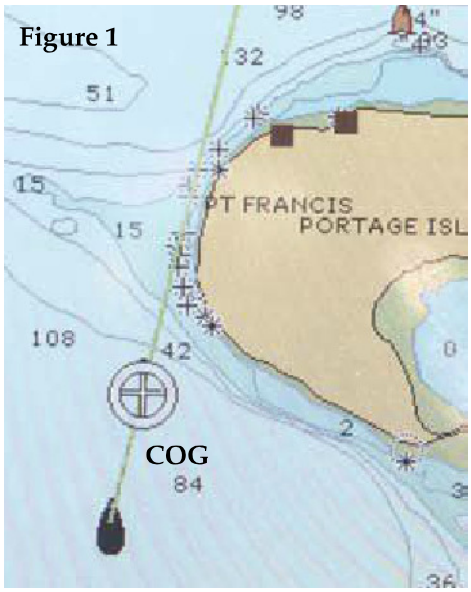
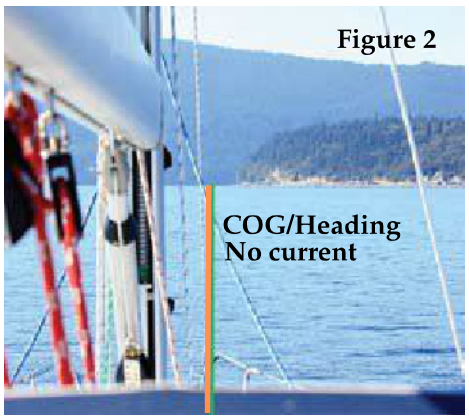
The Easy Way to Deal with Set and Drift

Using your chart plotter's COG

Current can be a friend or a foe. In October's article (titled 'Going with the Flow') we discussed using current to our advantage, making it a friend. But this is frequently not possible, especially when the current cuts across our path. Side currents are at best an annoyance that we need to deal with and at worse can be dangerous because they can easily put an inattentive boater on the rocks. The goal of this article is to show how to keep these currents in the category of easily handled annoyances.





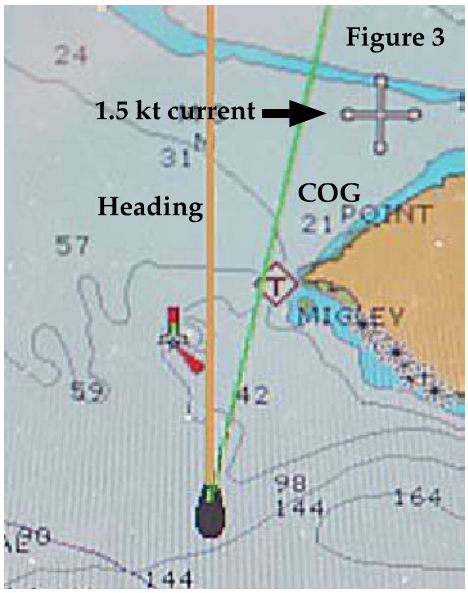
A few definitions to start with: *Set* is the direction a current flows and *Drift* is its velocity. *Heading* is the compass course a boat is being steered. *Speed Over Ground* (SOG) and *Course Over Ground* (COG) are the velocity and direction a boat is moving relative to fixed objects. Both SOG and COG are affected by the boat's heading, speed, current, wind, waves, etc. – they are the net of all forces acting on the vessel.

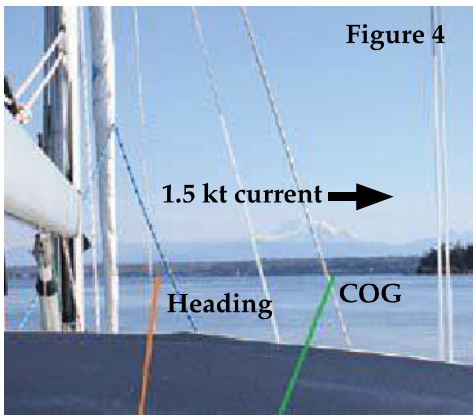
Calculating the impact is easy when a current is going with or against a boat: it either adds to or subtracts from the boat's speed relative to the ground and has no impact on its course. For, example, a boat traveling at 6 knots through the water and fighting a 2 knot current will be 'making good' 4 knots. In other words, its *Speed Over Ground* (SOG) will be 4 knots.

The calculations become more difficult when the current is coming from the side. In the old days, meaning more than about ten years ago, most of us sailors had two options when it came to steering in a side current. We could get out the current tables, the chart and our navigation tools and plot a course that would correct for the expected set and drift. Or we could take an educated guess. I will admit I guessed most of the time.

There were two reasons why I frequently guessed: the first was the hassle, I was lazy. And the second was that even if I had taken the time to calculate a course it would likely have been wrong - especially here in the Salish Sea. Calculating a course works well if the set and drift are constant but here, in our inland waters, they are anything but. This is especially true in the San Juan and Gulf Islands. The currents there get pushed all over the place by the islands and underwater features so speed and/or direction can vary widely from one side of a channel to the other. So, how does one get from ones side of a channel to the other without getting pushed around? The easy way is to use the course over ground (COG) vector on your chart plotter.

Most chart plotters have several vectors: current, wind, heading and course over ground are commonly available. This last one (COG) is the only one I use as the others are frequently inaccurate. What makes them inaccurate is the lack of a true heading, which is needed to calculate and/or display these vectors correctly. On most pleasure craft the heading is provided by the fluxgate compass attached to the autopilot. And fluxgate compasses do not easily provide a reliable true heading. They do work well for relative headings, which is all an autopilot needs. When you turn on one of these other vectors, say the one for heading, it will show the heading the fluxgate indicates; on our boat this will be anywhere from zero to twenty





COG in tell tales ing a nt beyond ıt the tell oth, every make ıs needed.

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the green line shows our COG (I added the orange line later). Figure 4 shows how this looked from the cockpit.

adjust for changes in the speed of the current and keep the boat on a straight line over ground.

I like to use the COG in the same way I use tell tales – I steer the boat using a visual reference point beyond the bow and I look at the tell tales, the COG or both, every couple minutes and make small adjustments as needed. If sailing, these adjustments will require commensurate sail trimmings, and depending on how energetic I feel, the time between adjustments might be extended. I also leave the COG vector turned on all the time so I can see where our boat is actually going. Doing so lets me see, and easily adjust, for unexpected currents.

Hopefully this information will make your travels in our current filled waters a bit less challenging.

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