Week 11

COURSE TO STEER

AXE YACHT CLUB

The Problem

At 1300DST on Friday 4 October a yacht is in position 45° 42.0'N/ 006° 21.7'W by GPS. The skipper wants to sail to the Quaker Safe Water Mark at the entrance to Edenfield Harbour. The yacht has been making an average of 6.0 knots in a light southerly breeze.
What course should the helm be told to steer? (Use <>R for tidal information and take variation = 6°W)

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3

4

Process

1. Measure the distance from the start position to the destination. Work out how long this is expected to take at predicted speed. We would normally draw a "one hour" or "half hour" triangle.

2. Draw a line from the original position to the destination *and beyond*. This represents the course over ground (COG).

3. Lay off the tide from the start position.

4. Set the dividers to the expected boat speed and with one point on the end of the tide vector, arc off on the COG. Join these points and read off CTS with plotter.

5. Correct for leeway (if necessary) before passing the course to the helm.
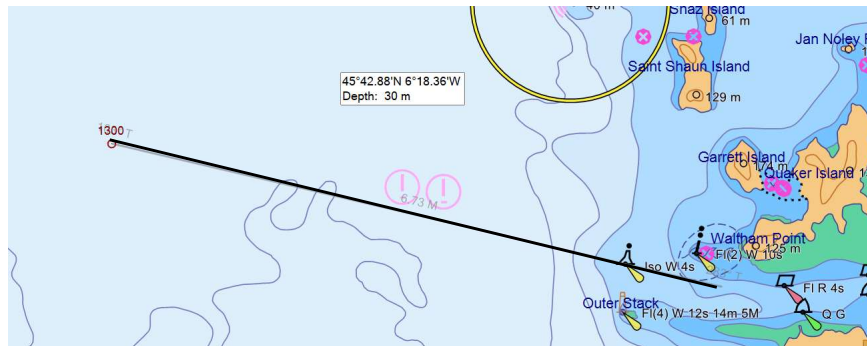
5

Stage 1

Anticipated time = 1 Hour
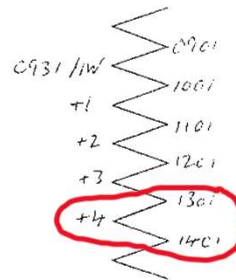
6

Stage 2

7

Tidal Stream 1300 DST to 1400 DST

Friday 4 Oct <>R
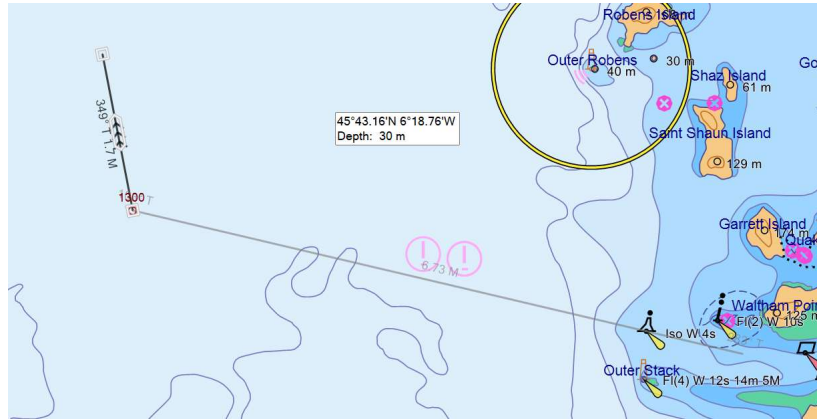
Victoria HW 0831UT / 0931DST 5.3m
        LW 1430UT / 1530DST 1.2m   Range = 4.1m

  <>R HW+4 349°T 2.0 Sp / 1.1Np => Int 1.7kn

8

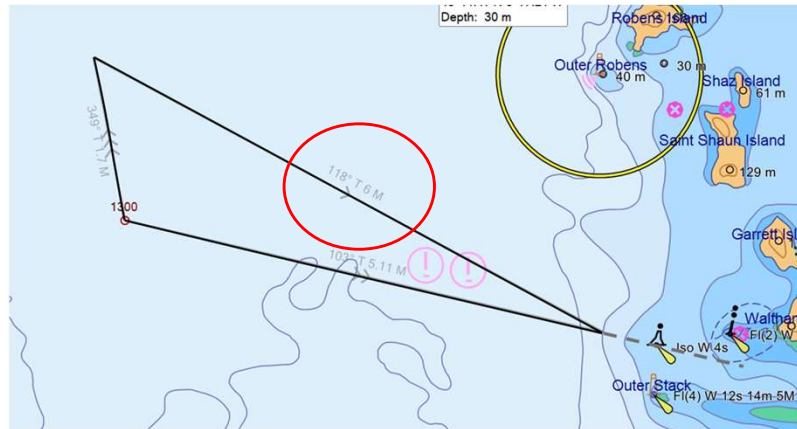# Stage 3

9

Stage 4

10

Stage 5

11

Compass Course to Steer

From the chart   CTS = 118T

T	V	M	D	C
118	+6W	124		
L/W	+5	129	-6E	123

Course to pass to Helm = 123C

12

Summary

- Normally draw a "one hour" triangle.
- Draw a line from the original position to the destination **and beyond**. This represents the course over ground (COG).
- Lay off the tide from the start position.
- Set the dividers to the expected boat speed and with one point on the end of the tide vector, arc off on the COG. Join these points and read off CTS with plotter.
- Correct for leeway (if necessary) before passing the course to the helm.

