

# PERFORMANCE HANDICAP RACING FLEET REGULATIONS of FCSEA

## Introduction

The First Coast Sailing Association promotes both one-design and Performance Handicap Racing Fleet (PHRF) racing in the Northeast Florida area. These rules apply only to PHRF racing of cruisers that are not racing in a one-design class. One-design class boats racing in a PHRF fleet shall adhere to one-design class rules and will be rated in accordance with local PHRF rating procedures, unless prescribed otherwise in the sailing instructions for a particular race. The PHRF rating for one-design classes will account for differences between the one-design class rules and standard PHRF rating rules.

PHRF is not a measurement system, but relies on the honesty and sportsmanship of its membership to ensure that accurate information on a boat's configuration is made available to the Rating Committee for review. PHRF is a low-cost system that facilitates the enjoyment of racing for anyone who owns a cruising sailboat.

Ratings are established for boat models, not individual vessels or their crews. Base ratings are established for each production model of boats in our area. For each PHRF member, information is declared on a PHRF Rating Application Form. This information is used to modify the rating based on specific guidelines as well as allowances by the Rating Committee. These ratings are reviewed periodically, no less than annually, for consistency and accuracy by all members of the Rating Committee, composed of volunteers from area clubs and the Chief Handicapper. Because the FCSEA is partially funded by the area yacht clubs, and the board volunteers are appointees from these clubs, membership in one of these clubs is required for membership in FCSEA. The clubs are Epping Forest Yacht Club, Florida Yacht Club, Navy Jax Yacht Club, North Florida Cruising Club, Rudder Club of Jacksonville, and St. Augustine Yacht Club, and Golden Isles Sailing Club.

PHRF ratings are expressed in terms of seconds per nautical mile, usually in 3-second/nautical mile increments. Race courses are measured in nautical miles and each boat's elapsed time is corrected using a Time on Distance calculation, by which each boat's elapsed time is corrected by the course length in nautical miles and its PHRF handicap rating in seconds per mile.

## 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 single-hulled, self-righting boats and multi-hulled boats that conform to the requirements as described in the FCSEA Bylaws, Sections 3.2.1 and 3.2.2. 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 Rating Committee, a subcommittee of the FCSEA Board.

## Rating Certificate

Rating certificates are issued annually by the Chief Handicapper with a renewal fee of \$30.00, due February 1st of each year. Ratings are valid from February 1 through January 31 of each year. Current PHRF certificate holders who change boats or declare modifications during the year will be charged an additional \$5.00 change fee. Certificate holders who renew after February 1 will also be subject to the \$5.00 fee.

Visiting boats that are not FCSEA PHRF Certificate Holders, but are current members of other PHRF organizations with valid rating certificates, may obtain a temporary PHRF rating certificate subject to local FCSEA rules and base ratings for an administrative fee of \$5.00. The temporary rating certificate shall be valid for the duration of the regatta or race series.

Any current PHRF Rating Certificate holder may request that another PHRF Certificate Holder's boat be inspected to verify conformance to its certificate. Subject to permission from the boat's owner, a member of the Rating Committee will perform the inspection. If the inspected boat's configuration is found to be different than stated on the Rating Certificate, or if the boat's owner refuses to permit an inspection, the Rating Certificate will be immediately invalidated.

A boat shall not be eligible for FCSEA Annual Trophies unless the boat has a valid Rating Certificate for the duration of the series. The Annual Trophies will be awarded to the boat and certificate holder named on the boat's Rating Certificate. Each race in a series shall be scored in accordance with the rating that was currently in effect on the day of that race. If a boat's Rating Certificate is changed during a race series only the subsequent races will be scored using the new rating.

## Rating Appeals

Ratings may be appealed to the Rating Committee. The certificate holder must submit his/her appeal in writing and submit evidence to substantiate the appeal. A certificate holder having an appeal lodged against his/her boat either by another skipper or by a club handicapper shall have the right to defend his/her case in person or in writing at the appeal hearing. The Chief Handicapper shall make notification. The decision of the Board shall be final and binding.

