

**WLSC TOD PHRF Handicapping
for
Fun Races, the Frostbite Race, and Summer Races**

Sections:

- Introduction**
- PHRF TOD**
- Some Typical Race Courses**

Introduction: It is very difficult to conduct a totally equitable race with such a diverse group of boats and people as that found at Watauga Lake. We employ two different handicapping systems in an attempt to address these inequities: Club and PHRF.

(Disclaimer) No handicapping system is totally fair. However, we have chosen these somewhat imperfect ones while we continue to struggle for an unrealistic goal of perfection.

The WLSC Club system (developed by John Middaugh) includes both the sailboat and the crew in the handicap. We employ this approach to create a competitive atmosphere for those that might not necessarily desire to spend a lot of time and money improving their boat. However, as the boat and crew improves, their handicap is increased over time. Any sailboat can compete in this racing series if they have either a Portsmouth or PHRF rating. This system is describe in a separate document entitled “WLSC Club Handicapping and Scoring for Fall and Spring Race Series.

The PHRF system is based only on the sailboat. Thus, the system attempts to factor out crew and boat preparation. The approach assumes that the boat is crewed by a very competent crew and with a boat in excellent condition. A PHRF is calculated from Thus, if one does not maintain their boat (sails, hardware, bottom) well and exert a significant effort in crew training, it will be somewhat difficult to consistently finish high in the PHRF race series.

Only boats with PHRF handicaps can compete in our PHRF TOT (time on time) Fall and Summer racing series. If a PHRF handicap is unavailable, it will be calculated for our PHRF TOD (time on distance) races which include all fun races, the Frostbite Race, and Summer races.

This document will attempt to describe our implementation of the PHRF TOD system which we will employ for fun races, the Frostbite Race, and Summer races. The WLSC Club and PHRF TOT systems employed for the Spring and Fall race series will be described in additional documents.

PHRF TOD: We employ the PHRF TOD system for all fun races, the Frostbite Race, and summer morning races. This is much more convenient than the PHRF TOT since no

committee boat is utilized. The boats start with an offset calculated by their PHRF's and the boat that crosses the finish line first is the winner.

The United States Performance Handicap Racing Fleet (US PHRF) system is very well described on the following web site:

<http://www.ussailing.org/phrf/index.asp>

In previous years, we purchased the US PHRF Handbook. However, the book is reasonably expensive. Thus, we are currently utilizing the average PHRF handicaps which are found in a list (PDF document) on the following US PHRF website:

http://www.ussailing.org/phrf/Tool_%20HI_LO_AVG%20Report.pdf

If a PHRF handicap is not available in the US PHRF list, it is calculated from the boat's Designated Portsmouth Number (DPN or D-PN) by the following formula:

$$\text{PHRF} = (\text{DPN}-55) \times 6$$

The DPN's can be found at:

<http://www.ussailing.org/portsmouth/index.asp>

Some Typical Race Courses: Our typical 3-mark race from the point near the marina, to the observatory, to the island, and back to the point is ~3.3 nautical miles. Likewise if you start at the same point using one mark and the trees at the point to mark the start line, round the island to the east, and return to the starting line the distance is still ~3.3 nautical miles. Both these distances were calculated with the ruler/path function in the Google Earth program.

For the Frostbite Race, we start in the Lakeshore Harbor and use the marina buoy line as our start line. Usually we do not do this for races in fall, spring, or summer, since we would disrupt traffic entering Lakeshore Marina. There are not many boats on the lake on January 1st! Again the distance for the Frostbite Race is approximately 3.3 nautical miles.

The differences in start times in the Tables in the attached instructions were calculated using the following formula:

$$\text{Corrected time} = \text{PHRF} \times \text{distance in nm}$$

The offset time for each boat is calculated by subtracting the corrected time from the slowest boat (highest PHRF) from each boat. The results are sorted in an Excel spreadsheet and the boats divided logically by relative times into groups with starts every

minute. The Table starts the first group with an offset of 2 minutes which is adequate time to setup a boat's approach to the start line.

Only one long horn is blown by the Race Captain to start the race. The individual captains are responsible for monitoring their own starts and relative finishes. Since the PHRF differences are factored in at the beginning of the race, the first boat to cross the finish line is the winner.

It would be more accurate to have individual start times for each boat and to employ the exact distance for each race course in the calculation. *However, our main goal for the fun races is to have fun and to encourage new people to race.* Thus, I believe this current approach is much simpler since the start times remain constant for all our basic fun race courses, no committee boat is required, and no complex horn sequence is needed.