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13

Anticipated Speed Made Good

When using a "one hour" triangle, measure the distance from the starting point to the intersection of the CTS with the COG.

This will give you your "speed over ground" (SOG).

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14

Time To Run

The expected time taken to reach the destination can be found from the distance to run (DTR) and the expected speed over ground (SOG).

The time taken, in minutes, will be:

(DTR ÷ SOG) x 60

Distance to run (DTR) is the distance from the original position to the destination, measured along the course over ground (COG).
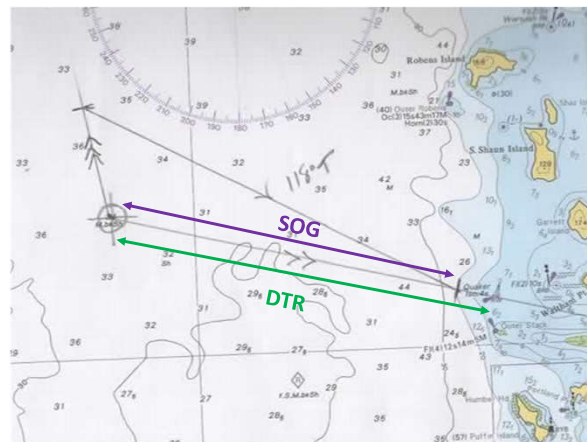
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15

In this example:

SOG = 5.1 kn

DTR = 5.7 nm

TTR = (5.7 ÷ 5.1) x 60
= 67 mins

16

Tidal Strategy

17

Tidal Streams and Passage Planning

- Considerations
  - Displacement Craft – plan timings to use tidal stream
  - Planing Craft – use wind with tide periods
- "Tidal Gates"
  - Information from almanac / pilot
  - Plan passage to arrive at these at the recommended time
- Races / Overfalls
  - Plan to arrive at either slack water or the last of the ebb or flood

How it looks. A 60' yacht caught in a blow in the Portland Race. Image courtesy YBW forum.
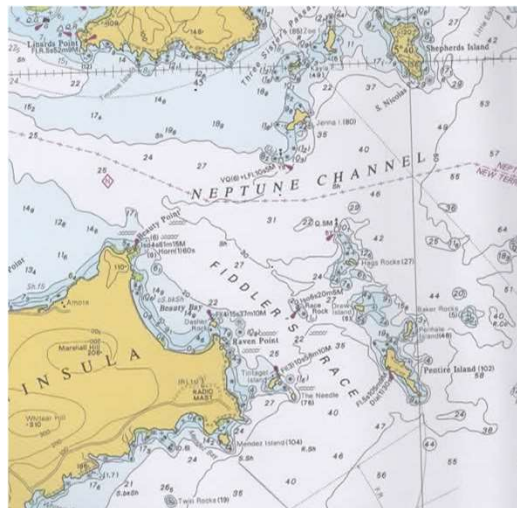
18

But if you get it right......!

19

Strategy Example
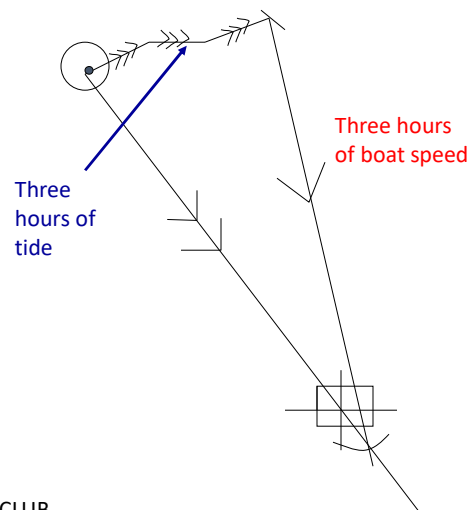
FIDDLER'S RACE

TAN p69

20

TIDES ON LONGER PASSAGES

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21

Course To Steer

- Technique depends on expected duration of voyage.

