



Cruiser Log

The Newsletter of the North American Cruiser Association

Volume 15 Issue 1

February 2015

Update from the Vice Commodore

Here in Southern California we are not only looking forward to our Awards Dinner for 2014 at the end of next week but also in the next couple of months to Opening Day for the 2015 predicted log season. As with most areas we would like to see a few more participants in our contests but had a very good time during the 2014 season and hope to do so again in 2015.

As I am filling in for Scott Strandjord as we start the new season I will try to include some reports on his progress in these articles. I spoke with his wife Linda a few days ago and she reports as the New Year begins that they are both enjoying being in their new home which was in the works before Scott's stroke. Per their plan they moved from the convalescent facility to home just before Christmas, with much help in preparing the home from friends. Scott has passed swallow tests and is able to eat most everything and to

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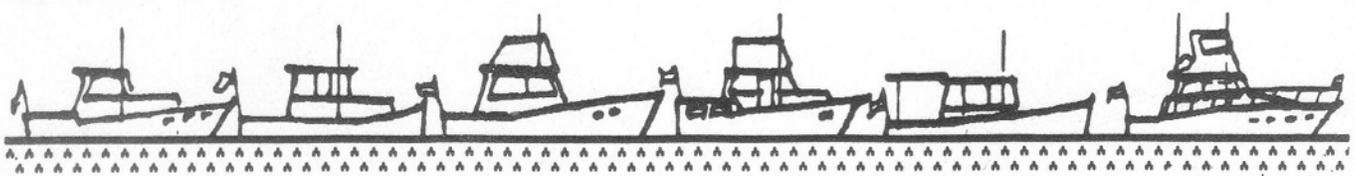
This issue is a little slim. Our esteemed editor Elaine Townsend is out of the country. Bear with me until June.

...Ed Kutchma

and to feed himself. He is also now able to get around with the aid of a wheelchair and other aids and also to move by himself from one device to another including the bathroom and car. I regularly get questions about how Scott is doing and wishes for his continued improvement. Our thoughts and prayers are certainly with Scott and Linda for continued progress and Linda asked for our ongoing support in that way. We miss his presence with us and I in particular miss his helpful information and guidance.

As a long time boater but new log contestant it is interesting for me to see how even with mediocre contest performance one can do well in the overall scheme of things due to consistent performance in the contests held. Hopefully the consistent performance will also provide learning that should promote better contest performance but at least in my case that seems to be somewhat in question. The year-end NACA and SCCA results having entered all of the contests held was mostly in the upper half of all categories despite some less than stellar individual contests. Understanding and appreciation of what one is attempting to accomplish does not automatically translate into good performance.

Continued on page 3



North American Cruiser Association

For help or information, visit our web site at
<http://www.predictedlog.org>

The site provides a resource for boaters looking for information, to learn more about predicted logging or NACA, or to find a nearby member organization.

Feel free to call any of us with your thoughts and ideas!

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NACA Objectives

The objective of the North American Cruiser Association is to promote the sport of Predicted Log Contests in North America. Pursuant to this objective, NACA will:

1. Publish and distribute a periodic newsletter known as *Cruiser Log*, which shall contain news and information pertaining to the sport.
2. Schedule and coordinate an annual "North American Invitational" (NAI) Predicted Log Contest.
3. Sanction contests of member associations that are to be scored for NACA points.
4. Maintain and publish scoring and standings of Predicted Log contestants participating in NACA sanctioned contests.
5. Provide perpetual and suitable keeper trophies and other awards for winners of such North American Predicted Log series and events as may be established by NACA.
6. Establish "Recommended Contest Rules" for NACA sanctioned Predicted Log Contests.
7. Generally be responsive to the needs and requirements of member associations and of the sport of Predicted Log Contests.
8. Support boating and Corinthian yachting in general.

Cruiser Log Publication Deadlines

Submit by:	For publication in:
January 15	February
March 15	April
May 15	June
July 15	August
September 15	October
November 15	December

If you miss a deadline, your article will be published in a future issue.

