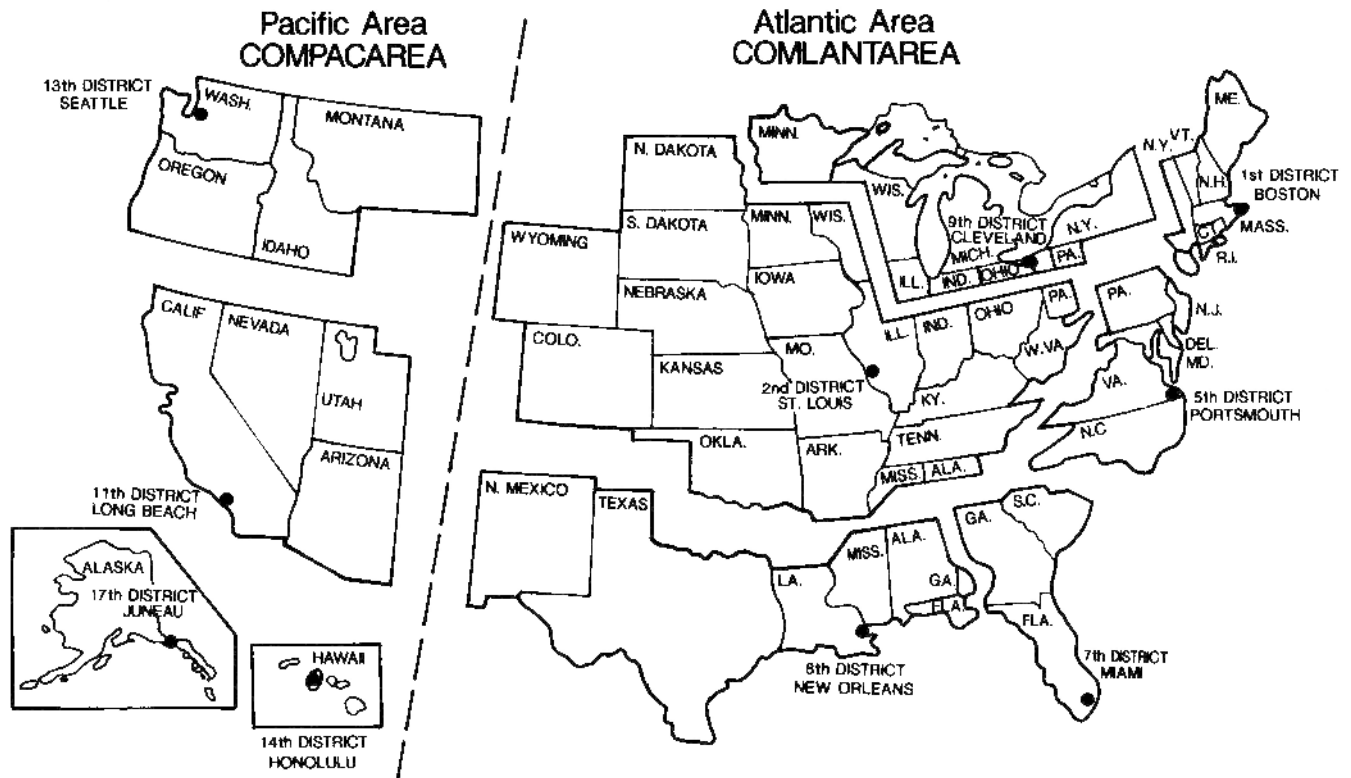
The *Local Notice to Mariners* may be obtained free of charge by contacting the appropriate Coast Guard District Commander. Vessels operating in ports and waterways in several districts must obtain the *Local Notice to Mariners* from each district. See Figure 421 for a complete list of U.S. Coast Guard Districts.

422. Electronic Notice to Mariners

One major impediment to full implementation of electronic chart systems has been the issue of how to keep them up to date. The IMO, after reviewing the range standards which might be employed in the provision of updates to ECDIS charts, decided that the correction system must be "hands off" from the mariner's point of view. That is, the correction system could not rely on the ability of the mariner to enter individual correction data himself, as he would do on a paper chart. The process must be automated to maintain the integrity of the data and prevent errors in data entry by navigators.

National hydrographic offices which publish electronic charts must also publish corrections for them. The manner of doing so varies among the different types of systems. The corrections are applied to the data as the chart to be displayed is created, leaving the database unchanged.

