Seamanship - Set & Drift - "Do the Math!"
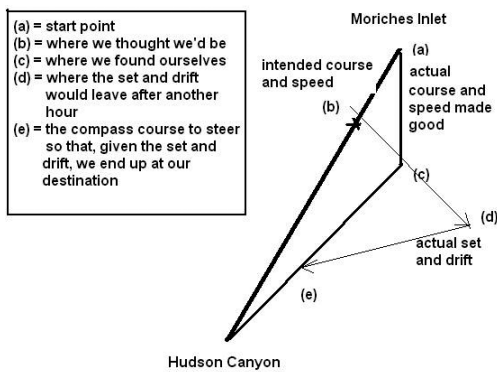
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On September 5th, we started the 2-part series on Set and Drift (see South Shore Press, 9/05/07, "Seamanship – Set and Drift – 'Leaning In'…". We noted that there is a precise way to calculate the correct amount of "leaning in" to do in that column. Here it is and, despite the "math" part of it setting some hearts racing, it is easy…!

Set and Drift

Take a quick look at the diagram from September 5th article:

(a) = start point
(b) = where we thought we'd be
(c) = where we found ourselves
(d) = where the set and drift would leave after another hour
(e) = the compass course to steer so that, given the set and drift, we end up at our destination

Recall the setting. Your pal said, "make your point of sail 200° magnetic and put the hammer down for 60 nautical miles… plug 39° 40' 29" N and 071° 14' 36" W into your GPS and fish all night…"

The Four Corners

The four corners of the solution of what Course To Steer (CTS) to actually ensure that your compensation for the set and drift of the current are the following:

[1] the desired course (200° above)
[2] speed of your boat (let's say 20 knots)
[3] the set (direction) of the current
[4] the drift (speed) of the current

What? How do you figure the last two when that is what you are looking for??? Sometimes, the answer is like a puzzle – if 'x' is true, what else has to be true to make that so…?

The scenario we set up above is that you've left Moriches Inlet on a heading of 200o magnetic at 20 knots. So, the rhumb line from Moriches Inlet to the specified location (39° 40' 29" N x 071° 14' 36" W) is just a straight line from the Inlet ("a", in the diagram) to the Hudson Canyon. After two hours, you expect to be at "b" – but you're not there. You determine that, per your GPS or other navigation technology/technique, you are at "c"! Clearly, the angle of the line from "b" to "c" is the set (direction) of the current! From the prior article, that's the guy pushing you away from the coffee shop! Let's call that 135° magnetic per the diagram. But how hard is "he" pushing you?

Measure the distance from "b" to "c" (in nautical miles since we are measuring speed in knots!) and divide it by the number of hours that we took our measurement over (two, in this example.) So, if the distance from "b" to "c" is 5nm, and the time in the example is two hours, the answer is 2.5, i.e., the drift (speed of the current) is 2.5 knots. That's how hard the "guy" is pushing you away the "coffee shop!" Well, we now have all four numbers!

[1] the desired course - 200° above (a given)
[2] speed of your boat - 20 knots (a given)

[3] the set (direction) of the current – 135o mag (derived)
[4] the drift (speed) of the current – 2.5 knots (derived)

In other words, if it is true that we are at "c" when we thought we are running the rhumb line at 200° mag at 20 knots, then it has to be true that the set is 135o mag and the drift is 2.5 knots!

What else have we learned? Well, the distance from "a" to "c" is our actual Course Over the Ground (COG) and, if you divide that by two hours (per our example), you get the actual Speed Over the Ground (SOG).

First, we determine what is the new rhumb line from "c" (where we actually are) to the Hudson Canyon at 39° 40' 29" N x 071° 14' 36" W. If there were no set and drift, that is the course to steer. But what course do you steer? First, extend the "b" to "c" line so that it extends far enough to encompass another hour (called the One Hour Method) of set and drift. This is marked as "d". At 20 knots of speed (a given), you measure off 20 nms from your latitude (NOT longitude) scale along the chart's edge and swing your dividers so that it crosses the original rhumb line – marked as "e" in our example. Draw a line from "d" to "e" and that angle (~255° in the drawing) is your Course To Steer! You're your own GPS now!

BTW, if you are interested in being part of USCG Forces, email me at USCGAUX2007@aol.com or go direct to MaryJo Cruickshank, who is in charge of new members matters, at FSO-PS@emcg.us and we will help you "get in this thing…"

