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Safe pilotage in strong tides

In northern European waters we experience some very strong tides. What are the do's and don'ts for safe pilotage in these fast flowing streams? Duncan Wells takes a look

PHOTO: GRAHAM SNOOK/YM

The Swinge, off Alderney. The UK has some of the strongest currents in the world. It's important to take them into account when passage planning

Northwestern Europe has some of the highest tidal ranges in the world and, as a result, some of the fastest tidal streams. This can present potentially deadly challenges, but also huge advantages if we know how to use them correctly. My boat *Dorothy Lee* has 21,000 miles on the clock but she has probably done at least 30,000 over the ground, because we always use the tide.

Timing is key: arrive at the top of the Alderney Race at HW Dover and you will be swept down it for five hours – at springs that's 45 free miles all the way down the Race and into St. Helier.

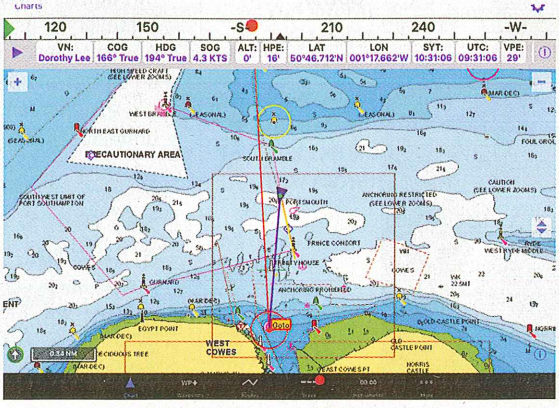
Arrive four hours before this and you will meet a tide on the nose of 5.8 knots at neaps and 9.7 knots at springs. On the assumption that we have a boat speed of six knots, at neaps you will be pretty much standing still, and at springs you will be going backwards at 3.7 knots, despite the fact that you are making six knots through the water.

Err downstream

Be very careful sailing across strong tides as you will be swept downtide very quickly. Always take buoys on the downtide side – and downwind if leeway could have a significant effect on your boat. I hit a buoy in Southampton Water because I was swept onto it by a spring tide. My excuse? I was trying to get some shots of an Aero Rig boat coming in the opposite direction. There are no excuses, my mind was distracted and you cannot afford to be distracted when sailing in strong tides.

Course to steer cheat

If the rate of the tide is more than 50 per cent of your boat speed, then working



Turn on the heading and course over ground vectors on your chart plotter, set a waypoint at your destination and the plotter will show you if you are off course. If that's not possible, use the rolling road display

The infamous Portland Race. Remember that wind against tide will shorten the sea. If the tidal rate is high, it doesn't take much wind to make conditions uncomfortable

PHOTO: GRAHAM SNOOK/YM

out a course to steer (CTS) to cross the tide is fairly pointless. There is, however, a simple way to work out a useful enough CTS in your head.

We use the '1 in 60' rule. First, work out the bearing of your destination. We know that our expected boat speed is six knots, and we have a tidal rate of two knots on the beam. The formula we need is this:

Rate of tide x 60 ÷ boat speed = °True course correction required

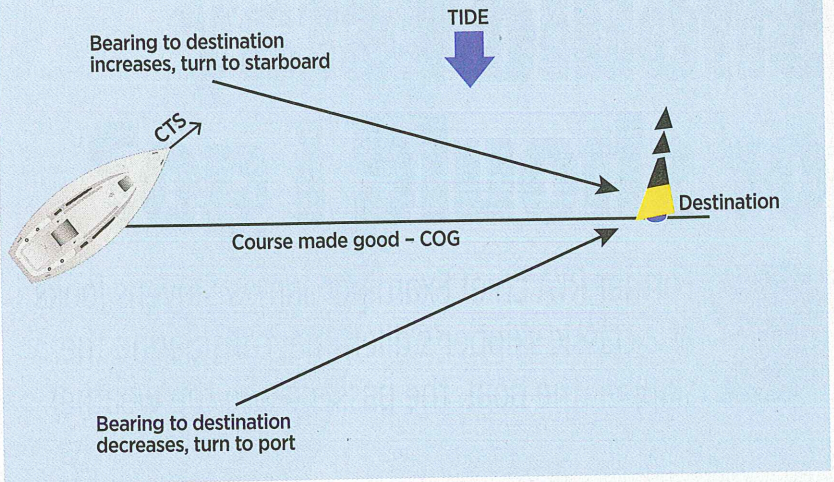
So plugging in our numbers:
2 knots x 60 = 120, ÷ 6 knots boat speed = 20°T course correction required.

