Boston Sailing Center
Coastal Navigation

Problem Set 5

1. You are approaching Buzzards Bay on a heading of 020 degrees making 5.5 knots. You see the Buzzards Bay Tower (Fl 2.5 sec, 101 ft, 22M) bearing 060, but can't see anything else. 48 minutes later, the Tower bears 107. The wind is from the south, so assume no leeway or current. What is your Lat/Lon?

2. Question 1 is a classic Running Fix. There's a gimmick version of the Running Fix called 'Doubling the Bearing on the Bow'. This is not important, but sort of fun. It works like this:

   On the morning of July 18, you are approaching the western end of Martha's Vineyard after an overnight sail from Block Island. You are steering 070º and making 6 knots (5-1/2 knots of boat speed plus an estimated half knot of current from directly astern).

   You take a bearing on Gay Head Light of 110º. This is a **Relative Bearing** of 40º, ie 110º is 40º off your bow pointing at 070º. You *Double* this Relative Bearing to 80º when the Light bears 150º, which happens, let's say 42 minutes after the first bearing. The gimmick is that by Doubling the Relative Bearing, your *Distance Off* the Light at the time of the second bearing equals your *Distance Run* in the time between the two bearings.

   So to find your position, plot only the second bearing. Set your dividers to the Distance Run (42 minutes at 6 knots = 4.2 nm) and measure that distance from the Light out along the second bearing. That's your RFix. To convince yourself this is correct, you can plot the first bearing and then your course of 070º, between the two bearings and through the RFix. The result should be an isosceles triangle showing Distance Run = Distance Off.

   Tarpaulin Cove, on the south side of Naushon Island, would be a nice spot to anchor for lunch and maybe a nap before continuing on to Vineyard Haven. What course would you steer from the RFix off Gay Head? What is the distance to Tarpaulin Cove?

3. Assume you leave Tarpaulin Cove at 1:30 pm on July 18, sailing easterly at 5 knots towards West Chop (the northernmost point on Martha's Vineyard).

   a. Pick a point north of West Chop, in the vicinity of C "25", to use as your endpoint for this leg. Draw in your desired Course Over Ground from Tarpaulin Cove to your endpoint.

   b. Using the Current Table for Pollock Rip (p. 69) determine where in the ebb / flood cycle you are and which page(s) in Eldridge (72 - 83) you will use to find the current for the leg.

   c. From the appropriate current chart(s) in Eldridge pp. 72 - 83, determine the average direction and speed of the current along the leg.

   d. Now apply the Rule of Thumb to adjust the current speed for the day's tide. Go to the Tide Table for Boston (p. 41) and look up the height of tide affecting your passage. Adjust the speed of current you found in part (c) above by the percentage indicated at the very bottom of the Boston page.

   e. Using the current direction and speed you've calculated, draw the current triangle for the leg. On what heading would you leave Tarpaulin Cove ?

4. What would your actual Speed Over Ground (SOG) be?