

Beat the Old Timers Using These Tips

Tom Collins – May, 2019

In the old days of compass and tachometer log racing, skippers thought they were doing well when their errors were on the order of two or three percent. Now with modern day tools available, such as computerized charting and precision navigation using satellite signals, errors need to be less than one percent to score in the money.

Previously, while our helm stations were becoming populated with some wonderful new navigational tools like chart plotters and GPS receivers, predicted log racing was stuck to the old techniques of using just the basics, mostly compass and tachometer. Meanwhile we wondered why newer boaters weren't joining in our sport. Looking back, the answer was obvious – the newer boaters weren't interested in learning to navigate with just a limited set of instruments, they wanted to learn to use all of their onboard navigational tools to the fullest.

So the sport of Predicted Log Racing evolved into Cruiser Navigation Rallying. We now use all of our instruments, and as skipper-navigators, we're becoming more skilled in the proficient use of these tools. The scores reflect the newfound accuracy gained as a result. However, now the challenge becomes how to excel when all skippers are using the same advanced tools. Here are a few tips that might make the winning difference in an already good score.

Of course you'll want to be sure your predictions are spot on. Remember, the error is computed by comparing the prediction with the actual performance. An error in the predictions will give just as much error as the same error in the execution. In the old days, courses were laid out on a paper chart using measuring scales and a magnifying glass. With today's charting programs, most of the errors inherent in that process have been eliminated. Rose Point Navigation has developed a charting program, Coastal Explorer, that has been specifically customized with features for use in Nav Rallying. CE can resolve distances down to 1/1000 of a mile; you need that kind of precision in order to get a prediction accurate within a second. But it is also important to use a very precise chart to get that accuracy. The NOAA Raster style charts just aren't that precise. Instead use the NOAA Vector charts. They show the exact location of objects far more accurately, and by zooming in the precision can be improved even more. Coastal Explorer allows switching between raster and vector charts with the push of a button.

There are two more features in Coastal Explorer that apply to Nav Rallying. There is a setting that can be enabled that will show the turn not just as an intersection of two straight lines, but rather as a turn with the radius you specify for the turning circle of your boat. Of course, it is critically important that you empirically determine that radius accurately* and enter it into the vessel settings in CE. (Remember the old expression –

garbage in, garbage out!) The second feature of CE, there are many more, is that it will do a complete set of time predictions for the course and speed entered. These can be set for a specified departure time and layover times can be added such as an allowance for standing start time. The time of day waypoint calculation feature has certainly averted many errors due to the challenges of clock arithmetic.

Now, with a set of accurate predictions, all that remains is to execute exactly what was predicted while on the water. This involves carefully calling each control point when it is precisely abeam the vessel while on the correct heading or in the case of a range not abeam, assuring that the vessel is on the planned course line with no cross-track error. Of course it is important that the observer accurately records the correct time when mark is called. Make that easy for them by providing an accurate digital timepiece with large easy-to-read digits and without any buttons that could be easily bumped or misused.

Running the course exactly as predicted means just that. The heading needs to be maintained so that the actual course made good is as straight as that predicted. If the vessel starts to drift away from the trackline, then a crab angle needs to be steered to maintain track and some speed increase added to compensate for the crab. If GPS speed is allowed, then setting speed according to the VMG, Velocity Made Good, speed readout will automatically compensate for that. In fact, VMG should probably be used as the standard speed indication rather than just SOG. This has two advantages. It compensates for any crab angle, and it is better smoothed, allowing for easier setting of the throttles. This assumes that the course has been entered as a route to be followed.

I should also mention here that many GPS receivers have buried deep in their settings menu, a provision for setting a time constant for speed averaging. Finding and setting this parameter for the best amount of smoothing for your vessel and conditions is key to being able to accurately set your throttles as conditions vary throughout the rally course.

So now we are running the course exactly on the predicted track at just the speed predicted, what more is there to do? Turns! With the improved scores, turn times have become a more significant element of the overall error. In fact, in a course with a number of large turns, it is likely responsible for most of the error. Key here is making the turn so that your actual track perfectly overlays the predicted course as shown on the chart plotter. Turn execution is almost an art. It involves rapidly moving the rudder to the specified angle at exactly the correct time, which is not necessarily at the mark but a few seconds before reaching it. Practicing this until you get it down will significantly improve your score.

*For a more detailed discussion on turn times, see my article "How to Avoid Making a Wrong Turn". It can be found in the Cruiser Navigation Education and Training section on the NACA website at NavRally.org. Good Luck!!