# PHRF Procedures

PHRF ratings are available to members of the FCSA upon submittal of a Rating Application Form to the Rating Committee. The form will be used by the Rating Committee ("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 Chief 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" listed herein. A Rating Certificate will then be validated and forwarded 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 entire Handicap Committee will review the application, and the rating will be assigned by that group as a whole. In cases where a rating must be assigned by the Handicap 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.

Established base ratings can only be changed by a majority vote of the handicappers at a Rating Committee meeting. A quorum for the Board of Handicappers is a simple majority of the club handicappers with a minimum of four, including the Chief Handicapper.

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 the St. Johns River.

## 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 other 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.

A member who considers that he has not been fairly and reasonably treated by the Committee may bring his complaint before the Board of the FCSA. 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 Tuesday 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 Rating Committee

The Rating Committee is made up of one member from each club and a Chief Handicapper. The names, addresses, and telephone numbers of all the members of the current PHRF Committee are available upon request from the FCSA. E-mail address are listed on the FCSA website ([www.sailjax.com](http://www.sailjax.com)).

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 maxi-mum 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.

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 Rating 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 parallel to the water surface (horizontal).

**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,  $SL = 0.95 (\text{sq.rt.}I^2 + JC^2)$ . 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 the listed criteria. 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 listed 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.

## Handicap Adjustments

### A. JIB & MAIN

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

<u>LP/J%</u>	<u>Adjustment</u>
over 195	-15
over 185 to 195	-12
over 175 to 185	-9
over 165 to 175	-6
over 155 to 165	-3
over 145 to 155	0
over 135 to 145	+3
up to 135	+6

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

Production boats that are supplied with roller furling as standard equipment have a base rating that reflects this factor, and as such no credit will be given for production boats with standard roller furling gear; however, the certificate holder must declare a modification if the roller furling gear is removed.

Production boats that are not base rated with roller furling gear shall receive credit of +6 sec/nm. To receive credit, the roller furling gear must have an above-deck drum with Dacron cruising sail and UV cover.

Mainsail Adjustments - Oversized mainsails must be declared and adjustment will be subject to review by the Rating Committee. No penalty shall be given for full-batten mainsails. No credit will be given for undersized mainsails. Roller stowing mainsails shall be given a +6 sec/nm credit.

## 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.

<u>SPIN %</u>	<u>Adjustment</u>
over 228	-12
over 213 to 228	-9
over 198 to 213	-6
over 183 to 198	-3
over 168 to 183	0

NOTE: For symmetric spinnakers, if the spinnaker pole (SPL) is greater than J, then the SPIN % is equal to  $SMW / J$  or  $1.8 \times SPL / J$ , 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.

$$A \text{ Area} = ((SLU + SLE) * (0.25 * SF)) + ((SMG - 0.5 * SF) * ((SLU + SLE)/3))$$

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.  $(0.95 * \sqrt{I^2 + JC^2})$
- SMG does not exceed  $1.75 * JC$ .
- 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  $1.15 * \sqrt{I^2 + TPS^2}$ .
- SMG does not exceed  $1.8 * TPS$ .
- 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, number of spreaders, mast diameter, etc...

## D. PROPULSION

Adjustment is based on propeller type and its installation.

<u>Prop Installation</u>	<u>Adjustment</u>
Folding/Feathering Out of Aperture	0
Fixed 2-Blade in Aperture	0
Outboard Retracted When Racing	0
Fixed 2-Blade Out of Aperture	+6
Fixed 3-Blade in Aperture	+6
Fixed 3-Blade Out of Aperture	+9
Non-Standard	TBD

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 following these Base Crew Weight Limitations:

<u>Up to LOA (ft)</u>	<u>Base Weight Limit (lbs)</u>
24	900
27	1080
30	1260
33	1440
35	1620
38	1800
40	1980
43	2160
45	2340
50+	Add 180 lbs for each 5 feet of LOA over 45 ft.

