

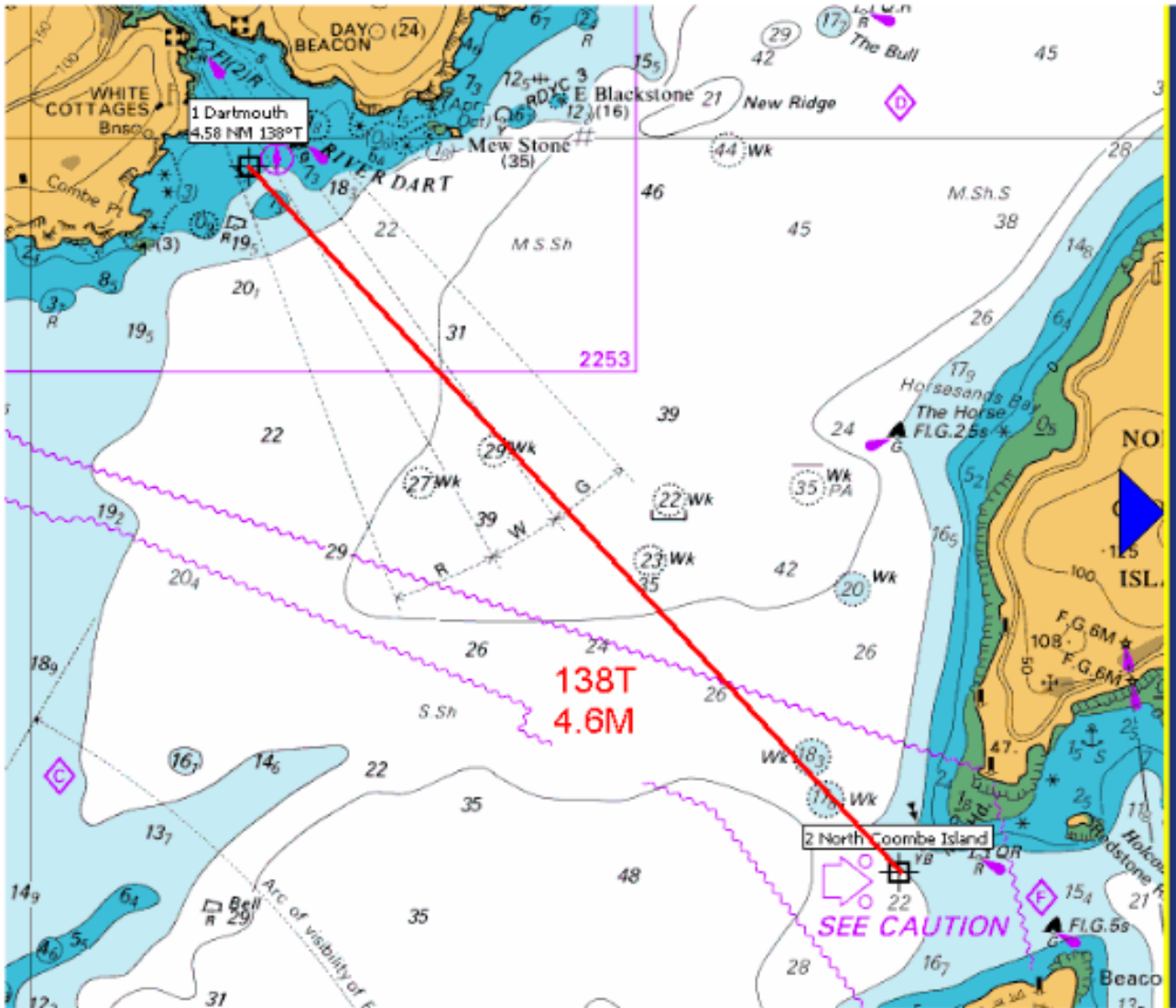
At Level 2 we really only want to introduce people to GPS and its capabilities. For a coastal Level 2 course the level that they require would be along the lines of:

1. Explain the basics of a waypoint i.e. a position on the Earth's surface expressed in Lat / Long.
2. Mark two on a chart, preferably one of your own operating area

Read off their Lat and Long- in this case Dartmouth $50^{\circ} 19'.89N$ $004^{\circ} 33'.49W$ and North Coombe Island $50^{\circ} 16'.49N$ $004^{\circ} 28'.74W$



3. Now join the 2 waypoints, measure the true bearing and the distance – in this case 138° T 4.6M



4. Quick explanation of where GPS gets its position information from (spend only 2 minutes maximum on this)



5. Show the GPS screen and point out the very basics i.e. Lat/Long etc

The diagram shows a GPS screen with the following data and callouts:

- Heading:** A scale from 0 to 360 degrees with 'N' at 0. The value '345' is on the left and '015' is on the right. A diamond marker is at 015. Callout: "GPS Shows current heading over ground, but most will only work when the vessel is moving"
- TRACK:** A label above a horizontal line with a small circle above it. Callout: "Track is the same as the heading but shown numerically"
- SPEED:** A label above a horizontal line with a small circle above it. Callout: "Speed shown is speed over the ground"
- TRIP BTW:** A label above a horizontal line with the value "0.0ⁿ_m".
- POSITION:** A label above a horizontal line with the values "N 50°46.469'" and "W001°10.554'". Callout: "Position shown in Lat / Long. Mention Datums, eg WGS84."
- TIME:** A label above a horizontal line with the value "18:52.53".

6. Now put the waypoints into your GPS and make a route between them.

7. Now compare the two bearings and distances from the chart to the GPS – they should be the same.

Bearing from GPS is same as the chart

Distance from GPS is the same as the chart

ROUTE: 11			
DART TO COOMBE			
NO	WAYPNT	BTW	DTW
1	DARMOU	138°	4.6
2	N-COOM	○	— . —
3	— — — —	○	— . —
4	— — — —	○	— . —
5	— — — —		
TOTAL DST		4.58	
COPY TO:			
CLR? INV? ACT?			

The following would normally be introduced on the Intermediate course but could be covered at Level 2 if your students are doing particularly well.

- BTW The bearing of one waypoint from another (usually the next one on your route).
- DTW The distance of one waypoint from another (usually the next one on your route).
- COG Course over the ground after tide and leeway
- SOG Speed over the ground after tidal influence
- XTE Cross track error – how much you have deviated from the direct route when travelling between two waypoints.