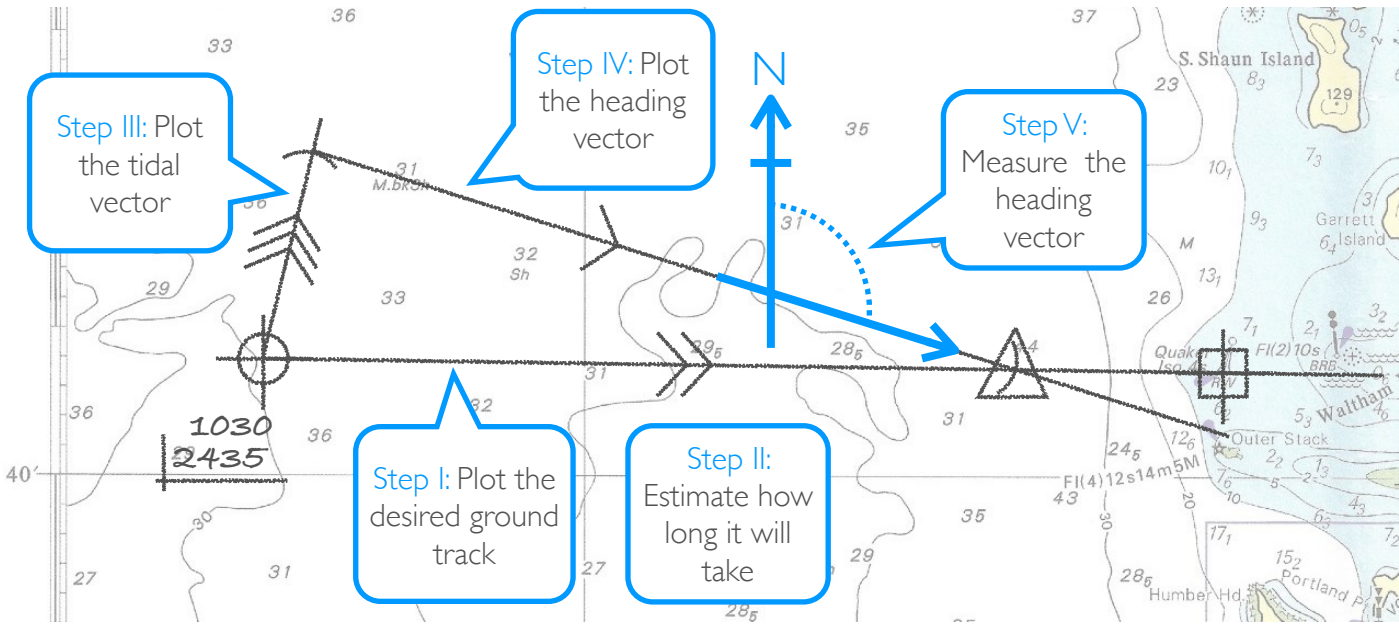
HOW TO PLOT A COURSE TO STEER

A course to steer calculation is a pre-emptive navigational technique to consider the tidal impact on our journey and apply appropriate compensation to the boat's heading.



Step I: Plot the desired ground track

Plot a waypoint at your intended destination and a line from your current position through and beyond the waypoint.

Step II: Estimate the duration of the trip

Measure the distance between the two and, using your boat's average speed, estimate how long the trip will take.

Step III: Plot the tidal vector

Using any appropriate source of data (tidal diamonds, tidal stream atlases, mobile apps), find out what direction (set) and amount (rate) the tide will be for your time and duration of travel.
Plot this on your chart as a tidal vector. This vector starts at your current position.

Step IV: Plot the heading vector

Once you know the tide's impact for the trip's duration (represented by the end of the tidal vector), plot the boat's speed in the form of a heading vector.
The heading vector represents how far the boat will travel through the water during the trip.
i) Using your dividers, measure the distance the boat will travel based on its average speed. For example, measure six nautical miles if your plot is 1 hour and the boat's average speed is 6 knots. If the plot is half an hour and the average boat speed is 6 knots, measure three nautical miles.
ii) Leaving them set at the correct distance, place one end of your dividers on the end of the tidal vector and see where the other end crosses your intended ground track. Mark this position.

It will not be your destination waypoint. It will either be before or after. It is an Estimated Position of where you would be if you travelled for the duration of your plot. As such, you can mark this position with a triangle.

Step V: Measure the heading vector's bearing

Using a Portland Course Plotter, measure the bearing of the heading vector. This will give you a true bearing that must be adjusted for variation before it can be used on the ship's compass. Remember to measure it the correct way around. The direction of bearing will be towards the destination waypoint.