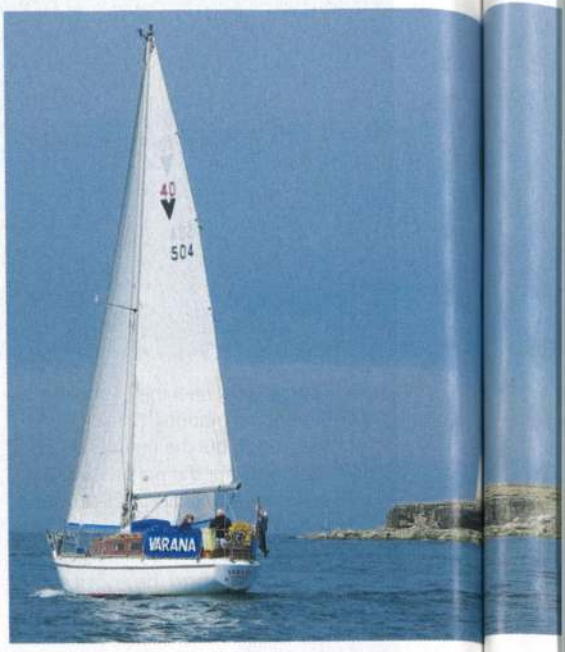
How to plan a passage

John Scott describes the ABC of passage planning on paper in the age of GPS



For some, passage planning consists of a few jottings related to the weather forecast and some reference to tidal streams and strengths. For me it is a labour of love, a challenge for me and my boat against the elements, and a test of how accurately I can forecast our arrival time given all the information at my disposal. Over the last quarter of a century it has served me well, and on passages of 40-80 miles, we almost always arrive very close to the ETA.

My system is simple and logical and is no doubt similar to many other people's approach to planning. Input is derived from the following sources:

- Relevant charts
- Reeve-Fowkes Tidal Atlases
- Reeds Tidal information (or other)
- Weather Forecast
- Pilot books (in certain cases)

All my passage plans are done in a hardback A4 notebook, which is useful for reference when doing the same passage at some later date. In some cases, I have discovered the magic formula for a particular passage which has been repeated despite having to get up at some ungodly hour to achieve the same results.

Plans are done for all passages in excess of 20 miles, or less if a favourable tide cannot be relied upon throughout.

For the purpose of demonstrating the planning system, I have taken as an example a 60-mile passage made last year from Gosport to Eastbourne on the way back from the Solent to the East Coast. The plan was done about six weeks beforehand so that my crew had advance knowledge of start and arrival times and could organise themselves accordingly. A copy of the full plan is shown below.

The planning process was as follows:

Step 1

Reference was made (in this instance) to the book *South North Sea and Eastern English Channel Tidal streams and heights* by Michael Reeve-Fowkes (available on amazon.co.uk). I have found this series of tidal atlas to be an invaluable planning guide as it not only gives tidal rates and direction hourly, but also a conversion table providing the adjusted rate of flow based on the height and time of high water Cherbourg (hereafter referenced as CH) on that day.

The almanac showed that on 29 August, the date of my intended passage, High Water Cherbourg was 1028 BST – height 6.2m and then again at 2241 BST – height 6.3m.

Step 2

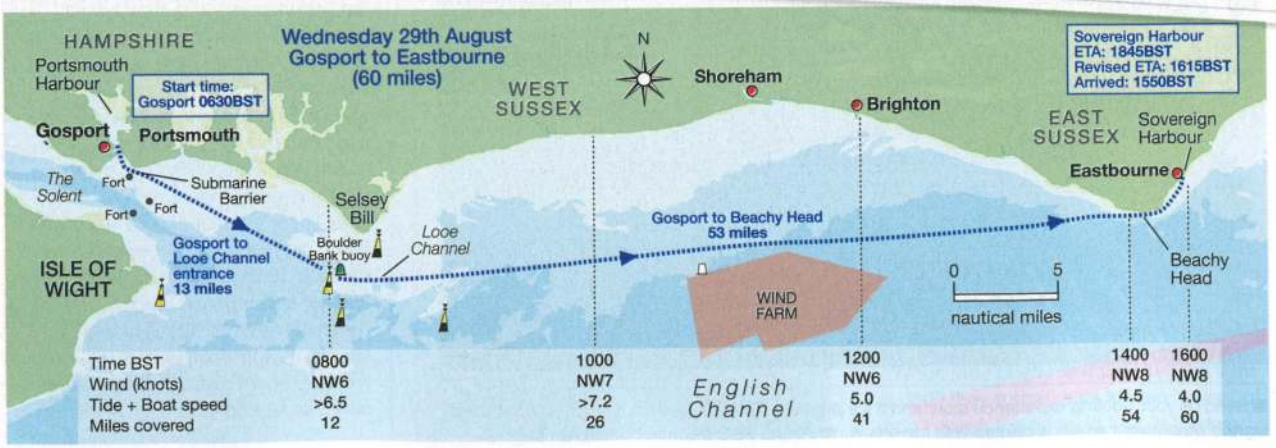
It was necessary first to consider what key challenges there would be confronting us on the passage. In this instance there were three:

