Plotting a Fix

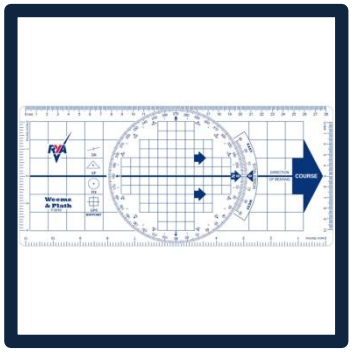
A step by step guide to plotting a fix

Introduction

Now that you understand the difference between magnetic and true bearings and how to convert them, this presentation will show you how to plot a simple fix on a chart when on passage

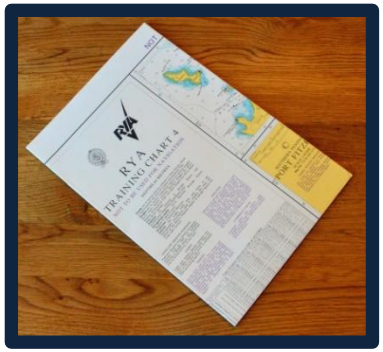
You Will Need

RYA Chartplotter



Dividers

RYA Practice Chart 4



Pad of paper, pencil and rubber

Question

At 15.24 the following bearings were taken to the SW of Rozwelle Cove

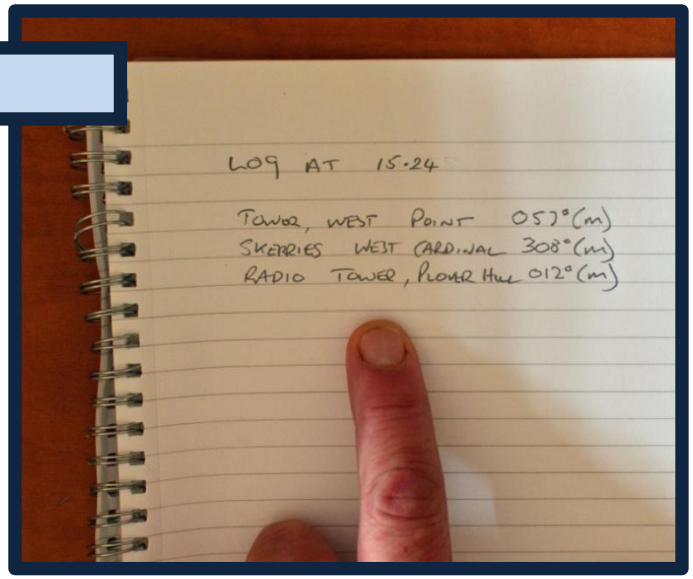
- **Observation tower, west point - 057 degrees (M)**
- **Skerries west cardinal buoy - 308 degrees (M)**
- **Radio tower, Plover Hill – 012 degrees (M)**

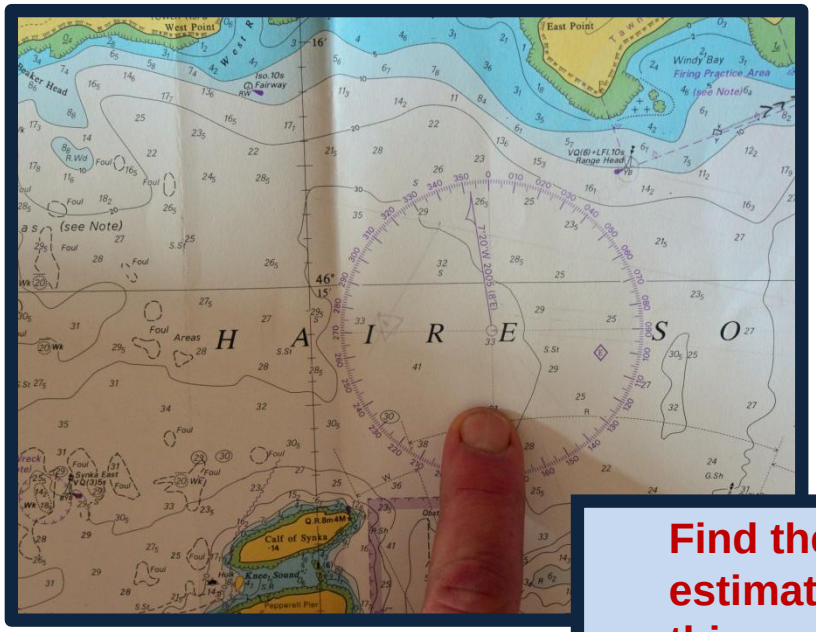
At the time the bearings were written in the logbook, the depth was 10.3m and the log was reading 38.2m