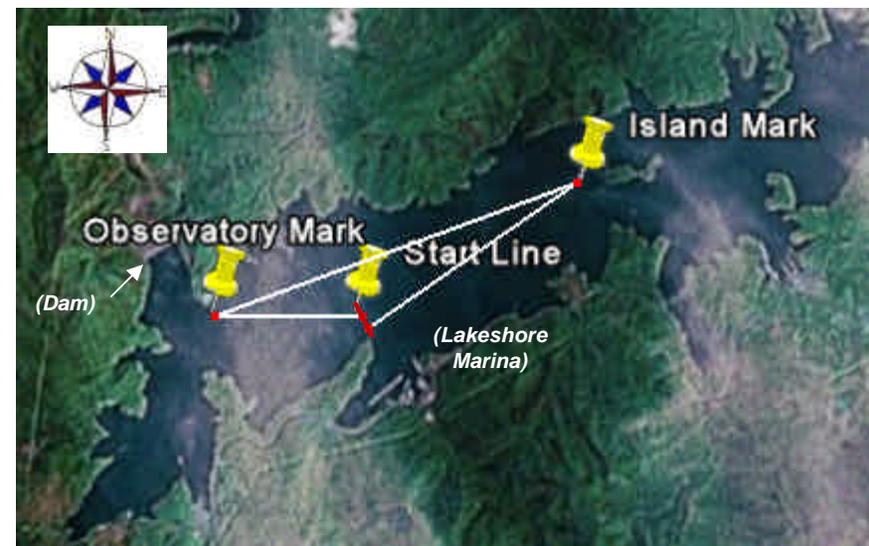
WLSC Fun Race Instructions for Standard 3-Mark Race

Goals: To introduce new people to racing and to have fun. General racing rules apply, see WLSC website. Be sure to use race as learning opportunity and ask questions before and after the race.

Instructions: After the Captains' meeting, fleet proceeds to starting line. Start between tree-line on point and flag off point. Only one long horn will be blown at *approximately* the stated start time. If problem, 5 horns will be blown and hail race captain (CH 16 or just yell). Boat start times are noted in table.

If westerly wind direction, start will be towards dam with marks to starboard. If winds easterly, start will be towards island with marks to port. Round the marks and return to start line for finish. First boat crossing the finish line wins!

| Yacht Type | PHRF | Start Time |
|---|---------|----------------------|
| Catalina 22, West Wight Potter 19, Chrysler 22, Hunter 20 | 274-257 | 2 Minutes after Horn |
| Venture 222, MacGregor 22, Lancer 28, Tanzer 22, Ideal 18, Nor'sea 27 | 256-239 | 3 Minutes after Horn |
| O'Day 19, Etap 24, Cal 2-24, Hinterhoeller 25, Catalina 25, Macgregor 25, Oday 272, C & C 24, Chrysler 26, Ranger 22, Macgregor 26 | 238-221 | 4 Minutes after Horn |
| C & C 25, Hunter 26, Hunter 27, American 17, Pearson 26, Westsail 32, Merit 22, Catalina 27 IB, Capri 22, Cal 27, Catalina 270, Capri 26, Flying Scott, Buccaneer 18, Balboa 26 | 220-203 | 5 Minutes after Horn |
| Catalina 27 TM, C & C 27, Catalina 28, Hunter 30, S2 8.5, Catalina 30, Newport 28 | 202-185 | 6 Minutes after Horn |
| Hunter 28, Morgan 32, San Juan 28, C & C 29, Catalina 30 TM, Grampian 30, J22, Tartan 34, Capri 25, Oday 31, Tartan 30, J-24, Hunter 26.5 | 184-167 | 7 Minutes after Horn |
| Freedom 40, C&C Landfall 35, Catalina 320, Tartan 32 | 166-149 | 8 Minutes after Horn |



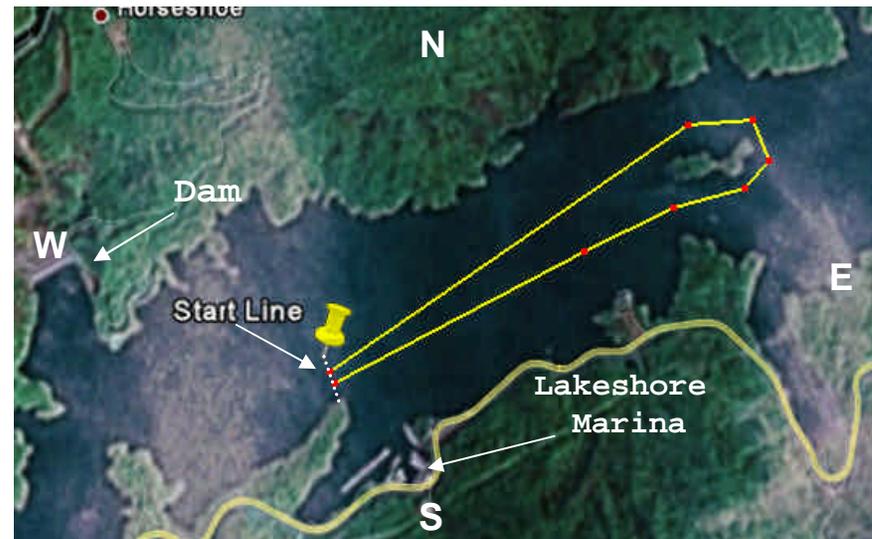
WLSC Summer Morning Fun Race Instructions

Goals: To introduce new people to racing and to have fun. General racing rules apply, see WLSC website. Be sure to use race as learning opportunity and ask questions before and after the race.

