Performance Handicap Racing Fleet Regulations
2006

Performance Handicapping

PHRF stands for Performance Handicap Racing Fleet, and it describes a group of sailboats of varying performance characteristics that are handicapped for racing on the basis of observed performance, rather than the measured dimensions. It is the purpose of the PHRF system to handicap yachts of various classes or types on the basis of the potential speed of a well-sailed, well-maintained, and well-equipped specimen of each type. It is not the purpose of the PHRF system to handicap skippers and crews. Where sailing skill (or lack of it) is the cause of one's finishing place, neither will winning lead to a faster rating nor losing to a slower one.

PHRF certification is open to any single-hulled, self-righting boat of any age, and almost any description. The goal is to provide fair and equitable racing for as many boats as possible. In cases where a boat is of so radical a design that any rating assigned to it would impair the rating balance of the fleet as a whole, a handicap rating may be refused.

The PHRF handicaps are assigned by the PHRF Committee, a subcommittee of the Handicap Racing Committee of the YRA of LIS. The PHRF Committee usually meets on the second Thursday of each month throughout the year for the purpose of assigning new ratings, reviewing old ones, drafting or revising regulations, and transacting any other business before it. This meeting is held at Larchmont YC at 2000 hrs.

PHRF Procedures

PHRF ratings are available to Handicap Racing members of the YRA of LIS upon application to the YRA office. Applicants will receive a rating form that must be filled out and returned to the office for processing. That form will then be sent to one of the Committee members (or "handicappers") for assignment of a rating. If the boat is one of a standard class or type, to which a "base rating" has already been assigned, the handicapper will assign that rating, adjusted where necessary for differences in sail area, propeller type, spinnaker pole length, crew weight declaration, etc., provided that such differences are within the range of the "standard modifications" shown on the back of the form. The rating form will then be returned to the office for validation and forwarding to the applicant. If the boat is one of a standard class or type to which no base rating has yet been assigned, or if the differences from the standard version are beyond the scope of the standard

modifications, or if the boat is the only one of its kind, the handicapper will present the application to the entire PHRF Committee at its next meeting, and the rating will be assigned by that group as a whole. In cases where a rating must be assigned by the entire Committee and where an imminent regatta requires the applicant to have a rating before the Committee can meet, any handicapper is empowered, but not obliged, to issue a provisional rating, which is valid for all purposes until the next meeting. At that meeting, the provisional rating will be reviewed and either accepted as is or altered as the Committee may decide.

It must be recognized that no system of handicapping will adequately rate all types of boats on all points of sail and in all wind and sea conditions. It is the aim of this committee to assign ratings for conditions prevailing on Long Island Sound.

Rating Review

There is no such thing as a “final” PHRF rating. Any rating may be reviewed and challenged in either direction at any meeting without notice to the skipper. Whenever the Committee is satisfied, on the basis of observed performance, that the rating of a particular boat or type of boat does not fairly reflect the speed potential of that boat or type, it will make whatever changes in the rating it finds to be fair. Changes to ratings that have been long established are seldom made. In the case of more recently rated boats, particularly where little data was available when the rating was first assigned, changes are more likely as experience accumulates.

Any PHRF member can obtain a review of any yacht’s rating by writing to any member of the Committee. The letter will be more effective if it sets forth details of a boat’s performance relative to another boat on various points of sail and in various wind speeds. Information of this kind is more useful than race results, because race results are influenced by factors in addition to boat speed. The Committee will consider every such application at its next meeting. In addition, the Committee may itself initiate a review of a rating whenever it considers such action warranted.

Any member who considers that he has not been fairly and reasonably treated by the Committee may bring his complaint before the Executive Committee of the YRA of LIS. While that group will not normally, if ever, undertake to assign or change PHRF ratings, it will investigate actions of the PHRF Committee with respect to the complainant’s case and take whatever steps are necessary to ensure a fair and reasonable disposition.

The effective date of any rating change made at a PHRF Committee meeting is the first Monday following that meeting. If this results in a yacht’s rating being challenged during a regatta series, the rating used for that series is at the discretion of the Race Committee of the sponsoring organization. The organization may at their discretion use changed ratings in races that occur the weekend after a meeting.

The PHRF Committee

The names, addresses, and telephone numbers of all the members of the current PHRF Committee are available upon request from the YRA of LIS office (516 767-9240).

All of these committee members are working hard to make this program a success. Feel free to call on any of them for advice or help when you need it.