Plot the fix at 15.24 and how can you check this position?

Convert the Bearings

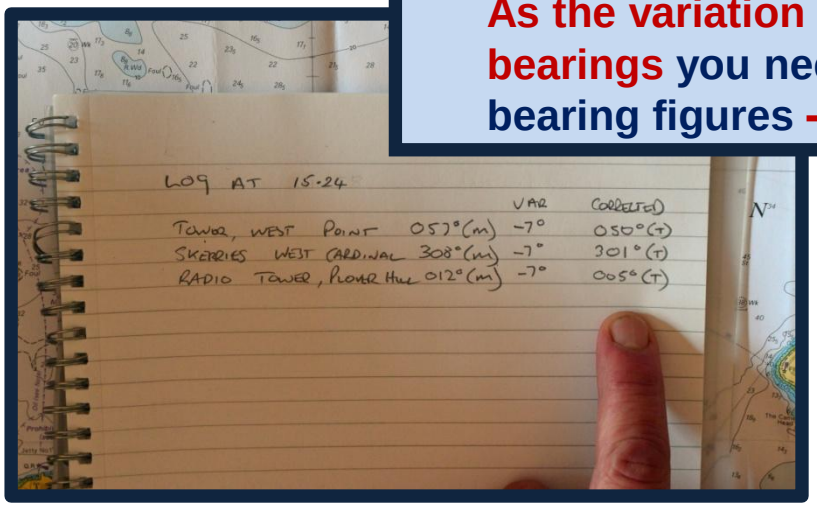
Write down the log information





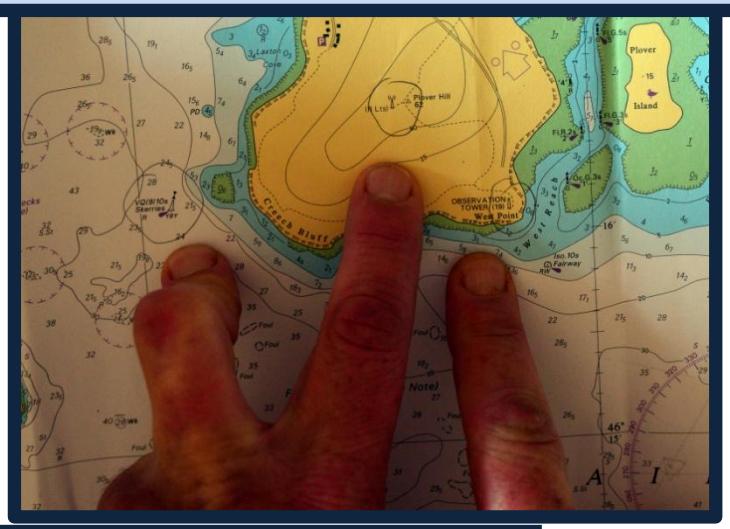
Find the compass rose closest to your estimated position and write down the error, in this case it is approx. 7 degrees West

