Cruiser Log

The Newsletter of the North American Cruiser Association

Volume 15 Issue 2 **April 2015**

Update from the Vice Commodore

We have received recent updates on two of our NACA stalwarts.

First on the list was a note from Linda Strandjord that Scott is scheduled for surgery on April 13, with a 6 am check in, to replace the piece of his skull that was removed to relieve pressure shortly after his stroke. This will enable Scott to ditch his helmet, in Linda's words. She also reports that he hit a recent breakthrough and is doing much better in speech as well as progress in arm movement. She asks for continued prayers that the surgery goes well and for their continuing aggressive therapies. Currently he is receiving PT OT and speech therapies each twice a week.

We also received a note that Fay Baynard had open heart surgery on February 6 to remove a tumor required to hopefully prevent a certain stroke. Her recovery has been slow partially due to her also having diabetes. She is currently in ICU at St Anthony's Hospital, St Petersburg and may need to be on a ventilator to raise her oxygen levels.

Inside This Issue:

This issue is a my attempt to fill Elaine Townsend's shoes. Bear with me until June.

…Ed Kutchma

Our prayers and thoughts are with both Scott and Fay and their families and medical staffs. Continuing good progress and a speedy recovery to both!

On the more pleasant boating front, in their ever continuing efforts to attract new log participants, the Southern California Cruiser Association (SCCA) recently voted in a trial period where speed indication could be allowed during log contests. The hope was to facilitate participation by new contestants even if they do not have digital tachometer(s). Their ongoing offers to conduct seminars or workshops on logging have also been reinforced. The speed allowance will be discussed and voted upon again within two years.

In the SCCA Season Opener, the first contest where the new conditions could apply, half of the fleet were new participants including some from clubs that have not been involved for far too long. The Easy Entry option was also available and used by some of the new participants.

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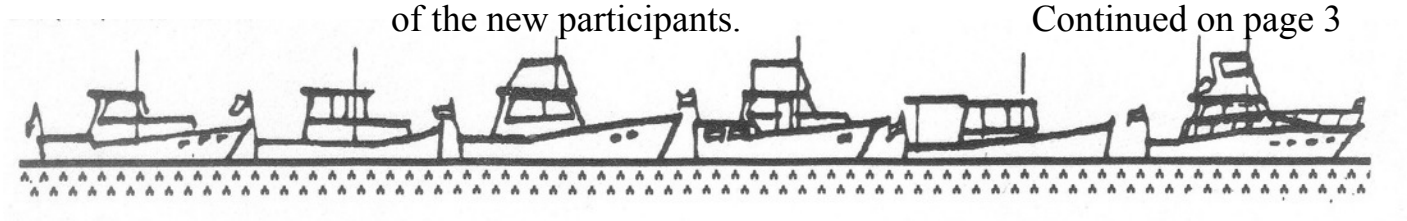

North American Cruiser Association

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

The site provides a resource for boaters looking for in formation, 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 Associa tion 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 infor mation 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 Pre dicted Log contestants participating in NACA sanc tioned contests.

5. Provide perpetual and suitable keeper trophies and other awards for winners of such North American Pre dicted 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 require ments of member associations and of the sport of Pre dicted 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 pub lished in a future issue.

Update from the Vice Commodore

(Continued from page 1)

Interestingly the results of the contest were not significantly impacted. The Opener was a 15 plus nautical mile course mostly within Long Beach (Calif.) harbor with control or way points on all four oil islands. There were eight legs and several large turns. The final contest results were no scores in the under 0.5% category and all scores were under 4.5%. In other words the scores were perhaps somewhat compressed but none were greatly reduced and the often seen high errors especially from new contestants were also reduced. The newcomers were enthusiastic and the experienced loggers interested to see the lack of significant change. This was generally in agreement with back corner discussion and conjecture prior to the change.

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 prod uct and choice of logo. It is simple to use, and the merchandise is of good quality.

