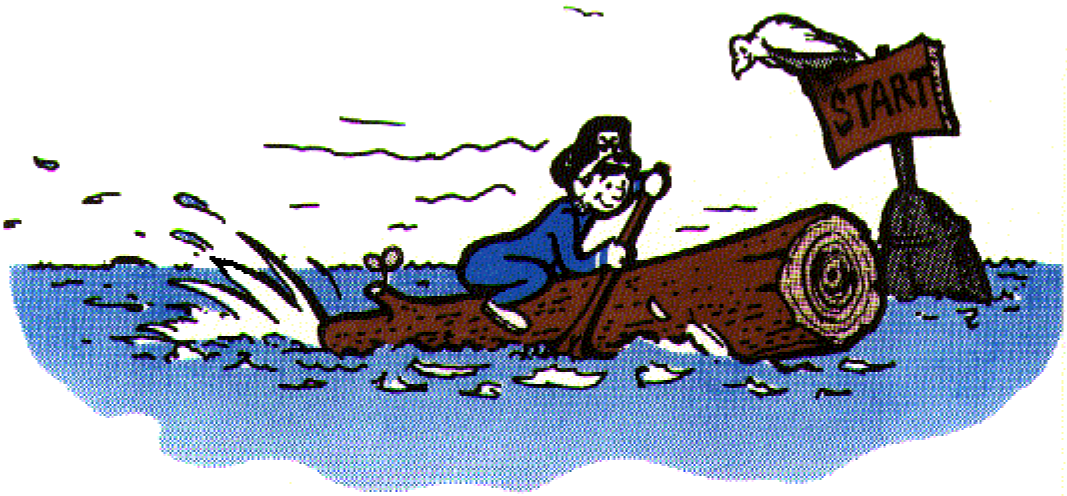

Enjoy Predicted Log / Cruiser Navigation

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YOU TOO CAN WIN A PREDICTED LOG CONTEST

You've probably heard or read of skippers in predicted log contests finishing with scores of less than one percent or just a few seconds of error. You've also probably thought that this must be the result of an effort of genius, combining years of data on their boats with reams of calculations. Don't believe it ! As a novice, you have just about as good a chance to collect trophies as the seasoned pro. This is borne out each year as the results show that novices take home a substantial number of the trophies. And if you think it's too difficult for you, you're wrong again. You've been deceived by stories you've heard about how someone won a contest. In fact, the contestant probably isn't really sure how they won. If however, the contestant had earned the same score and not won, they would most likely have been able to tell you what went wrong. Actually, if you just follow the steps listed in this booklet, you'll have a good chance of winning. You'll learn more about your boat, become a better skipper, and - win or lose - you'll have a lot of fun while you're at it.

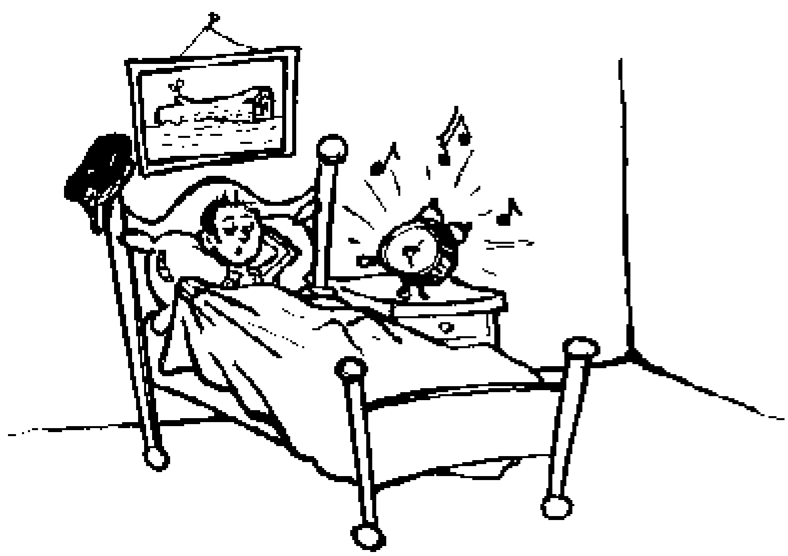
WHAT IS A PREDICTED LOG CONTEST

It is a contest where each skipper attempts to most accurately predict the time it will take to navigate a specified course in their boat. The course is published in the race instructions issued by the host club several weeks prior to the contest. It usually consists of four or more legs totaling about 25 miles. Before the contest, skippers turn in predicted logs which specify the time they expect to use on each leg of the course. Each skipper then starts onto the course at their predicted starting time. After starting, an Observer aboard the boat collects all watches so that the skipper and crew have no knowledge of the actual time during the contest. As each mark is passed, the Observer records the time on the actual log. After completing the course, the Race Committee computes the percentage error between the predicted and actual logs for each boat. The skipper with the lowest error is then declared the winner.