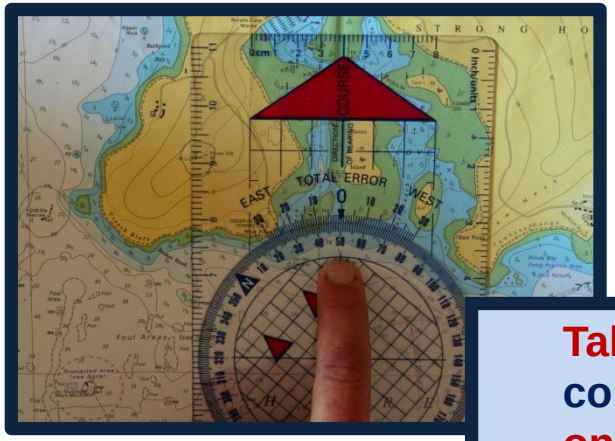
Converting the Bearings



As the variation is west and you are working off magnetic bearings you need to take the variation away from the bearing figures – not add it

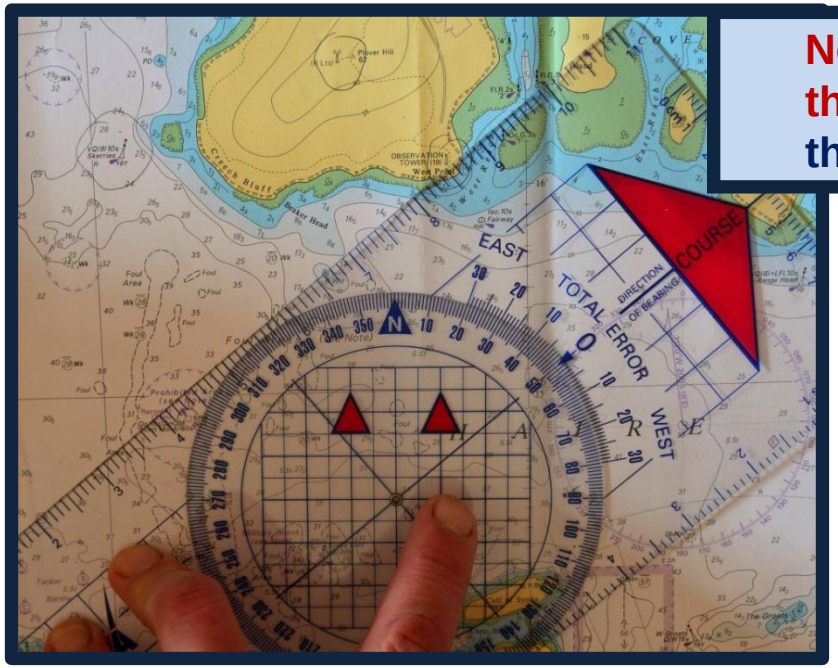
Next identify the bearing points on the chart and lightly circle them so you can find them easily



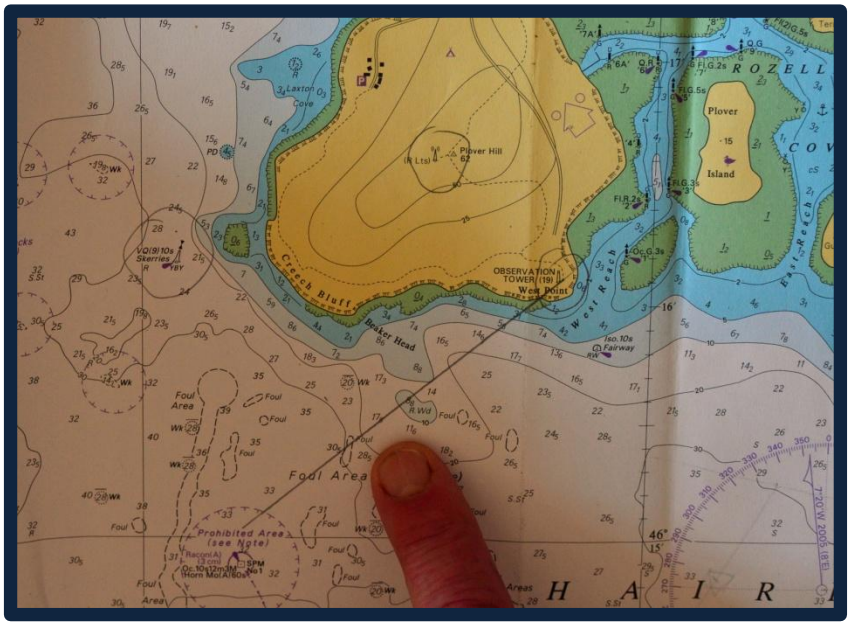


Taking your chart plotter dial in the first corrected bearing, in this case the tower on West Point, 50 degrees

