

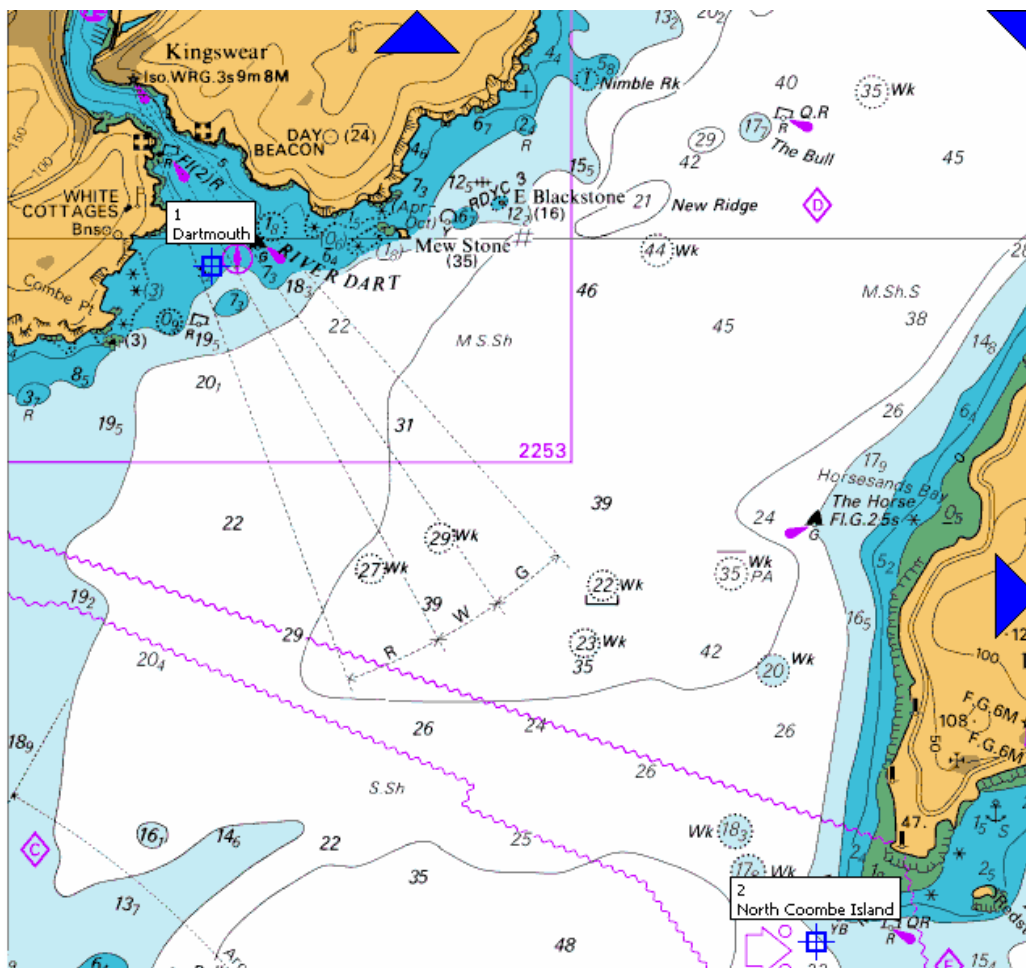


## GPS at Level 2: To what level should it be taught?

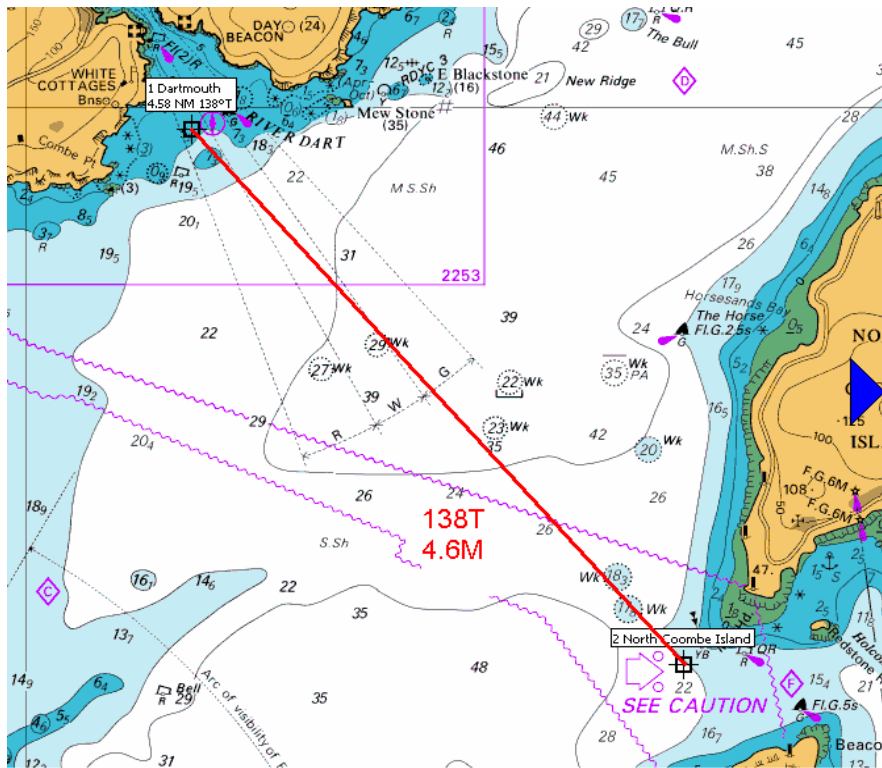
At Level 2 we really only want to introduce people to GPS and its capabilities. For a coastal Level 2 course the level that they require would be along the lines of:

- 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

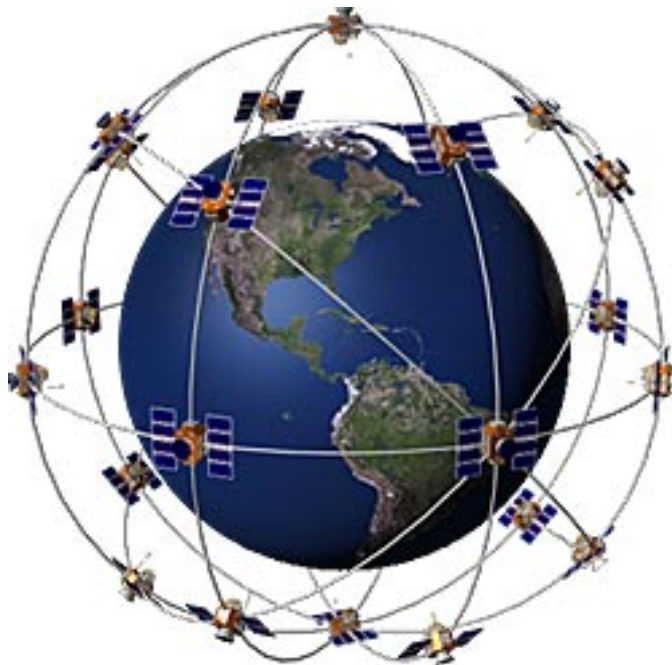
Read off their Lat and Long - in this case Dartmouth  $50^{\circ}19'.89N$   $004^{\circ}33'.49W$  and North Coombe Island  $50^{\circ}16'.49N$   $004^{\circ}28'.74W$



- 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 345. Callout: "GPS Shows current heading over ground, but most will only work when the vessel is moving".
- TRACK:** A label above a horizontal line. Callout: "Track is the same as the heading but shown numerically".
- SPEED:** A label above a horizontal line. Callout: "Speed shown is speed over the ground".
- TRIP:** A label above a horizontal line. The value is  $0.0^{\text{n}}_{\text{m}}$ . Callout: "Track is the same as the heading but shown numerically".
- BTW:** A label above a horizontal line.
- POSITION:** A label above a horizontal line. The values are  $N 50^{\circ}46.469'$  and  $W001^{\circ}10.554'$ . Callout: "Position shown in Lat / Long. Mention Datums, eg WGS84".
- TIME:** A label above a horizontal line. The value is  $18:52.53$ .

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

<b>ROUTE: 11</b>		
<b>DART TO COOMBE</b>		
<b>NO WAYPNT</b>	<b>BTW</b>	<b>DTW</b>
<b>1 DARMOU</b>	<b>138°</b>	<b>4.6</b>
<b>2 N-COOM</b>	°	—•—
<b>3 — — — —</b>	°	—•—
<b>4 — — — —</b>	°	—•—
<b>5 — — — —</b>		
<b>TOTAL DST</b>		<b>4.58</b>
<b>COPY TO: _ _</b>		
<b>CLR? INV? ACT?</b>		

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.