Update from the Vice Commodore

(Continued from page 1)

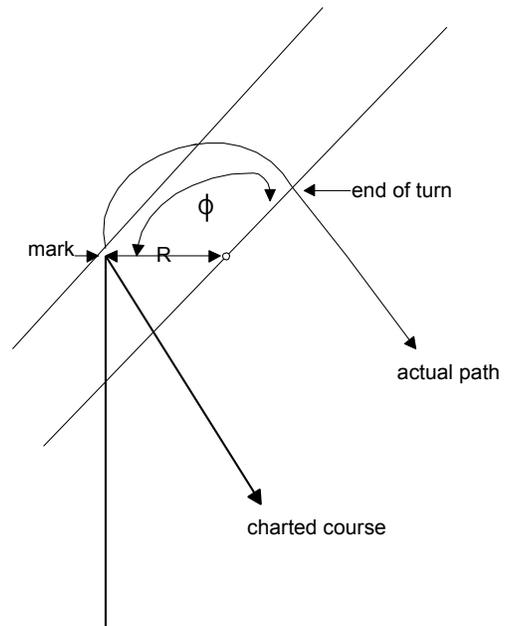
The practical realities of operating a boat in real time on waters influenced by winds and currents in varying magnitudes and directions provides a challenge that may not be easy to define and perform. In any case it does provide an opportunity to see how well you can interpret a set of instructions and resulting plan for your boat into defined results.

Aside from your contest by contest results, one of the most enjoyable aspects of log contests are the interesting people one meets and also the places we are able to visit. The always changing environment keeps things interesting even when you have not come through as you had intended in the contest outcome or perhaps not actually improved your own performance over previous efforts. This would seem to be a good reason for us all to encourage others to join us in log contest participation whether they be dock neighbors, boating friends, or new members of your Yacht Club or other boating organization.

Comments from the Rear

Fay Barnard asked the NACA Bridge to submit articles that would add interest to the Cruiser Log. I thought it would be fun to explore a methodology that log racers use in every race, computing turning times.

Many of us would simply use a table like the one in *Enjoy Log Racing 1978*, by Tom Collins pg 7. However an extensive discussion of calculating turn time was covered by Ed Lloyd in *Predicted Log Essentials* found at www.predictedlog.org under the tab “Cruiser Navigation & Training” and also in a Power Squadron publication *Predicted Log Contest 1998* pg 31ff.



NACA clothing (other than ball caps) is available at the NACA Ship’s Store. Go to www.predictedlog.org. Click on NACA Ship’s Store. This opens a link to Land’s End Business Outfitters. Select your product and choice of logo. It is simple to use, and the merchandise is of good quality.

Assume a boat travelling at $S = 8$ kts (13.33ft/sec) a checkpoint to starboard at 57 feet, a delay in the start of turn 2 sec (1sec/60 degrees of turn), a turn of 120 deg (ϕ) and a turn rate of $t = 12$ deg/sec. Compute the turn allowance.

Comments from the Rear (continued from page 3)

Answer:

One approach can be found in a table like the one in Enjoy Log Racing 1978, by Tom Collins pg 7 which gives us an answer of 15 seconds.

Another approach is to go to Predicted Log Contest 1998, published by the USPS pg 31 ff and use Ed Lloyd's table of Turning Time Allowance and get an answer of 10 seconds. Finally we could use Ed's methodology and compute the following:

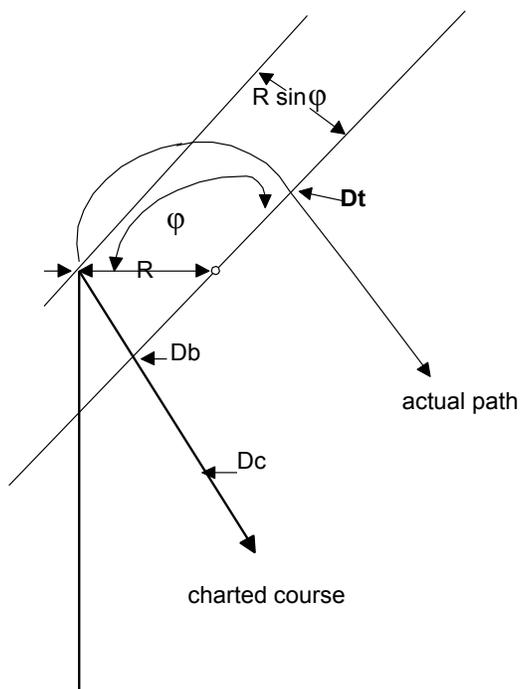
Where:

$$R = (180 \times S) / \pi \times t$$

$$R = (180 \times 13.3) / 3.14 \times 12 = 57 \text{ feet}$$

The time in turn is:

$$T = \phi / t = 120 / 12 = 10 \text{ sec}$$



lowance:

Now Using the formula:

$$\text{Distance of the Turn (Dt)} = \text{Speed (S)} \times \text{Time (T)}$$

$$\text{We get } Dt = 13.3 \times 10 = 133.3 \text{ feet}$$

The distance of the turn is the path that the boat actually takes and it is the same as D_c , ie. $D_c = Dt$ since speed and time are identical for D_t and D_c .

The Distance Down the Course (D_b) is defined as the distance made good down the charted course during the turn. It is less than D_t because the boat is taking a circular course while the charted path is an angle.

Ed Lloyd uses some basic geometry to find that $D_b = R \sin \phi = 57' \times \sin 120 = 49.3 \text{ feet}$

Now with these distances calculated we may finally compute the turn allowance by using the formula:

$$\text{Turn Allowance} = \text{Turn Delay} + [\text{Time in Turn} - \text{Time down the Course}].$$

Where:

$$\text{Time in Turn (Tt)} = Dt/S = 133.3/10 = 13.3 \text{ sec and}$$

$$\text{Time Down the Course (Tb)} = D_b/S = 49.3'/13.3 = 3.7 \text{ sec}$$

$$\text{Turn Allowance} = 2 \text{ sec} + [Tt - Tb] = 2 + [13.3 \text{ sec} - 3.7 \text{ sec}]$$

$$\text{Turn Allowance} = 11.6 \text{ sec}$$

Comments from the Rear

Continued from Page 5

We have three answers for Turn Allowance;

- Tom Collins 15 sec,
- USPS table 10 sec
- Ed Lloyd 11.6 sec.

In log races with numerous turns the turn allowance can be a dominant source of error in the contestants' log, next to current and wind.

So beware, it pays to use the most accurate methodology if you want to win.

>>> Anchor Alarm Mathematics >>>

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In the next few weeks we will be releasing a whole new capability to help make your boating life even better. It's been a six month effort of software development and planning. At the same time, we're provisioning and getting ready to head over to the Bahamas - we'll be talking more about that next week.

So this week we decided to reach into the archives and pulled out one of our most popular topics, an article from almost two years ago. Of the 250 newsletters we've written (which amazes us), the subject of anchoring math was in the top 5 for comments, arguments, and discussions. Since there have been so many new ActiveCaptain members in the last 2 years, we thought we'd revisit the subject to get everyone thinking about what really happens when you anchor using an anchor alarm.

Some of you will think there are logic and mathematics errors in this article. There aren't. Read it all and study the linked reference document. If you want to debate it, make sure to reference the linked graphic document and show how it's not correct (it is correct though!). (Continued on page 6)

NEW COMPETITORS

A quick read - "Enjoy Log Racing"
Each helpful copy is full of facts and fun.
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Anchor Alarm Mathematics (continued)

It should be simple. Pick the spot to anchor; come to a stop; drop the anchor and set the anchor alarm. Then pull back until the anchor sets. If you pull away further from the anchor set point than the distance you specified, alarms should go off. Simple, right?