PREDICTED LOG CONTESTS ARE FUN

There is really no secret to it. You don't have to be a mathematical wizard or a genius. You don't need 100,000 miles of experience in your boat and reams of figures. All you really need is some simple speed data you can easily obtain in a morning and a basic understanding of the procedure for calculating your log. One more thing you'll need is the desire to join in with a fine group of yachtsmen like yourself as you enjoy using your boat during the contest and sharing in good fellowship afterwards at the trophy presentation.

SO LET'S GET STARTED



Remember, the idea is to keep it simple and to have fun ! As you become more involved, you'll hear stories of compensating for winds, currents, weight, etc. The important thing to remember is that you really don't need to be concerned with these complexities. Each year many of the contests are won by novices just like you, while some of the "scientists" outsmart themselves as they watch their theories on wind and waves disintegrate before their eyes.

CHOOSING A SPEED

The first thing you'll need to do is to determine the speed of your boat. It's nice to have a complete RPM speed curve, although for most contests all you really need to know is your boat's speed at the RPM you intend to use for the contest. Choose a comfortable speed, probably the RPM you normally use for cruising. Keep in mind that during the contest you will need to maintain that speed regardless of sea conditions, so choose a speed where you and your boat won't be knocked about if the water is a bit lumpy. One other consideration, choose an RPM setting that can be easily read on your tachometer(s) so that during the contest you can adjust your throttle(s) to exactly this same RPM.

RUNNING THE MILE

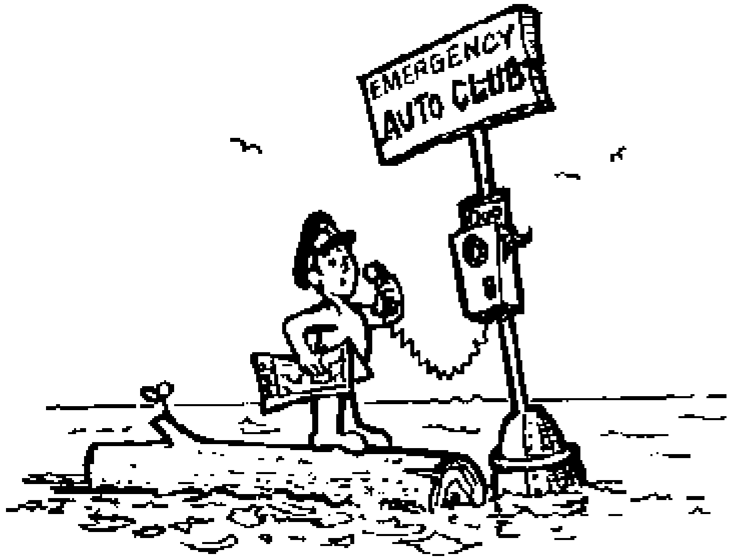
Your local chart will show the measured nautical mile course in your vicinity. The course end points will usually be identified by a set of range markers on shore or some other fixed object, such as a breakwater or pier. The best time to run the mile is in the morning before the course becomes congested with other boats and the winds kick up a chop. Set your throttle(s) carefully and run the course noted on the chart in both directions, without stopping or changing your RPM. Use a stopwatch to measure the exact time it takes you to travel the mile in each direction. The times you record for each direction will probably be different due to wind and current that might be present. Times for multiple runs in the same direction should be nearly the same. Before you go back in, and without changing speed, make some tests to determine how much you must turn your helm so that your boat will make a 180 degree turn in 40 seconds.

CALCULATING AVERAGE SPEED

You will now want to determine the average speed of your boat in seconds per nautical mile (sec./nm). To do this, first convert the times you recorded for each direction into seconds (example: 4 minutes and 25 seconds = 265 seconds). Now, add the times from each direction and divide by two to determine the average speed in seconds per nautical mile (example: 265 + 281 divided by 2 = 273 sec./nm). Later we will use this average value to figure the time needed to travel a given distance by simply multiplying it times the distance (example: 273 sec./m times 3.1 miles = 846 seconds).