LOA shall be mathematically rounded to the nearest whole number. Examples: a 24.49 foot boat is rounded to 24 feet LOA and is allowed a base crew weight of 900 lbs; a 24.50 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 be rated 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 Notes

-6	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	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	Base crew weight down to base crew weight minus 179 lbs, or 9.9% of base weight, whichever is grater.

## F. NON-SPINNAKER COMPETITION

Non-Spinnaker adjustments are based on the ratio of mainsail triangle size (*including mizzen sails, if applicable*), to fore-triangle size as follows:

$$\text{Ratio} = ( P \times E + [PY \times EY] + [0.6LLY \times LPY] ) / ( ISP \times J )$$

Where...

- P Fully stretched or banded luff limit of mainsail  
 E Fully stretched or banded foot limit of mainsail

- ISP The distance from the deck height to the highest headsail halyard (even if above the intersection of the headstay and the mast)  
 J Horizontal distance from the foreside of the mast to the point of intersection of the forestay and deck (use the design "J" dimension for unmodified series production boats)  
 PY Fully stretched or banded luff limit of mizzen sail  
 EY Fully stretched or banded foot limit of mizzen sail  
 LLY Luff length of the largest mizzen staysail (mule, etc.)  
 LPY Distance perpendicular from the luff to the clew of the largest mizzen staysail

Ratio = 0.3 but less than 0.4,	Rating Adjustment: +26
Ratio = 0.4 but less than 0.5,	Rating Adjustment: +25
Ratio = 0.5 but less than 0.6,	Rating Adjustment: +24
Ratio = 0.6 but less than 0.7,	Rating Adjustment: +23
Ratio = 0.7 but less than 0.8,	Rating Adjustment: +22
Ratio = 0.8 but less than 0.9,	Rating Adjustment: +21
Ratio = 0.9 but less than 1.0,	Rating Adjustment: +20
Ratio = 1.0 but less than 1.1,	Rating Adjustment: +19
Ratio = 1.1 but less than 1.2,	Rating Adjustment: +18
Ratio = 1.2 but less than 1.3,	Rating Adjustment: +17
Ratio = 1.3 but less than 1.4,	Rating Adjustment: +16
Ratio = 1.4 but less than 1.5,	Rating Adjustment: +15
Ratio = 1.5 but less than 1.6,	Rating Adjustment: +14
Ratio = 1.6 but less than 1.7,	Rating Adjustment: +13
Ratio = 1.7 but less than 1.8,	Rating Adjustment: +12
Ratio = 1.8 but less than 1.9,	Rating Adjustment: +11
Ratio = 1.9 but less than 2.0,	Rating Adjustment: +10
Ratio = 2.0 but less than 2.2,	Rating Adjustment: +9
Ratio = 2.2 but less than 2.4,	Rating Adjustment: +8
Ratio = 2.4 but less than 2.6,	Rating Adjustment: +7
Ratio = 2.6 but less than 3.0,	Rating Adjustment: +6
Ratio = 3.0 but less than 3.4,	Rating Adjustment: +5
Ratio = 3.4 but less than 4.0,	Rating Adjustment: +4
Ratio = 4.0 but less than 5.0,	Rating Adjustment: +3
Ratio = 5.0 but less than 6.0,	Rating Adjustment: +2
Ratio = 6.0 but less than 7.0,	Rating Adjustment: +1
Ratio = 7.0 or greater,	Rating Adjustment: +0

## Non-Spinnaker Regulations

The following regulations supplement the FCSA PHRF Fleet regulations:

1. Non-Spinnaker FCSA PHRF ratings: Participating yachts must have a valid FCSA PHRF certificate. Each FCSA 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.)

## Annual Declaration of LP

The LP dimension (largest headsail) 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 Rating 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 for anticipated weather conditions in any specific race, series, or time of year.

## 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.

## Sail Measurement Limitations

The ratings assigned by the Rating 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 where the MGU is greater than 38% of E or the MGM is greater than 65% of E girth limitations shall be declared. The increase in sail area above the 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 above limits.
- 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.

## 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 FCSA Board. This protest will be heard by a properly constituted panel of three Judges. The panel of Judges may recommend to the Rating 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 FCSA event for a prescribed period of time.