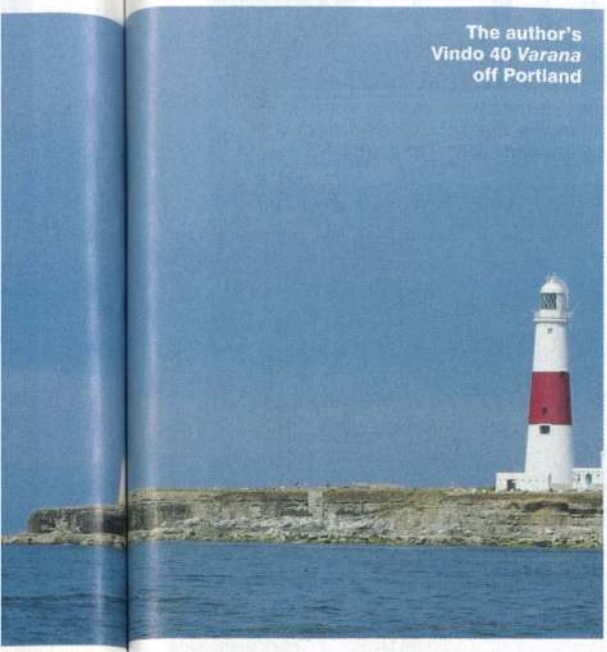
Wednesday 29th August Gosport to Eastbourne (60 miles)

High water Cherbourg 1028 (6.2 metres) BST, 2241 (6.3 metres) BST

Notes:- 1) Easterly set thru' Looe Ch. = CH -4 to CH +1
2) 53 miles to Beachy Head
3) 13 miles to Boulder Bank Buoy (Looe channel)
4) LW Eastbourne (Shoreham +015) = 2015 BST

① HWCH	②	③ Tidal Dir & Speed	④ Dist Made	④A	⑤ Dist Acc	⑤A
-4	0630	↘ 0.3	5.0			
-3	0730	→ 0.2	5.2	6.2	5.0	5.0
-2	0830	→ 0.7	5.7	6.7	10.2	11.2
-1	0930	→ 1.3	6.3	7.3	15.9	17.9
HW	1030	→ 1.2	6.2	7.2	22.2	25.2
+1	1130	→ 0.9	5.9	6.9	28.4	32.4
+2	1230	SLACK	5.0	6.0	34.3	39.3
+3	1330	SLACK	5.0	6.0	39.3	45.3
+4	1430	← 0.7	4.3	5.3	43.3	51.3
+5	1530	← 1.1	3.9	4.9	47.6	56.6
+6	1630	← 1.8	3.2	4.2	51.5	61.5
-6	1730	← 1.2	3.8		54.7	ETA 1615
	1830				58.5	
					ETA 1645	





The author's Vindo 40 *Varana* off Portland

- The Looe Channel off Selsey Bill
- Beachy Head
- Depth at the entrance to Sovereign Harbour, Eastbourne.

All were particularly critical on this occasion as it was spring tide. The following was therefore noted on the passage plan:

- 13 miles from Gosport to the entrance of the Looe channel
- the easterly flow through the channel was CH HW -4 to HW+1
- 53 miles from Gosport to Beachy Head – low water Eastbourne (Shoreham +015) = 2018 BST

Step 3

A passage plan revolves around minimising the potential adverse impact these challenges pose. The tide at the western end of the Looe Channel (Boulder Bank buoy) flows at up to 6 knots at springs and 2 knots in a westerly direction at Beachy Head. Clearly, ensuring an easterly flow through the Looe Channel was of paramount importance.

