



## Lake Tahoe PHRF Frequently Asked Questions

### What is PHRF?

Performance Handicap Racing Formula (PHRF) is a commonly used handicapping system for the sport of sailboat racing. Its purpose is to provide a means for unlike boats to compete equitably. Thus, the Tahoe Yacht Club uses PHRF for all its racing except one-design racing of identical boats such as Lasers and Melges 24s. To implement PHRF racing at Lake Tahoe, the Tahoe Yacht Club board of directors has established a PHRF committee in accordance with guidelines provided by the national authority <https://www.ussailing.org/competition/offshore/phrf/>. The Lake Tahoe PHRF committee often consults with the national committee on particular boat handicaps and other race-related matters.

### What are the PHRF ratings for Lake Tahoe?

The PHRF ratings for Lake Tahoe are published on the Tahoe Yacht Club Web site, [www.tahoeyc.com](http://www.tahoeyc.com). These ratings are reviewed and updated as necessary. As the Lake Tahoe ratings are published, other yacht clubs and race organizers may use these as they wish. Also, PHRF committees in other venues frequently use the Lake Tahoe ratings as a basis for their own.

### Who sets PHRF ratings?

The Lake Tahoe PHRF Committee consists of from five to seven committee members. The chair is appointed by TYC Commodore, and the chairmanship renews automatically each year until changed by the then current Commodore. The chair of the PHRF committee appoints each committee member, and these memberships renew automatically until changed by the PHRF chair.

### How are PHRF ratings established?

For each boat type, the Lake Tahoe PHRF committee establishes a rating in seconds per mile. For example, a J24 might have a rating of 171 seconds per mile while a faster Moore 24 might have a rating of 156 seconds per mile. In a 10-mile race, the Moore 24 would give the J/24 a 150 second handicap:  $(171-156) \times 10 = 150$  seconds. Thus, in a time-on-distance race, the Moore wins only when it finishes more than 150 seconds before the J/24.

The PHRF ratings for Lake Tahoe are published online on the TYC website, [www.tahoeyc.com](http://www.tahoeyc.com).

### What criteria are used for setting PHRF ratings?

The PHRF handicap for each boat type is based on a number of factors:

- (1) *Manufacturer's Recommendation*—The manufacturer, when the boat is introduced, often recommends a PHRF rating based on the manufacturer's expert opinion as to how the boat performs against existing, rated boats. The manufacturer usually considers boat weight, keel weight, rudder size, sail plan, as well as observed speed in various wind and wave conditions.
- (2) *Southern California Rating*—For a boat that is new to racing in Lake Tahoe, the Lake Tahoe PHRF Committee, as a starting point, usually assigns the PHRF rating that is used for this boat type in Southern California. This is because Southern California wind conditions are similar to those of Lake Tahoe, while the conditions in San Francisco Bay for example are windier, on average, and unlike what exists in Lake Tahoe. Also the Southern California PHRF committee services a large fleet of racing boats of differing types and generally observes several boats of every boat type.
- (3) *Venues with Similar Boats*—The Lake Tahoe PHRF committee frequently looks at ratings in venues other than Southern California as when a venue has a concentration of a particular boat type. For example, the Melges 24, J70, and Antrim 27 are sports boats of similar design, so the committee might look at the *relative* ratings for these boats in the Great Lakes, Chesapeake Bay, and Narragansett Bay where all three of these boats compete. Also, certain venues may have large concentrations of a particular boat type. For example,

Chicago has a lot of Melges 24s, while Narragansett Bay has a lot of J70s. Having larger numbers of a boat type tends to make the ratings more accurate for that boat.