Comments from the Rear

We are members of NACA because we participate in precision navigation contests, but we also love to get in our boats and cruise the waters both local and distant.

This is an electronic age with computers, tablets and smart phones that provide significant help on the water. A visit to the app store can be confusing since it is often difficult to separate the truly useful apps from the ones that are less worthwhile. Here are some of the "on the water" apps I found to be helpful for my log racing and cruising needs.

First of all anchoring; I like "Anchor" by Antoine Arnail. My two favorite features are boat tracking, the app displays the location of the boat over time with the older position less bright than the most current position, and it displays the distance and bearing of the anchor from the boat. I use this last feature when I want to measure the direction and speed of the current prior to a log race.

Second is weather; There are hundreds of weather apps but my favorites are: "Wunder Map"which gives the big picture (satellite and radar). "Intelecast Boating", which gives me marine forecast and buoy data. "Radar Scope" which provides the raw and processed radar data from any US doppler site. "Weatherfinder Pro" which gives detailed wind and wave forecasts. Finally is www.squal.sfsu.edu which provides the current and five day jet stream forecasts.

Last but not least are two apps; "Grog Knots" which is a complete animated source for all kids of knots, and "Boating Calcs" which as the name implies covers almost all the conversions and calculations a boater might need.

Next time I plan to cover navigation and give you the pros and cons of a sample of navigation apps on the market. By the way there are tons of apps out in the ether, send me an e-mail kutchma@aol.com with your favorites to share with the membership.

Currents in Narrow Passages – Bob Lindal S/C

S/C Tom Collins asked me to write an article about tidal currents in the narrow, high current passages in which we race and cruise regularly here in the Pacific Northwest, from Olympia to Juneau. I think he wanted some of our local knowledge about the currents in our various passes, but that local knowledge hasn't helped us in the last 2 national/regional races up here; as out of area contestants won them both.

But currents are a fact of life and far more than Loggers need to know them, some perhaps more so. The sailboaters, wherever racing or cruising, by the nature of their slow speed and small engines, can really get help or hurt. Former sailboaters (and some who still are doing predicted log contests in their sailboats), having had to deal with the currents and back eddies for years, often make good loggers. The fishermen know that salmon congregate in the tipe riplines where back-eddies swirl around a point of land or narrowing in the channel. Fishermen often make good Loggers too. Any small boat traversing the worst areas can have real trouble or even worse if the wind and tidal current oppose; especially at a ripline.

For Loggers, the basic thing we want to know is how many seconds of Help or Hurt we will have on any given leg of the contest. Sometimes, we are happy to know which way the current will be heading, ie help OR hurt or what is the direction of the current - set. The drift or velocity of the current and the set allows for an easy calculation of the number of seconds help or hurt. The Excel spreadsheets do it easily; and you can even do the calculations within Coastal Explorer. The purpose of this article is to look at the theory and practical applications to the real world of Navigation contests.

Basics of Hydrodynamics

The science of flowing water is called Hydrodynamics and is a required subject for many college degrees, even if they have nothing to do with boats. Flowing water is governed by several key concepts which apply to our task at hand. The basic equation is: $Q_1 = Q_2$. The Quantity (Q) of water is constant, that which flows past any point in a channel is equal to the quantity that flows past every other point in that channel. Also, the Quantity of water flowing is equal to the cross sectional area (A) of the channel times the average velocity (v) of the water: $Q = vA$. For a smooth sided channel $v_2 = v_1 \times A_1 / A_2$

Where the x is times and the / is divided by. Logically, a narrower channel causes the water to speed up and when the channel widens (or deepens) it slows down. About the only smooth sided channels are in a carburetor of a gas engine, as the Venturi uses this same principle to "suck" the gasoline into the air stream. Smooth sided channels just don't exist in the marine world though some passes in the sand islands off the east coast might approach that, at least on the upstream side of the channel.