Instructions: Leave dock at 8:00 AM. Start between tree-line on point and flag, only one long horn will be blown at 8:30. If problem, 5 horns will be blown and hail race captain (CH 16). Boat start times are noted in table. Head east towards island, pass around the island on either north or south side, Captain's choice. Head back to the start line. First to cross the start line is the winner.

| Yacht Type | PHRF | Start Time |
|---|---------|----------------------|
| Catalina 22, West Wight Potter 19, Chrysler 22, Hunter 20 | 274-257 | 2 Minutes after Horn |
| Venture 222, MacGregor 22, Lancer 28, Tanzer 22, Ideal 18, Nor'sea 27 | 256-239 | 3 Minutes after Horn |
| O'Day 19, Etap 24, Cal 2-24, Hinterhoeller 25, Catalina 25, Macgregor 25, Oday 272, C & C 24, Chrysler 26, Ranger 22, Macgregor 26 | 238-221 | 4 Minutes after Horn |
| C & C 25, Hunter 26, Hunter 27, American 17, Pearson 26, Westsail 32, Merit 22, Catalina 27 IB, Capri 22, Cal 27, Catalina 270, Capri 26, Flying Scott, Buccaneer 18, Balboa 26 | 220-203 | 5 Minutes after Horn |
| Catalina 27 TM, C & C 27, Catalina 28, Hunter 30, S2 8.5, Catalina 30, Newport 28 | 202-185 | 6 Minutes after Horn |
| Hunter 28, Morgan 32, San Juan 28, C & C 29, Catalina 30 TM, Grampian 30, J22, Tartan 34, Capri 25, Oday 31, Tartan 30, J-24, Hunter 26.5 | 184-167 | 7 Minutes after Horn |
| Freedom 40, C&C Landfall 35, Catalina 320, Tartan 32 | 166-149 | 8 Minutes after Horn |

Obstacles: Note there are shallow spots on the NE and SE corners of the island. Also, a reef off the east side of the island. Steer about half the distance between the eastern shore of the island and the reef.



WLSC Instructions for Frostbite Race

Goals: To introduce new people to racing and to have fun. General racing rules apply, see WLSC website. Be sure to use race as learning opportunity and ask questions before and after the race.

Instructions: After the Captains' meeting, fleet stays in harbor for start. Buoy line is the start line. Only one long horn will be blown at *approximately* the stated start time. If problem, 5 horns will be blown and hail race captain (CH 16 or just yell).

Boat start times are noted in table. Boat start times are noted in table. Head east towards island, pass around the island on either north or south side, Captain's choice. Head back to the start line. First to cross the start line is the winner.

Obstacles: Note there are shallow spots on the NE and SE corners of the island. Also, a reef off the east side of the island. Steer about half the distance between the eastern shore of the island and the reef.

| Yacht Type | PHRF | Start Time |
|---|---------|----------------------|
| Catalina 22, West Wight Potter 19, Chrysler 22, Hunter 20 | 274-257 | 2 Minutes after Horn |
| Venture 222, MacGregor 22, Lancer 28, Tanzer 22, Ideal 18, Nor'sea 27 | 256-239 | 3 Minutes after Horn |
| O'Day 19, Etap 24, Cal 2-24, Hinterhoeller 25, Catalina 25, Macgregor 25, Oday 272, C & C 24, Chrysler 26, Ranger 22, Macgregor 26 | 238-221 | 4 Minutes after Horn |
| C & C 25, Hunter 26, Hunter 27, American 17, Pearson 26, Westsail 32, Merit 22, Catalina 27 IB, Capri 22, Cal 27, Catalina 270, Capri 26, Flying Scott, Buccaneer 18, Balboa 26 | 220-203 | 5 Minutes after Horn |
| Catalina 27 TM, C & C 27, Catalina 28, Hunter 30, S2 8.5, Catalina 30, Newport 28 | 202-185 | 6 Minutes after Horn |
| Hunter 28, Morgan 32, San Juan 28, C & C 29, Catalina 30 TM, Grampian 30, J22, Tartan 34, Capri 25, Oday 31, Tartan 30, J-24, Hunter 26.5 | 184-167 | 7 Minutes after Horn |
| Freedom 40, C&C Landfall 35, Catalina 320, Tartan 32 | 166-149 | 8 Minutes after Horn |