Plotting the Fix

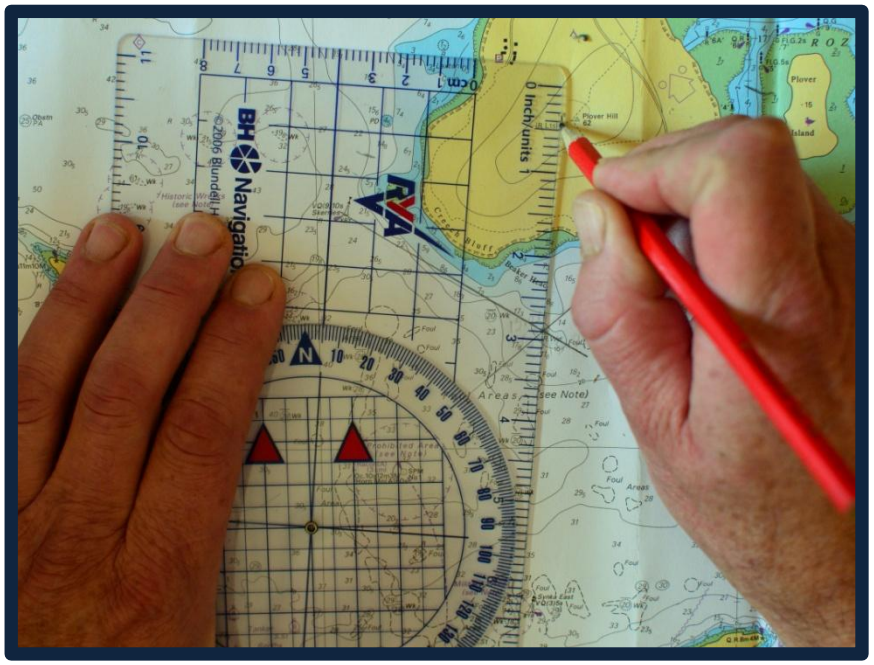


Now, line the plotter up on the tower ensuring the plotter is aligned North correctly using the vertical lines of the chart and draw a line