Moriches Inlet
September 2007

Day	High	Low	High	Low	High
Sat 1		4:05 AM / -0.24ft	10:31 AM / 3.60ft	4:46 PM / 0.03ft	10:58 PM / 3.12ft
Sun 2		4:51 AM / -0.06ft	11:26 AMT / 3.53ft	5:44 PM / 0.20ft	11:57 PM / 2.92ft
Mon 3		5:43 AM / 0.16ft	12:24 PM / 3.42ft	6:52 PM / 0.36ft	
Tue 4	12:59 AM / 2.75ft	6:48 AM / 0.36ft	1:25 PM / 3.31ft	8:06 PM / 0.43ft	
Wed 5	2:02 AM / 2.64ft	8:02 AM / 0.47ft	2:28 PM / 3.22ft	9:15 PM / 0.39ft	
Thu 6	3:09 AM / 2.62ft	9:12 AM / 0.46ft	3:35 PM / 3.19ft	10:15 PM / 0.30ft	
Fri 7	4:16 AM / 2.69ft	10:13 AM / 0.39ft	4:39 PM / 3.24ft	11:07 PM / 0.18ft	
Sat 8	5:16 AM / 2.84ft	11:07 AM / 0.30ft	5:34 PM / 3.31ft	11:54 PM / 0.09ft	
Sun 9	6:07 AM / 3.01ft	11:57 AM / 0.22ft	6:21 PM / 3.37ft		
Mon 10		12:38 AM / 0.01ft	6:51 AM / 3.16ft	12:44 PM / 0.16ft	7:03P M / 3.39ft
Tue 11		1:18 AM / -0.02ft	7:32 AM / 3.25ft	1:28 PM / 0.13ft	7:41 PM / 3.34ft
Wed 12		1:55 AM / -0.01ft	8:10 AM / 3.29ft	2:09 PM / 0.14ft	8:18 PM / 3.24ft
Thu 13		2:30 AM / 0.04 ft	8:46 AM / 3.28 ft	2:48 PM / 0.19 ft	8:55 PM / 3.09 ft
Fri 14		3:02 AM / 0.14 ft	9:23 AM / 3.22 ft	3:26 PM / 0.27 ft	9:32 PM / 2.91 ft
Sat 15		3:33 AM / 0.27 ft	9:59 AM / 3.13 ft	4:03 PM / 0.38 ft	10:11 PM / 2.72 ft
Sun 16		4:03 AM / 0.42 ft	10:37 AM / 3.03 ft	4:41 PM / 0.52 ft	10:52 PM / 2.55 ft
Mon 17		4:32 AM / 0.57 ft	11:18 AM / 2.93 ft	5:23 PM / 0.66 ft	11:38 PM / 2.41 ft
Tue 18		5:06 AM / 0.71 ft	12:04 PM / 2.86 ft	6:17 PM / 0.78 ft	
Wed 19	12:30 AM / 2.31 ft	5:53 AM / 0.83 ft	12:55 PM / 2.83 ft	7:28 PM / 0.82 ft	
Thu 20	1:27 AM / 2.28 ft	7:12 AM / 0.89 ft	1:52 PM / 2.84 ft	8:37 PM / 0.74 ft	
Fri 21	2:28 AM / 2.33 ft	8:35 AM / 0.81 ft	2:53 PM / 2.93 ft	9:35 PM / 0.57 ft	
Sat 22	3:32 AM / 2.47 ft	9:39 AM / 0.63 ft	3:55 PM / 3.07 ft	10:25 PM / 0.34 ft	
Sun 23	4:31 AM / 2.71 ft	10:34 AM / 0.40 ft	4:52 PM / 3.27 ft	11:12 PM / 0.11 ft	
Mon 24	5:24 AM / 3.02 ft	11:26 AM / 0.17 ft	5:43 PM / 3.45 ft	11:57 PM / -0.11 ft	
Tue 25	6:12 AM / 3.34 ft	12:17 PM / -0.04 ft	6:31 PM / 3.59 ft		
Wed 26		12:42 AM / -0.28 ft	6:56 AM / 3.62 ft	1:09 PM / -0.21 ft	7:17 PM / 3.64 ft
Thu 27		1:26 AM / -0.38 ft	7:40 AM / 3.81 ft	1:59 PM / -0.31 ft	8:03 PM / 3.59 ft
Fri 28		2:11 AM / -0.41 ft	8:26 AM / 3.90 ft	2:49 PM / -0.33 ft	8:52 PM / 3.46 ft
Sat 29		2:56 AM / -0.34 ft	9:14 AM / 3.88 ft	3:39 PM / -0.25 ft	9:45 PM / 3.26 ft
Sun 30		3:42 AM / -0.19 ft	10:07 AM / 3.75 ft	4:32 PM / -0.08 ft	10:44 PM / 3.04 ft

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Feds Help Secure First Round of Dredging Permits

Following multiple high-level interventions, Congressman Tim Bishop and Senators Charles Schumer and Hillary Rodham Clinton announced today the approval of the first round of dredging permits for Suffolk County. The U.S. Army Corps of Engineers has issued permits for North Sea Harbor in Southampton, Cedar Beach Inlet in Southold, Little Creek in Southold, Fresh Pond in Southampton, and Miamogue Lagoon in Riverhead.

"The dredging permit process this year has needlessly caused major headaches for government officials and local residents," said Bishop. "I am pleased that we have finally made some headway in clearing bureaucratic hurdles. However, we must continue to resolve the causes of this year's delays so that they do not recur in the future."

"This is a major breakthrough for local communities, which have been entangled in bureaucratic red tape for far too long," said Schumer. "Now, key Long Island waterways can be dredged, improving navigation and protecting our precious beaches. We will closely monitor the status of the remaining dredging permits to ensure a smooth and expeditious completion of this project."

"The dredging of Suffolk County's creeks and inlets is vital to the health of our waterways and the safety of Long Island's boating community. This decision is long overdue and has cost the community valuable time to fix the problem but I am pleased that the Army Corps has finally released these five permits," said Clinton. "This is the right thing for the Army Corps to do and I will continue to work so that additional permits are released in the coming months."

Undredged waterways affect thousands of Long Islanders by trapping boaters in creeks at low tide, breeding mosquitoes, and producing strong odors from accumulated seaweed and mud.

Suffolk and other municipalities were denied approval for many dredging projects earlier this year due to miscommunications over changing requirements in the permitting process. To address the growing crisis, Bishop, Schumer and Clinton facilitated a series of interagency meetings.

As a result, Suffolk County was able to negotiate a deal with the Army Corps for permission to dredge 15 creeks, canals and inlets in the towns of Riverhead, Southold and Southampton.

"I think the work that our federal officials have done is excellent, however what are we doing about dredging some of creeks, canals and waterways in southern Brookhaven. It is clear that the County has dropped the ball and we must fix this problem now," noted Betty Manzella, the Republican, Conservative, Independence candidate for the Suffolk County Legislature in the 3rd District.