It is then possible to simply compare the cross sectional area of a channel at a known current point (preferably a tidal current prediction station) to anywhere else in that channel to calculate the current at that point based on the prediction at the station. A passage like Agate Pass (about 10 mi west of Seattle) acts this way on an ebb (flows NE).

How Tides and Currents Work

But now we must digress to the real world, as Agate Pass does not work the same on a flood. Let's start with the big picture. Tidal currents are generated by the action of

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gravity – that of the earth trying to "smooth" out the surface of the water (equalize water heights everywhere) and that of the moon and sun drawing or "bulging water" on the surface of the oceans, which flows (floods) into a relatively small area like Puget Sound (approx 150 miles long). The tidal predictions are based on the movement of the heavenly bodies, which are so predictable that NOAA calculated the actual currents all the way back to the time Capt George Vancouver lost his anchor in 1792 in Puget Sound (some of our local racers recovered the anchor last year and are now trying to verify it's history, and the current data supports them). The flood currents in any enclosed area like Puget Sound are caused by the rising ocean water "flooding" into the sound. The ebb occurs after the bulge passes and the water flows back out. The Puget Sound flood flows east to Port Townsend and Admiralty Inlet and then south. Just north of Seattle on the west side of the sound there is a 2 nm wide bay called Port Madison. Agate Pass is on the west side and enters at an oblique angle running NE to SW for about ¾ mi. Beyond is Port Orchard, Liberty Bay and other small bays.

Agate Pass is shallow and narrow, it has a fairly straight approach from the SW and hence the ebb follows the formula $v_2 = v_1 \times A_1 / A_2$ well. Exiting on the NE end, it flows "like a firehose" in the same NE direction and helps create a clockwise rotation in Port Madison. The Pass has 2 secondary current prediction stations and we usually use the "south" one with max currents reaching 6 kn. The approach from east is anything but straight. The southerly flood in Puget Sound, as it passes the headland to the north (Jefferson Head) creates a back eddy, roughly the full width of the Port Madison, such that the current always flows clockwise, within reason. The back eddy current, like most back eddies is weak, rarely over a quarter knot but the water must make a 90 degree turn to flow into Agate Pass. The situation is much like a river. I am sure you have seen the "oxbow" lakes that dot the river valleys. They were formed when a slow moving river starts to "S" and the current picks up on the outside of the bends and erode that side, while accreting on the inside of the bend. The river eventually creates such pronounced "S" 's that the two loops actually connect and the river breaks through. The cutoff loops eventually close off to form the oxbow lakes. (Continued on page 6)

NEW COMPETITORS

A quick read - "Enjoy Log Racing"
Each helpful copy is full of facts and fun.
Download for free on the NACA website:
www.predictedlog.org

NACA BLAZER BULLIONS

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Currents in Narrow Passages (continued)

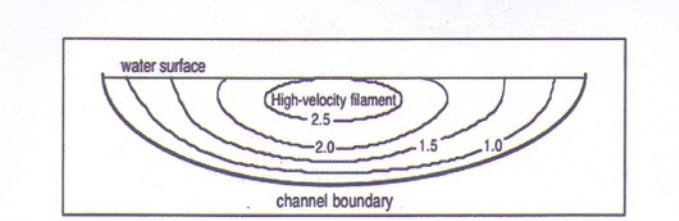
As the Agate flood turns left into the pass the momentum of the flowing water carries much of it to the NW shore. The flow in the pass is anything but uniform with 25% stronger currents on the NW side. Agate point on the NE end of the pass also acts to create a back eddy upstream from the point with almost slack or back current in a small area. The effect of the back eddy/calm water is narrow the flood stream, which has 2 effects. The Quantity is greater and the Area is less, both speeding up the current along the NW side at that point. This effect in acknowledged in Coast Pilot for other passes, like in Rich Passage, the commercial/Navy pass into Bremerton Naval Station " ….These eddies and counter currents on the ebb (and Flood) greatly diminish the effective width of the channel and so increase the velocities….".