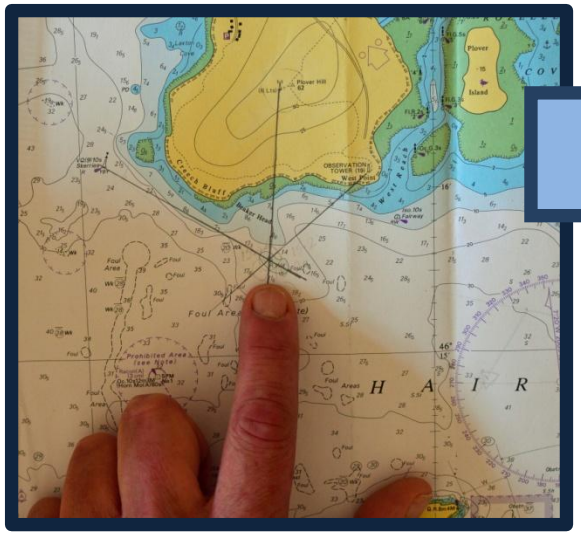


Plotting the Fix

Next, repeat the process with the other two bearings

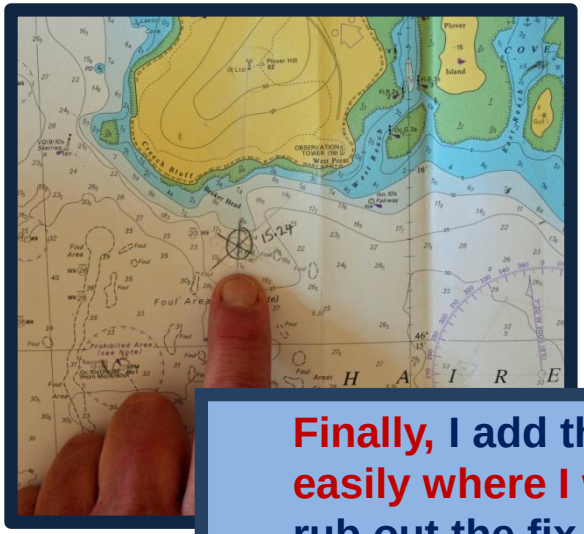


Plotting the Fix



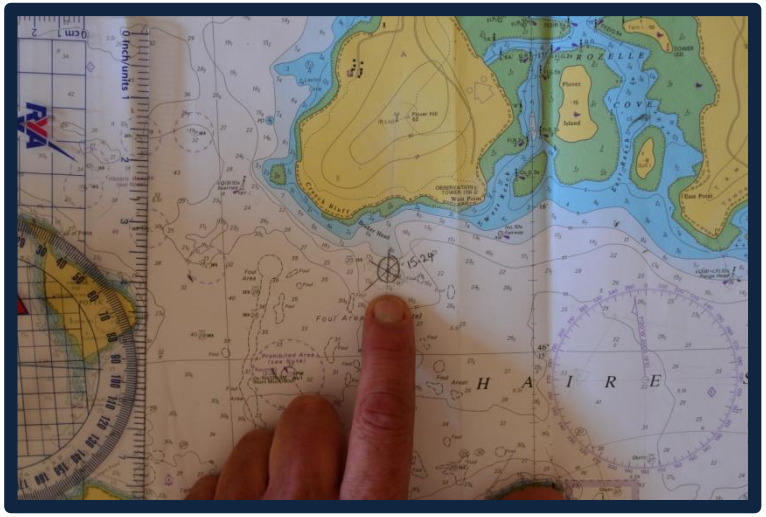
After you have done this you will end up this

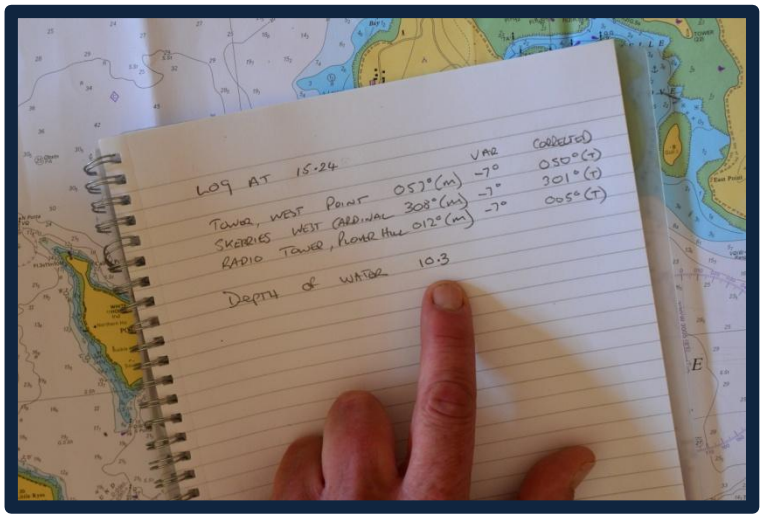
Now circle it. This is the symbol you use to mark a fix



Finally, I add the time next to the fix so I can see easily where I was and what time I was there, I then rub out the fix lines to keep the chart uncluttered