Editor's Note: The above method for calculating average speed in seconds per mile is perfectly adequate in most situations, however a more precise method would be to compute the speed in knots (nautical miles per hour) in each direction, and then add the two speeds and divide by two (example: take 3600, which is the number of seconds in an hour, and divide it by 265 seconds, 3600/265 = 13.585 knots). Using the previous method, the speed in knots for 281 seconds is 12.811 knots. Now average the two speeds, 13.585+12.811 = 26.396 divided by 2 equals 13.198 average knots. After calculating the average speed in knots, convert the speed to seconds per nautical mile (example: take 3600, which is the number of seconds in an hour, and divide it by 13.198, 3600/13.198 = 272.769 or 273 seconds per nautical mile). In this example, the final number of 273 seconds per nautical mile is identical to the previous method, but in some instances it may be different and if so, the later example is correct. See "A NOTE REGARDING CURRENTS" at the end of this paper.

PLOTTING THE COURSE



The next step is to plot the contest course. The contest instructions will list the start, intermediate, and finish points. Once you have identified these points on your chart, draw the course lines interconnecting them. Now, measure and note the distance and heading for each leg. When measuring the distance, be very careful to be as precise as possible since any distance errors made now will result as an error in time when the scores are computed. Depending on the chart, you will use either the mileage scale or the latitude scale to measure the distance in nautical miles for each leg. Be sure to convert headings to magnetic courses.

Editor's Note: "Headings" in the sentence above, refers to true courses.

CALCULATING LEG TIMES

Calculate the travel time for each leg. Multiply your boat speed in seconds per nautical mile by the leg distance in nautical miles. Since starting and turning actions will add a little extra time, allowances need to be added to the travel times just calculated. Experience has shown that, although it seems short, five seconds is an adequate allowance for starting and should be added to the travel time for the first leg. Turn time varies according to the turn angle. The turn angle is the number of degrees your compass will swing when going from one heading to another. The turn time is not linear so use this table to determine the turn time allowance.

TURN ANGLE	ADD
0 to 60 degrees	0 seconds
60 to 90 degrees	5 seconds
90 to 110 degrees	10 seconds
110 to 125 degrees	15 seconds
125 to 140 degrees	20 seconds
140 to 150 degrees	25 seconds
150 to 165 degrees	30 seconds
165 to 175 degrees	35 seconds

Always add the turn-time allowance to the travel time for the leg following the turn.

Editor's Note: The above table is an excellent starting point for developing turn times. As you become more advanced, you may choose to use a more precise method. Some of your more experienced competitors will be happy to help you when you are ready.

CONVERT SECONDS TO HOURS, MINUTES, AND SECONDS

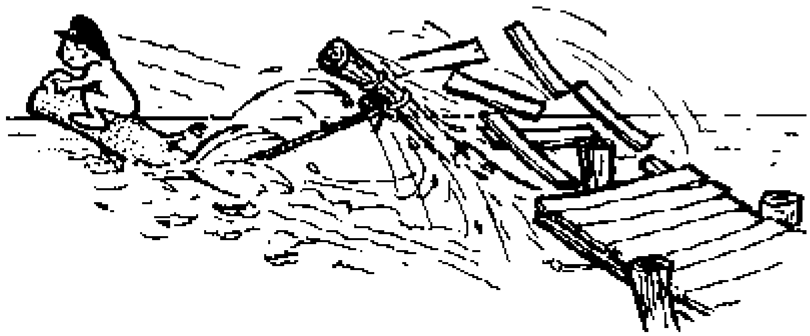
Now you have the total times you will predict for each leg of the contest. Converting from seconds to hours, minutes, and seconds will require some mathematical gymnastics. This is best done as follows. If the leg time exceeds 3,600 seconds, subtract 3,600 for each hour in the leg. Now divide the result by 60. The digits to the left of the decimal point are the minutes in the leg. Subtract the minutes from the result so that the number to the left of the decimal point is zero and multiply the decimal value by 60 to find the seconds. You can check your answer by converting it back to seconds. It should agree with your original value.
EXAMPLE: assume leg time is 4317 sec, 4317 - 3600 (1 hour) = 717, 717 / 60 = 11.95 , 11.95 - 11 (11 min) = .95 , .95 x 60 = 57 sec. RESULT : 1:11:57

FILLING OUT THE LOG

Begin filling out your Log Form. Start by completing all the blanks involving personal, boat, and club data. Next list the check point names on both the predicted and the actual log in the order given on the contest instructions. Most instructions will specify a common point, usually the finish, or a common time. This will be the clock time at which you are to arrive at the common point. You are now ready to calculate your predicted clock times at each of the other check points. Here again, you will have to exercise some mental gymnastics when doing clock-time arithmetic. Just remember to use six instead of ten when borrowing across hours, minutes, and seconds columns.