PHRF Regulations

The “base rating” is the rating assigned to a “standard” boat of a class or type. It assumes the standard rig dimensions for the class, a genoa whose **LP** dimension is in the range of 145.1% to 155% of **J**, a folding propeller if exposed or a two-bladed fixed one if in an aperture. If propulsion is by an outboard engine, it assumes the engine is dismounted and stowed in an optimum location aboard when racing. It assumes that the boat is equipped with a symmetric spinnaker, and that the spinnaker pole length **(SPL)** is equal to the width of the base of the foretriangle **(J)**, and that the maximum girth **(SMW)** of the spinnaker at any point is in the range of 168.1% to 183% of **J**. It assumes that the boat will be sailed with no more than the Base Crew Weight aboard. Finally, it assumes that the boat is in all other respects similar to the standard boat of its type as originally supplied by its manufacturer.

The resulting handicap rating will be the sum of the base rating and any adjustments. This is the rating to be used for the majority of races. In addition, there are provisions to provide the following types of ratings:

- Non-spinnaker - the base rating excluding spinnaker related adjustments. Handicappers may also compensate for performance considerations when a boat's observed performance differs greatly from the majority of the fleet when not using a spinnaker. Non-spinnaker ratings are intended to be used in races against other boats without spinnakers, not in mixed classes where some boats may use them.

- Double-handed - the base rating excluding crew weight adjustments. This will be a separate certificate that will be clearly marked for double-handed racing only. A completely different configuration will be allowed.

- Distance - the handicap rating adjusted to include approximately 60% windward/leeward and 40% reaching in a wind range of 10 to 12 knots true. This rating is intended for use in distance races, such as the Block Island Race, Vineyard Race, Around Long Island Race, etc.

Certain variations from these norms are not uncommon. They are set forth in the following tables from which departures from the “base rating” on account of differences in genoa and spinnaker size and propeller type can be determined. Variations affecting performance which are not set forth in these tables require action by the entire Committee at a meeting.

Definitions

BAL Ballast of the yacht in pounds. Note any additions or deletions from the standard and the locations.

BEAM Maximum beam of the vessel.

CREW "STD" if to use base boat maximum weight. Otherwise, declare maximum weight desired.

DISPL Displacement of the yacht in pounds, without crew, water, fuel, or stores aboard.

DRAFT Draft of the hull and keel. Also include draft with the board down if a centerboard yacht.

E Foot length of the mainsail, measured from mast to clew in its most outboard position.

I Height of foretriangle. Measured from deck sheer- line abeam the mast to the highest point of sail attachment.

J Distance perpendicular from the foreside of the mast line to the point of intersection of the forestay with the deck.

JC The greater of J or SPL or SMW / 1.8.

TPS Tack point of asymmetric on sprit pole end to front of mast, measured horizontally to the water.

LOA Length overall of the hull. Note bowsprit and/or boomkin separately.

LP Distance perpendicular from the luff to the clew of the largest jib.

LWL Load waterline length.

MAT Construction material of the hull, keel, rudder, and mast (e.g., fiberglass, lead, iron, aluminum, carbon fiber, etc.)

P Luff length of the mainsail measured from boom to headboard in its highest position.

SL Spinnaker luff length. For symmetrical spinnakers, SL = .95 (sq.rt.I2 + JC2). For asymmetricals, see below.

S. Area Symmetric spinnaker area. Consult your sailmaker.

SMW For symmetrical spinnakers only, maximum girth leech to leech. (Fold on centerline, measure max. width, and multiply by two.)

SMG For asymmetrical spinnakers only, the mid-girth, found by measuring between the mid-points of the luff and leech.

SPL Spinnaker pole length measured with the pole in its fitting and set in a horizontal position athwartship.

SF Asymmetric foot length.

SLU Asymmetric luff length.

SLE Asymmetric leech length.

A. Area Area of asymmetric spinnaker as calculated by the IACC formula. Consult your sailmaker.

Sportboat Definition

The PHRF certificate will identify a boat as a sportboat if it meets any one of these criteria:(1) Displacement-Length Ratio less than 100. (2) Upwind Sail Area-Displacement Ratio greater than 30. (3) Downwind Sail Area-Displacement Ratio greater than 75. (4) A sprit length greater than 50 percent of J. The committee reserves the right to identify or not to identify any boat that it feels is or is not a sportboat, regardless of whether it meets any of the above criteria.

Handicap Adjustments

A. JIB

Adjustment is based on the largest jib and is determined by the LP/J ratio stated as a percentage.

LP / J %	Adjustment	Code
195.1 & over	-15	b
185.1-195	-12	9
175.1-185	-9	8
165.1-175	-6	7
155.1-165	-3	6
145.1-155	0	5
135.1-145	+3	4
up to 135	+6	3

NOTE: No headsails may be set to extend aft of the **LP** line used to establish the handicap.