Checking the Fix

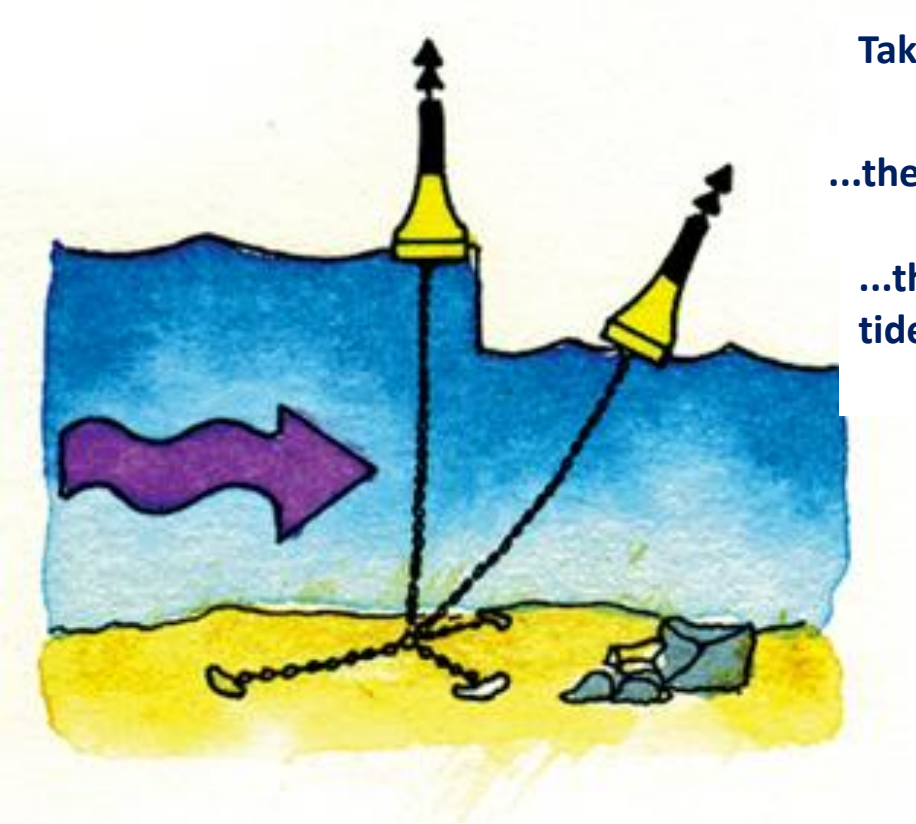




In this case you know the depth of water when the fix was taken, so look at the chart and after making allowances for the tide you can see if the depth on the chart is similar to the one in your log book

Considerations

Accuracy



Take care when using buoys for a fix...

