BOAT CREW BASICS

A GUIDE FOR BOAT CREW CANDIDATES & MENTORS

By: Bob Peterson, Coxn / QE / Air Crew, ADSO-OPT, D11 NR July, 2008

"Plot a Position, Plot a Course & Measure Distance"

Navigation tasks used to be the exclusive province of the Coxswain; no longer. These days Crew Members must be able to plot positions using Latitude and Longitude, Plot a Magnetic Course and Measure distance on a nautical chart. Although the Coxswain will typically take responsibility for these tasks, if he or she becomes incapacitated, one of the crewmembers must take over these tasks.

Given a nautical chart of the local waters, the crewmember must be able to graphically depict an assigned latitude and longitude into a pin-point position on the chart. You'll need to know that latitude is the distance North of the Equator, and longitude is the distance West of the Primer Meridian. For instance, San Francisco Bay is roughly 37 degrees above the Equator and 122 degrees West of the Prime Meridian.

Whole degrees are broken down into minutes and seconds or minutes and decimals of a minute. There are 60 minutes in a degree and 60 seconds in a minute. Halfway between 37° North latitude and 38° North latitude is 37° 30'. Halfway between 37° 30' North and 37° 31' North is 37° 30' 30" or 37° 30.5' North. Typically most mariners adopt one system or the other and program their electronic navigation instruments (like GPS and Loran) to display the chosen type of position.

Once you become familiar with the basics of naming various lines of latitude and longitude, you will need to find them on the chart. Where the line of latitude and line of longitude intersect is a position. If you were asked to find a position close to the side of a chart, it would be easy to read the latitude. But when the position in question is somewhere near the middle of the chart, you need to transfer the latitude from the charted position over to the side of the chart, to read the latitude. This can be done by using dividers to determine how much the charted position is above or below a convenient line of latitude and then transfer that distance over to the latitude markers on the side of the chart to read the latitude. You do the same thing left and right to measure longitude.

Once you become proficient at plotting positions on the chart, it is a straightforward matter to draw a line between two positions to plot a course. If you drew a line between the entrance to Coyote Point in San Mateo County to the entrance to San Leandro Marina Channel in Alameda County you have established that course. Then if you "walk" the course, by transferring it using parallel rules, from the course line over to a convenient compass rose on the chart, you find that the course if 028° magnetic. If you start in the other direction, the course is 208° magnetic.

You need to become familiar with transferring a magnetic bearing or course from a compass rose to a specified position on the chart and vice versa. For example, if the QE asks you to plot a course from a given point to another point, you draw a line between both points and then determine the course of that line by sliding a rolling plotter or walking parallel rules from the course to the compass rose.

Measuring distance is typically accomplished by opening a pair of dividers until both points sit on top of two positions and then transferring this distance to the charts mileage measure in the legend box. Remember that a minute of latitude (not longitude) is one nautical mile long. So you might find it easier to transfer a distance via dividers from the chart over to the latitude scale along either side of the chart.

Note that in a pinch, after dropping your dividers overboard, for example, you can transfer a distance from the chart to the mileage markers or latitude scale by using two dots on the edge of a piece of paper or the distance between the bottom edge of a piece of paper and a dot placed on the edge. We used to make copies of portions of charts that did not have mileage markers on them for Nav problems, just to make it a bit harder for the student, and to remind him or her that the latitude scale works just as well.