- (4) *Local Observation*—PHRF committees throughout the US typically observe how the boat performs against other boats in their local fleets. Thus, the Lake Tahoe PHRF committee maintains historical records of regatta results and uses these data when considering any change of rating.
- (5) *Crew and Condition*—A local PHRF committee might take into consideration how expertly a boat is sailed and how well a boat is configured for racing and might use these factors in rating the boat. For example, if a J/24 has a crack crew, new sails, and a faired bottom while a Moore 24 does not, the committee generally is reluctant to adjust ratings for the two boats even though the J/24 might win consistently in local regattas. In general, the committee does not hand out a low PHRF rating for a poorly sailed or poorly configured boat.
- (6) *Wind and Wave Conditions*—A local PHRF committee might find that wind and wave conditions in its locale have a decided effect on how boats compare with one another. For example, in very light winds, a J24 might need more than 120 seconds per mile to be competitive against a Moore 24. This is one reason why the Lake Tahoe PHRF committee follows the Southern California ratings as a starting point for its own ratings.
- (7) *Boat Modifications*—When a boat is modified by its owner, there is some likelihood that the PHRF rating should change accordingly. For example, if a J105 flies an oversize spinnaker sail, this probably should result in a ratings change for the particular boat. For this reason, when an owner requests a rating from the Lake Tahoe PHRF Committee, the request must include all information on changes to the boat's weight, equipment, rigging, and so forth—any change that might affect boat speed. Given this information on changes, the local PHRF committee must calculate a reasonable rating. To do this, the Lake Tahoe PHRF committee typically confers with the boat manufacturer, the national PHRF committee in Rhode Island, and committees in other venues. Boats with non-standard configurations are difficult for PHRF committees to rate, so for this reason, the rating often gets adjusted multiple times based on observations of performance in different conditions against different competitors. If a boat has a rating for an oversize sail or other non-standard feature, that boat must use the modified rating even though, in a given race, the crew has made no use of the special feature. For that boat to obtain a standard rating, the owner must declare that the special sail or equipment is no longer on board the boat.
- (8) *Course Selection*—PHRF ratings are normally based on the assumption that about one-third of the legs will be reaching and two-thirds windward-leeward. For this reason, TYC race committees favor mixed courses with this ratio. And the Trans Tahoe Race has this format.
- (9) *Masthead vs Fractional Rigs*—We, and other light air venues, find that boats with masthead rigs tend to perform better. Therefore, their rating may be inconsistent with changes between venues for fractional rigs.

### What is the Time-on-Time method?

In recent years, PHRF committees in the US—including the Lake Tahoe PHRF committee—have adopted the Time-on-Time PHRF method (TOT). Under TOT, the time allowance for a given race depends on the elapsed time of the race. The reasoning is that smaller boats are at a disadvantage if the race is a slow race. The TOT method is slightly harder to understand than the standard time-on-distance (TOD) described above, as the allowance at any point in the race can be affected by a change of conditions later in the race.

Over the past few years, a number of PHRF fleets have started using TOT scoring, which they have found helpful when there is a large handicap spread in a class or when race conditions are “abnormal.” The following is a TOT conversion formula that is commonly used to convert the standard PHRF TOD handicap into a TOT Time Correction Factor (TCF). This is the formula used by the TYC.

$$\text{TCF} = A/B + \text{PHRF}$$

Here are some commonly used B factors, as prescribed by US Sailing:

<u>B Factor</u>	
480	Heavy Air or all off the wind
550	Average conditions
600	Light air or all windward work

In average conditions, the resulting TCF formula typically looks like:

$$\text{TCF} = 650/550 + \text{PHRF}$$

To get the corrected time, simply multiply the elapsed time by the TCF. In the TYC fleet of keelboats, there are large differences in the PHRF ratings among all the boats. For example, a 40-foot J125 is a lot faster than a 20-foot Santana.

Because of this differential, the TYC uses the PHRF TOT method of scoring in order to give slower boats a reasonable chance to compete.

#### **How I get a PHRF rating?**

New boats to Lake Tahoe can obtain a PHRF rating by completing the PHRF rating application located on the PHRF web page section of the TYC website and emailing the form to the Chair of the TYC PHRF Committee. Note that boats racing in TYC handicap events must have a rating on file in order to be scored.

#### **How can a PHRF rating be re-evaluated or changed?**

Boat owners have request that their rating be re-evaluated or changed by submitting a request to the Lake Tahoe PHRF committee. The procedure is via email as follows:

- (1) The requester submits a Request for Rating Review—available on the PHRF section of the Tahoe Yacht Club website, to the chair of the Lake Tahoe PHRF Committee.
- (2) The chair of the PHRF committee convenes the other members to evaluate the request. This usually takes more than one week, so if a requester wishes to obtain a timely response, he or she should submit the petition well in advance of any regatta date or other deadline for action. If the petition is for boat that is modified or otherwise non-standard, then the time for response can be longer.
- (3) The committee considers the request and may ask for additional information from the petitioner. This due diligence is fair and impartial and may include the finding of facts and the testimony of the requester and other interested parties. In the past, due diligence for non-standard boats has entailed inspecting boats, measuring boat parts, reviewing regatta results, consulting with boat manufactures, consulting with US Sailing's PHRF experts, and measuring the actual speed of boats in regattas.

#### **What is a PHRF Certificate and how can I obtain one?**

The PHRF committee only creates PHRF certificates for individuals who requesting them. Certificates are not required since current boat ratings are posted on the PHRF section of the TYC website. In addition to the PHRF rating, the Certificate details technical boat specification used in determining the rating.

#### **Is your PHRF rating fair?**

The goal of the Lake Tahoe PHRF committee is to make races fair and competitive. This means rewarding well-configured and well-sailed boats with victories. To accomplish this, as is discussed above, the committee examines a wide variety of factors in establishing any rating. Whenever the committee establishes a new rating or changes a rating, it maintains notes summarizing the deliberations of the committee in determining the rating.