B. SPINNAKER

Asymmetric spinnaker is to be defined as having luff and leech within 2% of each other and being symmetric about the centerline in shape and material. An asymmetric shall have over 5% difference in luff and leech lengths

Adjustment is normally based on the largest spinnaker and for symmetric spinnakers is determined by the **SMW/J** ratio stated as a percentage.

SPIN %	Adjustment	Code
228.1 & over	-12	9
213.1-228	-9	8
198.1-213	-6	7
183.1-198	-3	6

NOTE: For symmetric spinnakers, if the spinnaker pole **(SPL)** is greater than **J**, then the **SPIN %** is equal to **SMW / J** or 1.8 x **SPL / J'** whichever is greater.

The following shall be reported for asymmetrical spinnakers.

1. How the sail will be attached to the boat (i.e., centerline tacked on bow, on fixed sprit, on articulating sprit, pole, etc.) If a boat has multiple asymmetric spinnakers that are attached in different manners, the largest of each must be reported separately.
2. The luff, leech, and foot dimensions.
3. The area of the sail as measured using the IACC formula.

One design boats with their standard asymmetric spinnakers will have such reflected in their base rating. The Committee will consider the need for a penalty adjustment for all other boats on a case by case basis. In evaluating adjustments, the goal of the Committee will be to presume that in order for identical hulls, each with different asymmetric spinnaker configurations (fixed sprit, articulating sprit, centerline, pole), to all go the same speed (averaged across a variety of wind strengths and angles), the sail area of the more efficient configurations will have to be reduced compared to that of the standard symmetric spinnaker.

Asymmetric spinnakers that meet the following conditions will be considered as standard and not subject to penalty.

- When tacked to standard spinnaker pole (SPL):
  - The average of the lengths of the luff and leech do not exceed the luff length permitted for a standard spinnaker. (.95* sq.rt.(I2 + JC2)
  - SMG does not exceed 1.75 x JC.
  - The foot (SF) does not exceed 1.8*JC.
  - The point at which the sail is tacked is not at a greater distance from the mast than the value reported for SPL on the certificate.
- When tacked to sprit or centerline (TPS):
  - The average of the lengths of the luff and leech do not exceed 1.15* sq.rt.(I2 + TPS2).
  - SMG does not exceed 1.8 x TPS.
  - The foot (SF) does not exceed 1.75*TPS.
  - TPS does not exceed 1.15*J..

C. MAST and RIG

The effect on performance of changes from standard rig dimensions varies from boat to boat to so great an extent that no rational table of rating changes based on rig size can be formulated. Accordingly, these changes are treated on a case by case basis. If your boat is one of a class and your rig differs from the standard for that class, you must notify the Committee of that fact. If you have a custom boat and your rig is changed from that described on your rating application, you must notify the Committee of the changes. A "change" refers not only to length, but also to material, weight, wire size, number of spreaders, diameter, etc....

D. PROPULSION

Adjustment is based propeller type and its installation.

Prop / Installation	Adjustment	Code
Folding/Feathering Out of Aperture	0	5
Fixed 2-Blade In Aperture	0	5
Outboard Retracted When Racing	0	m
Fixed 2-Blade Out of Aperture	+6	4
Fixed 3-Blade In Aperture	+6	3
Fixed 3-Blade Out of Aperture	+12	2
Non-Standard	(as estimated by handicapper)	1

NOTE: If the propeller or installation type is not included in the adjustment table, then the Committee will assign the adjustment based on the assumed relation to the table and indicate the action in its notes.

E. CREW WEIGHT

Yachts shall be rated within the following Base Crew Weight Limitations:

Up to LOA(ft)	Base Weight Limit (lbs)	# of (180 lb.) Crew Members
24	900	5
27	1080	6
30	1260	7
33	1440	8
35	1620	9
38	1800	10
40	1980	11
43	2160	12
45	2340	13
50+	Add 180 lbs. For each 5 feet of LOA over 45 feet.	

LOA shall be mathematically rounded to the nearest whole number. For example, a 24.49 foot boat is rounded to 24 feet LOA and is allowed a base crew weight of 900 lbs, and a 24.5 foot boat is allowed a base crew weight of 1080 lbs.

The base weight limit is for everyone aboard, including the skipper.

The base weight limit will be printed on the PHRF Certificate. Once per calendar year, the crew weight may be declared to be more or less than the base crew weight, with an adjustment in the rating. If an owner decides that he wishes to sail with a crew weight less than the base crew weight, this request must be brought before the Committee for their review. If an owner wishes to sail with a crew weight greater than the base crew weight, the Handicapper will adjust the boat's rating as found in the following table.

