

PART III

COASTAL RESOURCES & ARTICLES

Safety & Navigation

The Invaluable Nautical Chart

A nautical chart provides a water roadmap without the roads. In their place, depth readings, buoys, lights, day markers, beacons, and other floating or fixed devices help signal where you are.

A chart can be tricky to read initially. Since it shows no lines of travel, you must locate where you are on the chart and on the water, and then plot a course to your destination. That course is rarely straight, as you often have to skirt around islands and peninsulas en route to your destination.

Navigating your course on the water is much easier if you have carefully studied the chart before getting underway. Keep the chart readily accessible for reference once underway. Make sure that you know the scale of the chart so you can accurately estimate distances. If the scale is 1/40,000, for example, 1 inch on the chart will depict 40,000 inches on land or water. Small boat skippers will find charts in and around this particular scale most useful.

Official charts for navigable ocean waters and the Great Lakes are issued by the National Ocean Survey (NOS), an agency of the National Oceanic and Atmospheric Administration (NOAA) in the Department of Commerce. These charts are available individually and in chart books from many marinas, ship chandlers, mail-order houses, and bookstores.

Note that the mileage scale on charts depicts nautical rather than land miles (a land mile is roughly 5,280 feet while a nautical mile is approximately 6,080 feet, or just about 2,000 yards). Distance measurements can be taken from the mileage scale shown on every chart (in yards and nautical miles), and can be determined from the latitude marks along the vertical border of the chart. One minute (shown as ') of latitude is equal to 1 nautical mile, while the chart is lined off in 5-minute (or 5 nautical miles) rectangles. Using a pair of dividers, one can accurately measure distances with this scale. (It's better not to use the longitude increments along the top and bottom borders of the chart as a minute of longitude equals 1 nautical mile only at the Equator!).

In one or more places on the face of the chart you will see compass roses pointing to north and magnetic north. The chart is always oriented to True North, depicted on the outside scale of the rose. But if you are navigating by compass, you need only be concerned with the inner, magnetic, circle.

The following symbols are important ones for all boaters to understand.

Green Areas denote intertidal areas that are covered at high tide and exposed at mean low water (which is how chartmakers describe the average low water used to determine all depths marked on the chart).

Soundings are the numbers in the water areas and are the depths given in feet at mean low water.

Depth Lines are the solid black lines on the water that look something like contour lines on a topographical map. Not surprisingly, they indicate underwater contours, and the depths are

determined in feet (at mean low water). The first three lines out from land indicate 6 feet, 12 feet, and 18 feet (or 1, 2, and 3 fathoms) respectively. Waters between them are in different shades of blue. The next is the 60-foot (10-fathom) line. Depth lines frequently are broken by a small number indicating their depth, which is particularly helpful as one gets into deeper water. Most boat owners are concerned primarily with water depths in the blue areas.

Rocks are shown as asterisks in their approximate locations on the bottom. Heed them, because those marked may be close enough to the surface at times to cause damage to hulls, keels, or propellers.

Bridges spanning navigable waters show clearance in feet.

Lights that are fixed show a small red beam on the chart, along with information on their height above sea level, range and identifying characteristics.

Buoys: Nuns are solid buoys sloping to a peak, painted red and identified by an even number. Cans are solid buoys painted green and identified by odd numbers. Nuns and cans usually mark channel edges or hazards, with red nuns kept on the right-hand side of the boat when you are returning from sea (remember "red, right, returning"). When you're headed out to sea, they should be passed to your left. Other buoys of immediate interest are bells, gongs (deeper tone than bells), whistles, and lights, all of which are useful in determining one's location in poor visibility. All buoys have identifying marks that are noted on the chart.

Day Markers may be stone pylons or monuments, iron posts embedded in a ledge, or other fixed marks that can be seen from the water. Pay particular attention to those marking hidden ledges close to shore.

A final note: Buoyage and other navigational aids change periodically, and the only safe way to stay even with these changes is to keep your charts up to date and read the *Local Notice to Mariners*, available from the U.S. Coast Guard.