...they can move off station in bad weather

...their position may change slightly as the tide rises and falls

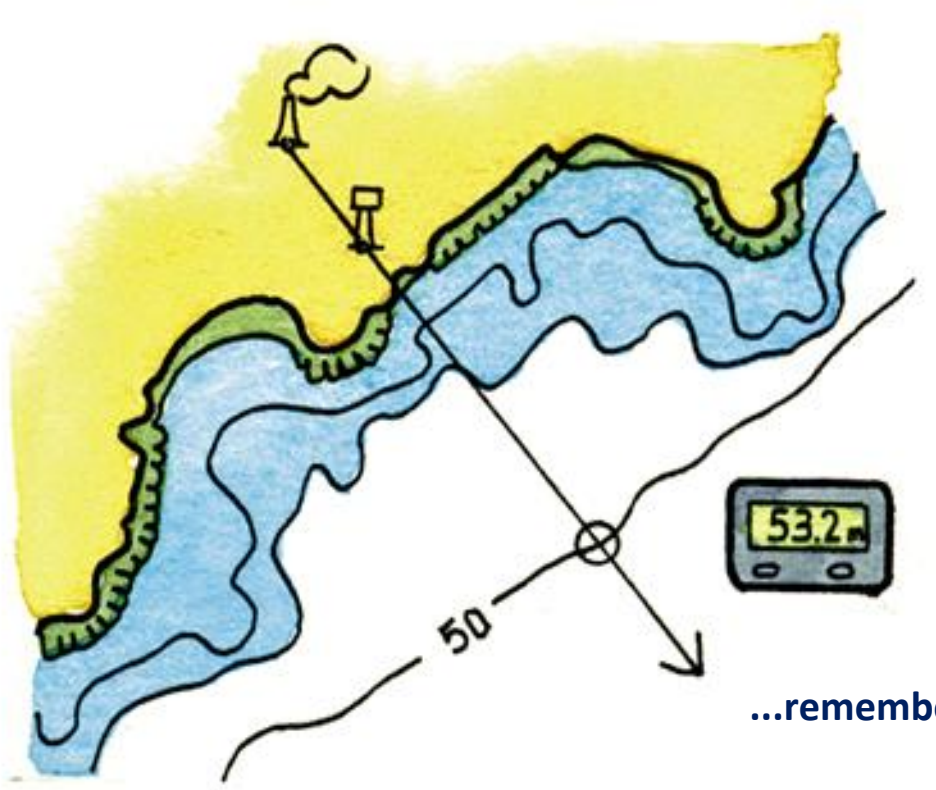
Considerations

Accuracy

When using a hand bearing compass the motion of a boat at sea can make it difficult to obtain a precise fix

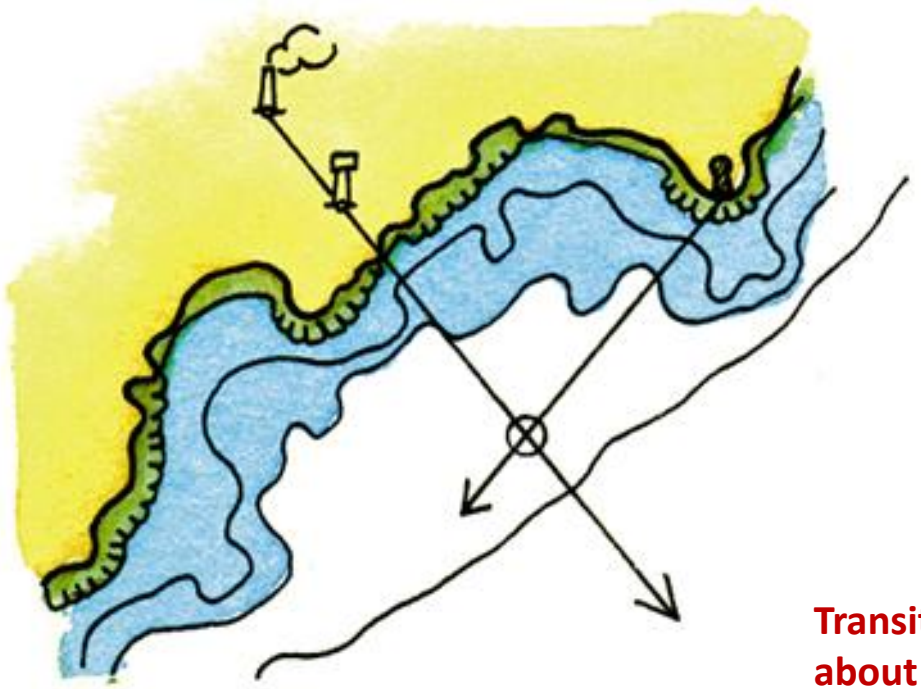
Other methods of Fixing Position

Transits and contours...