Another possibility exists, and that is to simply reload the entire chart data file with updated information. This is not as crazy as it sounds when one considers the amount of data that can be stored on a single CD-ROM and the ease



COMMANDER, FIRST COAST GUARD DISTRICT
408 ATLANTIC AVENUE
BOSTON, MA 02110-3350
PHONE: DAY 617-223-8338, NIGHT 617-223-8558

COMMANDER, SECOND COAST GUARD DISTRICT
1222 SPRUCE STREET
ST. LOUIS, MO 63103-2832
PHONE: DAY 314-539-3714, NIGHT 314-539-3709

COMMANDER, FIFTH COAST GUARD DISTRICT
FEDERAL BUILDING
431 CRAWFORD STREET
PORTSMOUTH, VA 23704-5004
PHONE: DAY 804-398-6486, NIGHT 804-398-6231

COMMANDER, SEVENTH COAST GUARD DISTRICT
BRICKELL PLAZA FEDERAL BUILDING
909 SE 1ST AVENUE, RM: 406
MIAMI, FL 33131-3050
PHONE: DAY 305-536-5621, NIGHT 305-536-5611

COMMANDER GREATER ANTILLES SECTION
U.S. COAST GUARD
P.O. BOX S-2029
SAN JUAN, PR 00903-2029
PHONE: 809-729-6870

COMMANDER, EIGHTH COAST GUARD DISTRICT
HALE BOGGS FEDERAL BUILDING
501 MAGAZINE STREET
NEW ORLEANS, LA 70130-3396
PHONE: DAY 504-589-6234, NIGHT 504-589-6225

COMMANDER, NINTH COAST GUARD DISTRICT
1240 EAST 9TH STREET
CLEVELAND, OH 44199-2060
PHONE: DAY 216-522-3991, NIGHT 216-522-3984

COMMANDER, ELEVENTH COAST GUARD DISTRICT
FEDERAL BUILDING
501 W. OCEAN BLVD.
LONG BEACH, CA 90822-5399
PHONE: DAY 310-980-4300, NIGHT 310-980-4400

COMMANDER, THIRTEENTH COAST GUARD DISTRICT
FEDERAL BUILDING
915 SECOND AVENUE
SEATTLE, WA 98174-1067
PHONE: DAY 206-220-7280, NIGHT 206-220-7004

COMMANDER, FOURTEENTH COAST GUARD DISTRICT
PRINCE KALANIANA'OLE FEDERAL BLDG.
9TH FLOOR, ROOM 9139
300 ALA MOANA BLVD.
HONOLULU, HI 96850-4982
PHONE: DAY 808-541-2317, NIGHT 808-541-2500

COMMANDER, SEVENTEENTH COAST GUARD DISTRICT
P.O. BOX 25517
JUNEAU, AK 99802-5517
PHONE: DAY 907-463-2245, NIGHT 907-463-2000

Figure 421. U.S. Coast Guard Districts.

with which it can be reproduced. At present, these files are too large to be broadcast effectively, but with the proper bandwidth the concept of transferring entire chart portfolios worldwide via satellite or fiber-optic cable is entirely feasible.

Corrections to the DNC published by NIMA are being made by Vector Product Format Database Update (VDU). These are patch corrections and are available via the Web and by classified data links used by the Department of Defense.

Corrections to raster charts issued by NOAA are also available via the internet. To produce the patch, each chart is corrected and then compared, pixel by pixel, with the previous, uncorrected version. Any differences between the two must have been the result of a correction, so those files are saved and posted to a site for access by subscription

users. The user accesses the site, downloads the compressed files, uncompresses them on his own terminal, and writes the patches onto his raster charts. He can then toggle between old and new versions to see exactly what has changed, and can view the patch by itself.

NOAA developed this process under an agreement with a commercial partner, which produces the CD-ROM containing chart data. The CD-ROM also contains *Coast Pilots*, *Light Lists*, *Tide Tables*, and *Tidal Current Tables*, thus comprising on one CD-ROM the entire suite of publications required by USCG regulations for certain classes of vessels. Additional information can be found at the NOAA Web site at: <http://chartmaker.ncd.noaa.gov>.

See Chapter 14 for a complete discussion on electronic charts and the means of correcting them.