Tacoma Narrows

The effect of back eddies is best demonstrated in the Tacoma Narrows. The Primary or Reference/Harmonic current station is located mid stream near the north end of the passage and max currents reach 6 kn. The passage is wide and deep with no reefs and fairly constant cross sectional shape. The overhead view is roughly an "S" with the south approach turning nearly 90 degrees to the left at Pt Evans. The main flow of water from Puget Sound comes west through Dalco Passage to Pt Defiance and turning to the left for about 135 degrees to enter the Narrows. The back eddies in the lee of Pt Evans and Pt Defiance on both flood and ebb are legendary. The Pt Defiance rips are full of salmon fishing boats, trolling or drift mooching. The counter currents in the back eddies can be several knots. And as expected the "outside" of each turn has the strongest currents. There are secondary stations for pretty well all sides of the passage; which show these current set and drift differences.

Current is strongest in the middle

The flow in a channel is not uniform. It is strongest in the center (for a straight channel) and less on the edges (and near the bottom). Edward J. Hicklin in his book book *River Hydraulic and Channel Form* shows:



5.4: A channel cross-section with isovels showing a typical pattern of velocity distribution in the flow.

(an isovel is a line of constant or equal velocity) This clearly shows what we intuitively know (and experienced if you ever have tried to row or paddle against a current); the weakest currents are along the edges; but predictions are nearly always for mid channel, so running in the calmer water to the sides is subject to less predictability. Hicklin also explains that the "roughness of the water surface" causes turbulence such that the strongest current is actually slightly below the surface (does this affect a deep draft trawler more than a semi-displacement or planning hull?). He also says wind against the water flow (upstream winds) roughen the surface more and makes the surface water even slower. I always try to run in or near the middle where predictions are better, if I have a choice. Some contests are laid out so you must be near the edge of a channel, so you then need to adjust your predictions. Notice also the isovels are not equally spaced across the channel. The edges more rapidly increasing in velocity than across the middle third. The other side of the discussion says that a variation of say half a knot in middle channel, should only be a third of that along the edges; that is if you can expertly or perhaps miraculously identify the isovel when you are on the water.

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Currents in Narrow Passages (continued)

I have purposely ran south along the west side of Colvos Passage (a 15 nm long 2 nm wide passage starting just north of Tacoma Narrows) mainly to observe the current velocity and back eddies forming downstream from the various points along the passage, but also to avoid the stronger mid channel ebb (northerly) currents. The near shore current was less than half the mid channel predictions. As I passed a few other boaters, who were in mid channel, they confirmed the stronger current out there, roughly double what I was seeing.

Timing - Some other effects worth noting

As a current approaches slack, it first turns along the edges. This is especially true where a back eddy has already caused a counter flow; the counter flow basically just strengthens to become the start of the new flow in that direction for the whole channel.

The riplines which form between the back eddy and the main flow are a bad place to predict currents or run a straight course. Stay out of them, if you can. By the very nature of the beast, they are full of upwellings, whirlpools and the ripline itself is constantly changing. Debris builds up in them for the same reason bait fish aggregate there which attracts the salmon and the fishermen.

Visualize how the water will flow into and out of a channel or a bay. If you zoom out or just look at a small scale paper chart to see the big picture, sometimes the answer is obvious. Water doesn't make right angle turns easily or unless forced to by the geography. Think like the water and go with the flow.

Situational awareness – my good friend's favorite saying applies here as well. In planning but also on the water. Look for the tell-tale signs when you are running the contest. Not just the obvious things like current on a buoy, piling or anchored boats. Look for the riplines and eddies. Wind against water (tidal or river current like Hicklin explained) causes higher seas and short distances between waves and hence weaker surface currents. Wind with water tends to flatten the water and hence stronger surface currents. Does an area of smooth water indicate no current and you had predicted some. Do you make a change? Have the knowledge to read the water and the "guts and gumption" to adjust your throttles. Calculate how much to move the throttle and do half. Then you may be only half wrong but maybe better than everyone else.