...remember to allow for the height of tide

Other methods of Fixing Position



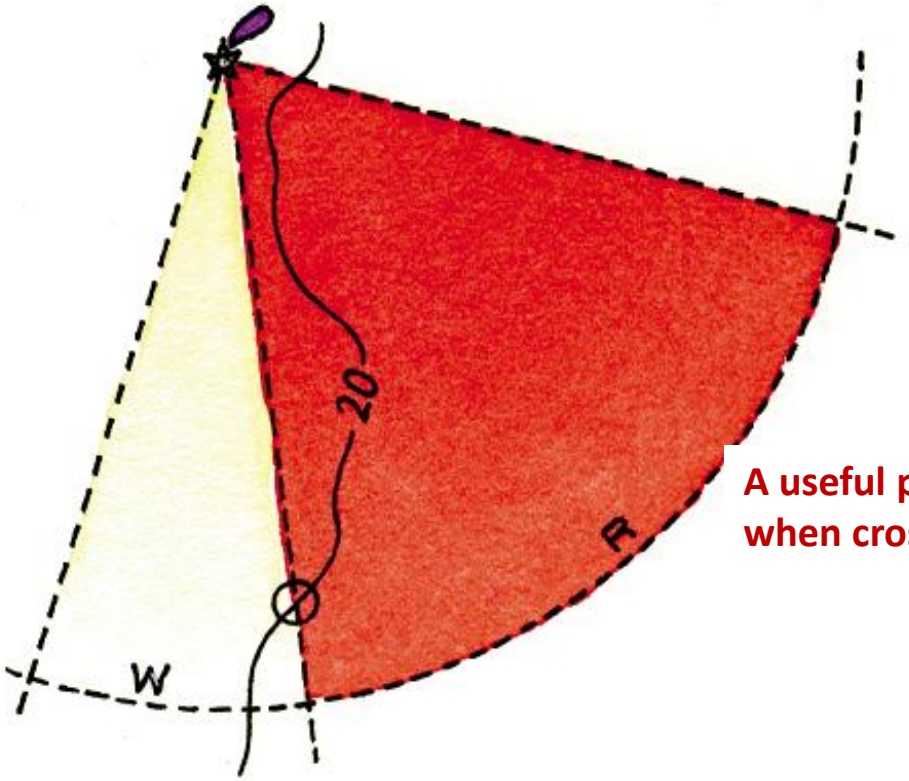
Transit and bearing, use a bearing at about 90° to a transit to obtain the best angle of cut

Other methods of Fixing Position

A very simple fix can be obtained when passing a charted object

Other methods of Fixing Position

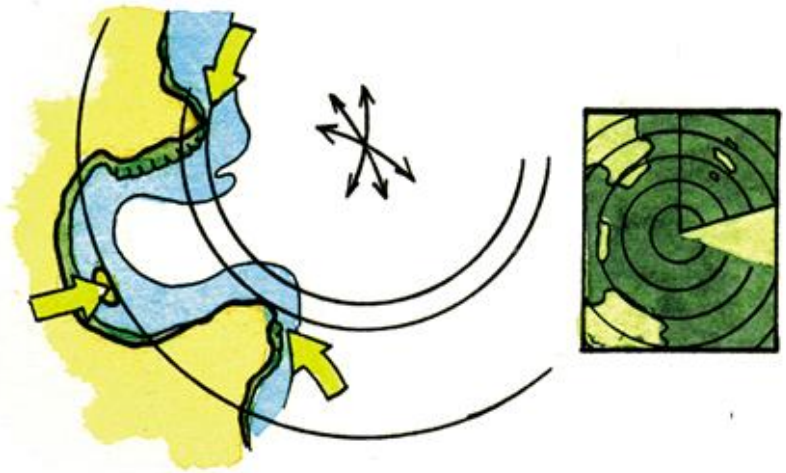
Sector light



A useful position line can be obtained when crossing between sectors

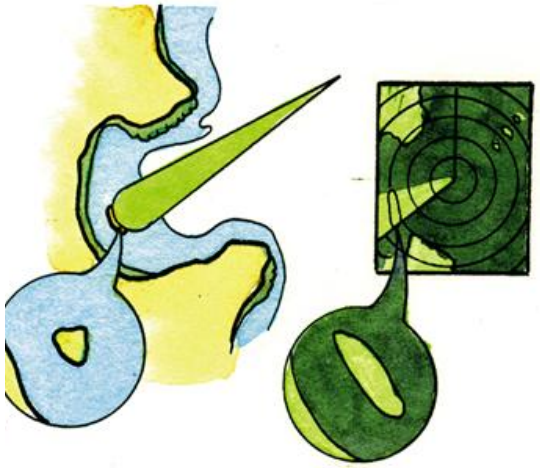
Other methods of Fixing Position

Radar



...radar can measure range very quickly and accurately, use 2 or 3 ranges to obtain a fix

....must, however, be used with caution, the average radar beam width is 5° or more making the image seem stretched



Further Reading

We highly recommend Tim Bartlett's
RYA Navigation Handbook (G6)

You can buy a copy of this book by visiting our on-line shop

www.penguinsailing.com