So, if the bearing to our destination was 135°T and the stream is on our starboard beam, we would steer 155°T. Then convert to °Magnetic and then allow for deviation to get °Compass. For a tide on the beam of 3 knots (3 x 60 = 180, ÷ 6 = 30) we adjust course by 30°T, and for a tide of 4 knots by 40°.

If our expected boat speed was five knots and the current on the beam was two knots (2 x 60 = 120, ÷ 5 = 24) we adjust our course 24°T, and so on.

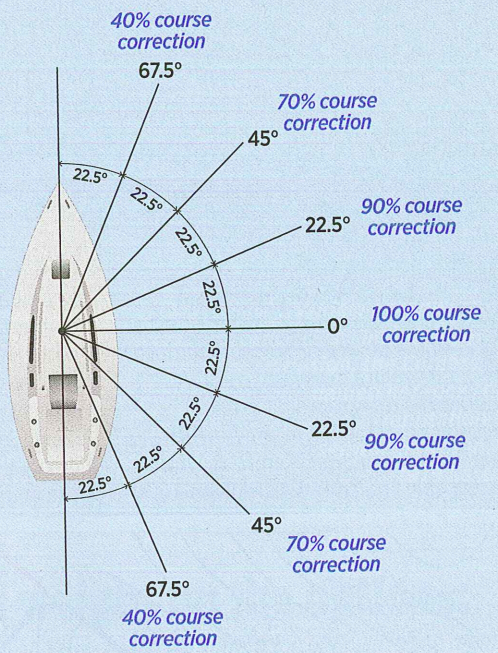
Non-beam tides

What do we do when the tidal stream is not directly on the beam? We reduce the course correction required by a value determined by the cosine of the angle off the beam, whether ahead or astern. If the stream is from 22.5° ahead or astern of the beam, reduce the course correction required by Cos22.5=0.9 (90% of the course correction). If the stream is 45° ahead or astern, reduce the course correction by Cos45=0.7 (70% of the course correction). For another 22.5° ahead or astern (67.5° ahead or astern of the beam) reduce by Cos67.5=0.4 (40% of the course correction).



Course correction with the stream off the beam

If the tidal stream is not on the beam, the course correction is reduced by a percentage determined by the cosine of the angle from the beam. For instance, if the course correction is 20° with the stream on the beam, and then you change course so that the stream is 45° forward of the beam, the course correction is 20° multiplied by Cos45 = 0.7 (70% of the course correction), equalling 14°



ALL GRAPHICS: MAXINE HEATH

Where are the world's biggest tidal ranges?

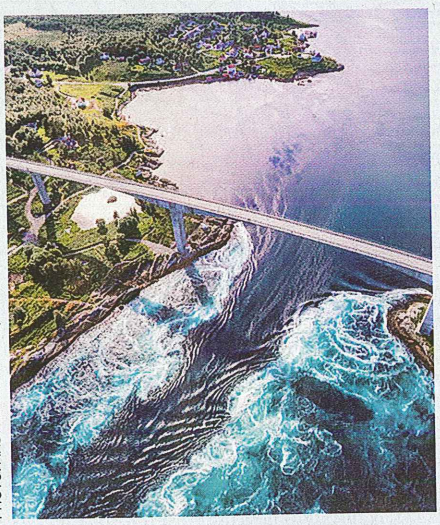


PHOTO: ANDREY ARMYAGOV/ALAMY

Location and Mean Spring Range	
Bay of Fundy, Canada	14.5m
Bristol, Avonmouth	12.2m
St. Helier, Jersey	9.6m
Cook Inlet, Alaska	9.2m

The fastest current in the world is at Saltstraumen in Sweden. Water squeezes through a tiny gap at up to 22 knots