Conclusion

Predicting currents is really the essence of Cruiser Navigation Contests. In a race with lots of legs from Buoy to Buoy, it is the biggest challenge. Currents in Narrow Passages, especially when not straight, provide a challenge but can be handled logically and simply. Visualize the course and the flow of the water, watch the water for helpful signs, enjoy another day of boating, good friends and have some fun.

REBUILDING A JABSCO RAW WATER PUMP AS USED ON OLDER FORD LEHMANS

By Jeff Calabrese

There is a lot more to raw water pump maintenance than just inspecting the impeller.
Considering that on the older (1968) GB 42 with twin Ford Lehmans it is easier to remove the entire pump than it is to fumble with the six screws that have to be loosened to remove the cover plate that allows you to see the impeller, removing the entire pump is the way to go for me. This is the way I like to do it;

1. Close the raw water inlet valve.
2. Loosen the hose clamps on the inlet and outlet hose connections.
3. Remove the four bolts holding pump assembly to the engine block using a 7/16" wrench and carefully remove and drain the pump.
4. Remove cover plate.
5. Remove impeller by supporting the pump at its base and using a hammer (tap lightly) and dowel to drive the shaft backwards and out of the pump. The brass adapter ring will come off first. Do not lose it. I made a fixture for this purpose by drilling a hole a little larger than the adapter diameter through a block of wood about 2" thick. This supports the pump base squarely while tapping the shaft out. The bearings will remain on the shaft and come out with it.

NOTE: (a) The impeller can be removed with a pliers or an impeller puller. I like to tap the shaft out so that the pump body, shaft, bearings and all other parts can be removed and given a thorough inspection.

NOTE: (b) If the impeller has missing pieces they need to be located and removed. Check the pump discharge piping and the oil cooler inlet.

6. Clean the removed shaft thoroughly in way of the splines and in the seal surface area. Polish the seal surface area with "crocus cloth". Check for smooth rotation of the bearings.
7. Loosen the eccentric holding screw and then tap on the screw to break the eccentric free. Remove the screw and eccentric.
8. Remove the lower wear plate. If it won't fall out use a hooked scribe to work it out.
9. Use a small screw driver and tap out the water seal. Use a pin prick to remove the seal to body o-ring and the seal spacer.
10. Remove the slinger washer and then tap out the oil seal.
11. Clean the pump body thoroughly. Remove all traces of hardened salt. File any burrs or raised edges smooth. If time permits, a light soak in diluted muriatic acid followed by a good rinse works good. This removes all salts and scale.
12. Install the oil seal by seating it into its cavity with a dowel of larger diameter than the seal. The open end of the seal faces the bearing.
13. Install a new seal spacer and seal to body o-ring for the water seal.
14. Install the water seal and seat it firmly with a wood block or hollow dowel. The open end of the seal faces the impeller
15. Install the shaft via the drive end of the pump. As the shaft starts to come through the oil seal, insert the slinger washer over it. Continue inserting the shaft until the bearing seats on the internal stop in the casing.
16. Install a new lower wear plate if needed. The wear plate can be turned over if desired. Be sure it is thoroughly clean. Be sure the short slot lines up underneath the eccentric holding screw hole. The eccentric has a guide pin that engages the slot.
18. Install the eccentric (new one if needed) Put some silicone on the screw threads to prevent leakage from this point.
19. Install the impeller with a twisting and pushing motion. Lube it up real good with white impeller grease or Vasoline. Don't forget the rubber end cap.
20. Install a new gasket and cover plate. Center the slinger between the oil seal and the water seal. Access this through the leak off openings. Note: The inside of the cover plate is also a wear surface. Replace it if necessary. It can be reversed in a pinch.
21. Pump is good to go for another three or four years.

Note: Install the adapter ring and pay strict intention to the orientation of the drive splines when installing. I keep a rebuilt spare on hand to minimize down time. Most parts are readily available.

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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