Well, not exactly. The mathematics are surprisingly a lot more complex. We know. It seems easy and obvious. We've been involved in many debates until the pencil and paper come out and then, "oh yeah" is heard.

Here's the missing magical point. You've got to notice that the point where the anchor position is set in the alarm is the position of the GPS and not the position of the bow/anchor. That one small point ends up bringing a whole bunch of trigonometry into the calculation. When the boat swings 180 degrees, the error created by that offset equals twice the distance from the bow to the GPS. (Honest, twice.)

Let's take an example for a typical 42 foot sailboat with a GPS on the stern rail. This is the worst case scenario but is very typical and demonstrates what happens very well.

Assume you're anchoring in 10 feet of water with a bow that's 5 feet off the water's surface. A good scope for a night without much weather expected would be 5:1. This means 75 feet of rode will be let out and pulled back to set hard (we call that power setting). Then the anchor alarm is set at 125 feet, far more than the 75 put out. And since you power set the anchor, you couldn't possibly move 50 feet, right?

At 3 am, because these things always happen at 3 am, the anchor alarm goes off. You're 127 feet back. You remember that you way over added to the 75 feet so you start planning what you're going to do in the total black of night with the moderate wind that's now blowing. But in reality you don't need to do anything. Your anchor is not dragging.

What really happened is that the tide changed at 1 am. During the next 2 hours you slowly swung around and moved back. Not knowing this new

math for anchor alarms you didn't realize that the GPS displacement caused 84 feet of position error in the anchor alarm. Your alarm went off after moving back only 52 feet. In reality, your anchor alarm should watch you move back another 32 feet without your anchor moving 1 inch on the sea floor. The anchor alarm should have probably been set at about $75 + 84 + 10 + 10 = 179$ feet. The two 10's are for GPS accuracy error and slop since the anchor doesn't set immediately. Can you imagine setting an anchor alarm at almost 200 feet with only 75 feet of rode out? And yet, that's the right number for this boat.

This unexpected error is the reason we wrote DragQueen (available for free in the Apple app store and Google Play). Since the anchor alarm is on a phone, the GPS position is the phone itself. When deploying the anchor, we stand with the iPhone at the bow to eliminate one half the GPS position error. There's still another position error based on where the GPS is located while we sleep at night (25 feet back in our stateroom).

Remember too that this positional error happens at all angles. Swing about 90 degrees to the side and the error is about 1 times the GPS displacement distance. Even that can be significant.

Given a heading/fluxgate sensor and a few configuration settings, 100% of this GPS positional error could be eliminated (DragKing?).

If you're still saying, "wait a second - there's not a 2x error in the position" - check out this graphic proof of what happens. We'll wait to hear the "oh yeah":

<https://activecaptain.com/articles/misc/anchorAlarms.php>

Happy anchoring!

I hope you enjoyed this little trip into anchoring technology. Even the most stalwart of cruisers have to stop and rest after a hard day of log racing. So do it safely with the peace of mind that you won't drag.



Encourage a friend to join the North American Cruiser Association...*Today!*

Membership in NACA keeps everyone who is interested in predicted logging well-informed about the sport throughout North America. Skippers from member associations compete for North American trophies simply by entering their local contests. The champion from each organization is invited to compete in the North American Invitational, hosted by a different NACA organization each year.

For your annual dues of \$10, a print copy of each issue of *Cruiser Log* and the annual roster will be mailed to you.

Complete this form to join or renew membership in the North American Cruiser Association:

Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Spouse Name: _____ Boat Name: _____

E-mail: _____

Home Telephone: _____

Office Telephone: _____

Boat/Cell Phone: _____

Other Boating Organizations: _____

ANNUAL DUES: \$ 10.00

CONTRIBUTION*: \$ _____

TOTAL ENCLOSED:\$ _____

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Bob Ehlers, Executive Secretary
1135 Alexandria Drive



Cruiser Log

The Newsletter of North American Cruiser Association

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