PROOFING YOUR PREDICTED LOG

It is a good idea to double check your arithmetic to be sure you haven't made any "dumb mistakes." Enter your predicted starting time in the appropriate box on the actual log. The equipment check list should be left blank to be completed by the Observer. Since the Race Committee will keep your log, you'll want to make a copy for yourself so you can evaluated the results after the event. While you're at it, make a neatly organized card showing starting time, check points, courses to steer, and required check point passage sides and distances. This card can be placed near your helm for quick reference during the contest.



ANYTHING OVERLOOKED?

Once more, read through the entire contest instructions to be sure you haven't overlooked anything. You should also review the predicted log racing rules. Extracts of the rules are on the log form but you really should get a complete set of the rules and read them carefully. Generally, they require that you follow the race instructions, start on time, pass the marks on the correct side within the required distance, and yield to the inside boats at a mark. You cannot use a speedometer, loran, GPS, radio direction finder, or any timekeeping device during the contest. You can use the tachometer(s), compass, autopilot, radar, hand-bearing compass, and depth sounder. Running any portion of the course beforehand is also prohibited. Don't forget to make reservations and arrange for an Observer if required by the instructions.

Editor's Note: The above admonishment is particularly appropriate to the sport of Cruiser Navigation. As time goes by and technology improves, many of the local organizations have modified some of the rules mentioned above. It is therefore important to keep yourself informed as to those changes. Members of your local organization will be happy to assist you in this endeavor.

SKIPPER'S MEETING

At the Skipper's Meeting you'll be asked to submit both the predicted and actual log forms. Observers will then be assigned and your Observer will be given your actual log. The official timepiece will be available, and you should bring the timepiece you intend to use and check it against the official time. It is worthwhile to note here that the timepiece you use should be one that can be easily and accurately read while underway. The committee will review the course and answer any questions. This is the time to resolve any problems you may have. Don't be bashful. You'll find the committee wants you to enjoy the contest; and if you give them the opportunity, they'll probably bend over backwards to help.

THE CONTEST

Running the contest is simply a matter of starting on time and holding the course and RPM's you predicted. A standing start works best. Position your boat alongside the starting mark. At exactly the predicted start time immediately engage the gears; then smartly, yet smoothly, advance the throttle(s). Carefully adjust the RPM so that it settles exactly at the point you ran your measured mile runs. As you approach the next mark, plan your course to that you will pass on the proper side and within the required distance. Instruct the Observer to "prepare to mark" and when the check point is exactly abeam say "Mark" clearly and distinctly. Immediately turn the helm the predetermined amount until the boat comes about to the new course. Check your RPM's regularly and make any throttle adjustments necessary. Don't worry about how you're doing with respect to other boats. You may be right and they could be wrong. Besides, even it you are wrong, you'll only worsen your score if you try to compensate. Each leg is scored individually and once run, it is history and can't be improved by compensation on subsequent legs.

AFTER THE FINISH

After passing the finish check point, you can relax. If you give your Observer your copy of the actual log, they will enter the time from their copy for your records. The Observer will retain possession of the original actual log and timepiece and deliver them to the Race Committee, although the skipper is responsible for seeing that they are submitted on time. Now you have only to wait until the scores are announced. This is a period of time when most of the skippers like to keep their true scores secret (if they know them) in order to heighten the suspense. This, however, is not to say some tall tales are not exchanged during this wait.

EVALUATE YOUR PERFORMANCE

After the scores have been announced and truth prevails, see if you can evaluate your performance to determine where you did well and what you might have messed up. A few moments spent now, while things are still fresh in your mind, will help you towards becoming a "seasoned pro."

HAVE FUN

If you assume the attitude that you are going to enjoy your boat and the company of some fine yachtsmen, you are certain to come away a winner. You'll have fun, and you just might pick up some trophies in the process.

Good luck and happy cruising.

A NOTE REGARDING CURRENTS

This was originally written for skippers in Southern California where currents in the open ocean seldom exceed 0.2 knots and are essentially unpredictable. When running in a bay or sound, current becomes an important consideration which may be accounted for as follows.

Instead of averaging seconds per mile on the measured mile, first convert your time for each direction to speed in knots (3,600 divided by seconds), then average the speeds. Referring to the current charts or tables for your area, determine the predicted current for each leg at the approximate time you expect to be on that leg. Estimate the component of the current in line with your course and add or subtract it with your average speed, depending on its direction relative to yours, to determine your equivalent speed in knots for each leg. Now convert your equivalent speed back to seconds per mile (3,600 divided by knots) and proceed to calculate leg times as described in the text.

During the contest, compare the current-generated ripples you observe around the buoys with the photographs in Chapman's. Make compensating RPM adjustments if the actual current differs substantially from that predicted.