- Consider use of two, three or four hour triangles

Three hours
of boat speed
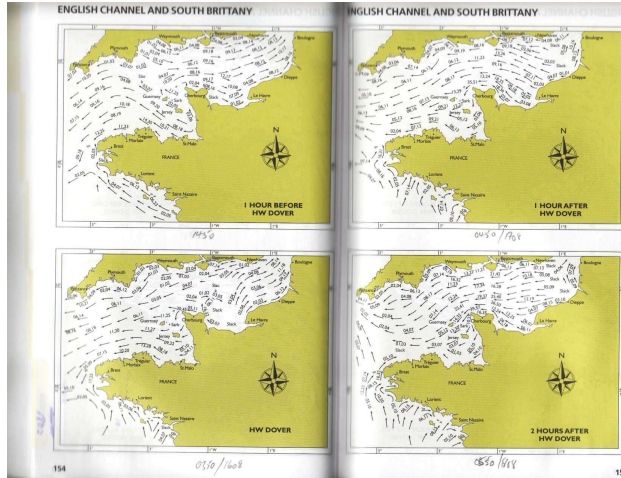
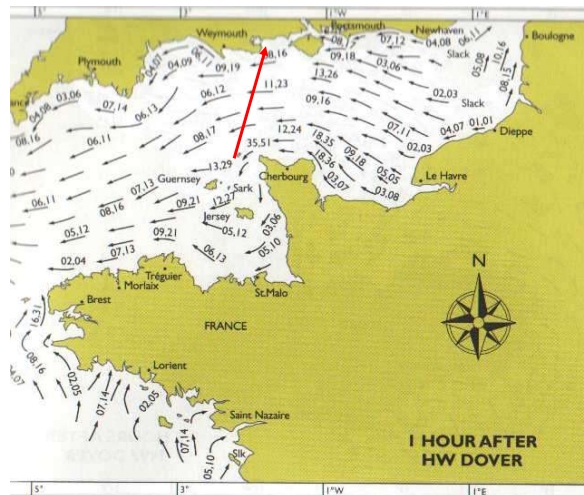Three
hours of
tide

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22

Long Cross Tide Passage

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23

Long Cross Tide Passage 2
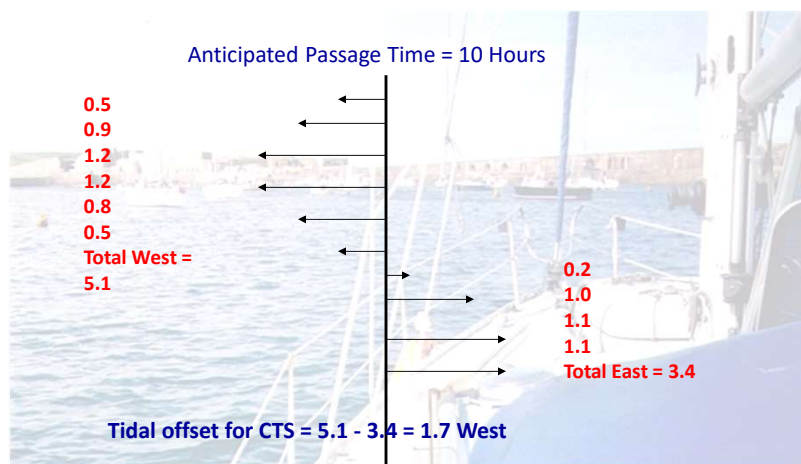

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24

Long Cross Tide Passage 3

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Long Cross Tide Passage 3

Anticipated Passage Time = 10 Hours

0.5
0.9
1.2
1.2
0.8
0.5
Total West = 5.1

0.2
1.0
1.1
1.1
Total East = 3.4

Tidal offset for CTS = 5.1 - 3.4 = 1.7 West
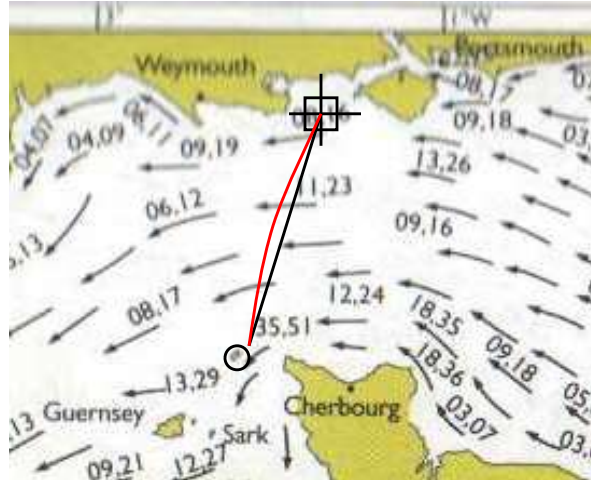
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Long Cross Tide Passage 3

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27

Long Cross Tide Passages 4

- Monitor Course Over Ground (COG) against intended track - but remember that there will be some XTE as tide is only cancelled out over the whole voyage.

- In "slow" displacement vessels, ensure that you will be "up tide" as you approach your destination - especially for Channel Isles / Cherbourg.

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28

Long Cross Tide Passages 5

12 to 24 hours?

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29