The plan is always based on a boat speed of 5 knots so it was going to take just under three hours to reach the entrance to the Looe Channel and on this basis I opted for a start time of 0630 BST.

The passage plan in question is shown in the diagram which has five columns in black pen. The second of these lists times hourly from 0630 onwards. Alongside in column 1 are shown the number of hours before and after high water Cherbourg (HW being at 1030 BST).

Now follows the planning process: using the Reeve-Fowkes tidal information, the tidal direction and rate (using the conversion table to adjust the rate to that shown for 6.2m HW) is entered in column three from 0630 BST onwards.

It is often necessary to make a judgement: for instance in the first hour the tidal chart shows a beneficial south south-east flow at 0.2 knots (0.3 adjusted). However this period entails leaving Portsmouth Harbour, proceeding down the channel and then crossing to the gap in the submarine barrier – hardly a direct course. For this reason, an adjusted speed of 5 knots was estimated for the first hour and entered in column 4. The same figure was entered in column 5 against 0730 BST showing the accumulated mileage after one hour.

Thereafter the tidal direction, adjusted rate and resulting speed over the ground was entered for each hour (this data being based on estimating the yacht's position on the chart from the accumulated mileage shown in column 5 and reading off the relevant direction and flow at that location).

Despite having 4 hours of adverse tide in the Beachy Head area, the plan resulted in an ETA of 1845 for the 60-mile passage.

Step 4

The plan thus far excluded one vital element, the weather. At 24 hours before departure it was felt safe to revise the plan slightly based on a forecast of 6-10 knot north-west winds and flat seas. This was likely to add at least 1 knot to the boat speed so the plan was revised accordingly.

The revised figures were entered in red in columns 4A and 5A with the result that the new ETA was now 1615 BST.

In the event, we arrived at 1550.

WHEN THINGS GO WRONG

Things don't always go to plan. Here are a couple of examples from my logs:

- A passage from St Peter Port to Dielette went seriously awry when I underestimated the combined effect of a strong spring tide up the French coast and an unscheduled wind shift. My 30% offset to allow for the northerly tide off the coast should still have allowed me to sail free, albeit close-hauled, to the harbour mouth. In the event the wind shifted from the south-west to the south-east leaving me battling a headwind against a strong tide. Result: engine on full power and an arrival two hours after the ETA.
- From St Peter Port to Eastbourne, slower than planned progress across the Channel meant that instead of a helpful easterly flow the tide would have changed and rounding Beachy Head would be a struggle. So at 9pm the decision was made to head instead for Brighton. Unknown to us there was a massive thunderstorm brewing and at 2am we were struck by lightning six miles out. We lost all electrics and finally arrived in Brighton around 4am, three hours later than originally planned for Eastbourne.

Sparrow/Alamy

Lessons learned

Looking back over 25 or so years and some 30,000 miles, I realise that my planning has become more prudent and that, as a result, I have now tended to arrive earlier than planned rather than later as in earlier years. So, what particular lessons have I learnt?

- **Wave heights** The impact of this is easily overlooked. My boat tends to be stopped dead in choppy/large seas on the nose.
- **Tidal flow** Tide tables give an average rate of flow for a fairly large area and do not always highlight stronger local currents such as around headlands and in estuaries. Only experience and tapping into local knowledge can help here.
- **Weather forecasts** These are not always reliable and are often insufficiently detailed on a local basis. Be prepared for something different and in particular a radical shift during the passage. Sea breezes, for instance, are not always foreseeable and can disrupt plans. I tend to sail slightly upwind of my intended course to counter any adverse wind shift.
- **Sod's Law** However well you plan there's always a chance the totally unforeseen will happen: weed or a rope around the propeller, dirty fuel, man overboard, lightning strikes, and gear failure being just some of the examples.

ABOUT THE AUTHOR

John Scott learned to sail at the age of seven, encouraged by an enthusiastic yachting father. Starting with a cadet dinghy at the age of 14, he moved on to several National 12's and a Redwing, then sailing cruisers including a 1938 Norwegian folkboat, a Harrison Butler Z 4-tonner and a Contessa 26. For the last 24 years has owned a Vindo 40 in which he has clocked up over 30,000 miles.