CHARTS

A chart is a map that shows a view of the ocean, lake, river or harbor and the shores associated with them.

The chart includes information on water depth (depth can be in feet, meters or fathoms), overhead clearances, aids to navigation (ATONS or buoys, lights etc.) shore profile, type of bottom, and other information for safe navigation.

The General Information Block

The general information block has the chart title and short description of the area covered, the type of projection, the scale, how the depth of the water is measured and the vertical and horizontal datum.

The lower left corner of the chart has the chart number and the edition and date of publication and latest revision.

The chart number is in each corner of the chart.

The chart also has general information about the local area covered such as notes about ferry routs and VTS (Vessel Traffic System)

The depth of the water in the Northwest is MEAN LOWER LOW WATER (MLLW). That is the average of the lower of the two daily tides. The depths are averages which means that there may be less water depth than indicated due to minus tides, wind effects or storms etc. This means that when you are in areas that are shallow extra attention should be paid to the actual depth of the water as measured or observed.

The height of objects above the water is MEAN HIGH WATER (MLW). This is the average of level of the high tides. Storms and other abnormal conditions are excluded from the calculations. This represents the minimum clearance above the water at mean high tide.

Water Depth

Deeper water is white colored, shallower water is light blue in color. IMPORTANT: Deep and shallow are relative to the individual chart. One chart may have blue color starting at 16 feet while another chart of the same area may have the blue start at 40 feet. Most navigators switch to a more detailed (larger scale) chart when they enter a blue colored water area.

Water depth can be measured in FEET, FATHOMS or METERS. Feet is currently the most common depth measurement in the Northwest. A fathom is 6 feet. Charts showing the entire Puget Sound area are commonly in fathoms. A meter is just over 3 feet. (1 meter == 3.28 feet) Deeper water charts usually use fathoms which is the traditional depth measurement.

It is very important to check the chart to determine the units used for depth measurement.

Latitude and Longitude

Latitude and Longitude are used to describe a point on the earth's surface. This works exactly like the X & Y axis on a chart in High School Geometry Class.

Longitude lines run from the North to the South Pole and describes a point that is east or west of the Prime Meridian. The Prime Meridian passes through the Royal Observatory in Greenwich, England. Longitude is described as East or West 000 to 180.

Latitude lines are parallel to the Equator and describe a point that is north or south of the equator. Latitude is described as North or South 000 to 090.

Latitude and Longitude are measure in degrees. 360 degrees in a circle. Each degree is divided into 60 minutes (60') and each minute is divided into 60 seconds (60"). When plotting on a chart it is common to us tenths of a minute or degrees depending on the chart when describing a position.

Distance

Distances on charts are measured in NAUTICAL MILES.

To arrive at a Nautical Mile take 360 Degrees in a circle X 60 Minutes in a Degree == 21,600 minutes. There are 21,600 nautical miles around the earth.

This makes one Minute of Latitude equal to one Nautical Mile. The Latitude Scale on the sides of the chart can be used as well as the mileage scale to measure distances. DO NOT us Longitude to measure distances - the only time that Longitude is accurate is for a distance at the equator.

On July 1, 1959 the nautical was set at 1,852 meters (aprox. 6,076 feet). A statute mile (used on land) is 5,280 feet. This makes a nautical mile equal to 1.15 (aprox. 1 1/7) statue miles.

A KNOT is one nautical mile per hour. This is commonly spoken as Knots (i.e. 5.8 knots) when giving speed NOT Knots per hour.

Compass Rose

The Compass Rose on a chart is used to indicate direction.

The Compass Rose has two scales. The outer scale indicates True direction the inner scale shows Magnetic direction.

There may be more than one Compass Rose on a chart, this is because the earth's magnetic field can vary from one area of the chart to another. When measuring direction use the closest Compass Rose to the area you are plotting on.

The failure of a compass to point to True North is called Variation. The compass points to Magnetic North not True North. Magnetic North is located on Prince of Wales Island in Northern Canada. Variation is measured as East or West.

The variation is noted inside the compass rose. Variation changes slightly each year so the inside of the compass rose shows the amount of variation on a specific date and the annual change.

Magnetic north is used on the deck of a boat.

When calculating the direction to steer on a boat allowances must also be made for the local magnetic fields (deviation) on each individual boat. The local fields can be caused by ferrous (magnetic) metal. See the reference on Correcting and Uncorrecting a compass.

© http://www.captnmike.com/