Adjustment Certificate Code

-6	(7) - Base crew weight plus more than 180 lbs., or more than 10% of base crew weight, whichever is greater. (The “2 and up more crew” adjustment.)
-3	(6) - Base crew weight plus up to 180 lbs. Or up to 10% of the base crew weight, whichever is greater. (The “1 more crew” adjustment.)
0	(5) - Base crew weight down to base crew weight minus 179 lbs. or 9.9% of base weight, whichever is greater.

Annual Declaration of LP

The LP dimension declared for a yacht at the time her certificate was issued or renewed must remain in effect for the duration of the year for which the certificate was issued. Rating changes resulting from changes in the LP dimension can, therefore, be made only once a year, except upon written application to the PHRF Committee, stating the reasons for the change. Such applications will not be approved if the Committee finds that the proposed change is an attempt to fine tune the yacht’s rating for anticipated weather conditions in any specific race, series, or time of year.

Sail Measurement Limitations

The ratings assigned by the PHRF Committee assume that sail dimensions not specifically stated on the certificate conform either to the yacht’s class or to limitations that have long been standard in all measurement rules. Any departure from these limitations amounts to a change from the standard or norm. Therefore notice of the departure must be given to the Committee.

In the case of yachts not belonging to a one-design class, attention is specifically directed to the following:

- Mainsail headboards may not exceed in width the greater of 6 inches or 4% of E.
- Any Mainsail or Mizzen that exceeds IMS girth limitations shall be declared. The increase in sail area above the IMS maximums shall be stated as a percentage of increase. This data can be obtained from the sailmaker.
- Mainsails with full battens are allowed without penalty if the roach of the mainsail has not been increased from the roach of an IMS mainsail. The PHRF Committee must be notified if a sail with full-length battens is being used.
- For symmetric spinnakers, the SL may not exceed 95% of the square root of the sum of I squared plus JC squared.
- A sail may not be measured or used as a spinnaker unless its mid-girth is at least equal to 75% of its foot length.
- A sail may not be measured or used as a jib unless its mid-girth does not exceed 50% of its foot length, and the length of any intermediate girth does not exceed a value similarly proportionate to its distance from the head of the sail.

Non-Spinnaker Regulations

The following regulations supplement the YRA of LIS PHRF Fleet regulations:

1. Non-Spinnaker YRA of LIS PHRF ratings: Participating yachts must have valid YRA of LIS PHRF certificates. Each YRA of LIS PHRF certificate bears both spinnaker and non-spinnaker ratings.
2. Pole Length: Whisker poles may not be longer than “LP” without penalty. Extendable poles must be banded to indicate their maximum permitted length. Spinnaker poles may be used as whisker poles.
3. Jib Limitations: Non-spinnaker racing is defined, for this purpose, as prohibiting the use of any headsail whose mid-girth (mid-luff to mid-leech) measurement is more than 50% of its foot measurement. Except when changing headsails, participating yachts may not fly more than one headsail at a time. (Yachts that are permanently cutter rigged may fly their staysails.)

Proper Racing Trim

Yachts shall race as rated with at least all the equipment and furnishings supplied as standard by the manufacturer. A yacht that has altered or has removed bulkheads, permanently attached furniture, or structural interior components shall be considered a custom yacht. Drawers, headliners, cabinet and locker doors, steps, ladders, and engine enclosures shall remain in place as supplied as standard equipment. If they do not so remain, then the yacht shall be considered a custom yacht and rated accordingly. Passageway doors, cushions, dining tables, and carpets are specifically exempted, and are alterable or removable provided all safety standards are met.

Lifting keels (not designed to be adjusted while racing) must be fixed and locked in the lowered position while racing.

Owner’s Obligation to Disclose Alterations

PHRF ratings are based on information supplied to the PHRF Committee by the boat owner. The success of the program is entirely dependent upon the integrity of the participants. In signing an application for a rating, or for the renewal of a rating, the owner attests to the accuracy of the information supplied. Any subsequent changes in the boat or alterations in that information must be reported to the Committee.

If the PHRF Committee is notified or discovers that an owner is not in compliance with the above, the Committee may file a protest with the YRA of LIS Executive Committee. This protest will be heard by a properly constituted panel of three Judges. The panel of Judges may recommend to the PHRF Committee the revocation of the certificate in question. The revocation may be made retroactively. The panel may also suspend the owner’s privilege to participate in any YRA of LIS event for a prescribed period of time.