

## Charleston Ocean Racing Association

### PERFORMANCE HANDICAP RACING FLEET HANDICAPPING POLICIES AND PROCEDURES (Revised June 2018)

#### INTRODUCTION

The US SAILING Performance Handicap Racing Fleet (PHRF) rating system is intended to provide equitable handicaps (ratings) for a wide variety of single hull racer/cruiser and cruising sailboats. Ratings are based on the speed potential of the boats determined, as far as possible, by on-the-water observations, analysis of race results and dimensional comparisons with other boats. It is the objective of PHRF that any well-configured, well equipped, well-maintained and well-sailed boat has a good chance of winning.

US SAILING maintains a database of standard boat dimensions and a database of ratings by boat type and regional fleet. These are used by the CORA Measurer to assist in assigning ratings for CORA boats. In addition, the CORA Measurer maintains a constant search, through race results, observations, comments from race participants and other data, for boats which may require a change of rating in order to permit them to compete fairly with the balance of the fleet.

The success of this rating system depends on:

- \*The skill, dedication and integrity of the Measurer and Rating Committees in analyzing the race results as well as assessing the boats speed potential from all other available information. This includes discussions with handicappers in other areas.

- \*The cooperation and integrity of the owners and builders in providing accurate and complete information on the boat configuration, measurements and any changes.

- \*The accurate reporting of race results by Race Committees with data needed to evaluate the suitability of the particular race for boat speed analysis.

- \*The administration of a timely and equitable appeal procedure.

- \*Once a boat has been equipped for racing performance and assigned a rating, success will depend on the skill of the skipper and crew.

## BASE RATINGS

PHRF rates a boat that is well maintained with good sails and equipment.

Base ratings FOR NON ONE-DESIGN BOATS are made on the assumption that:

\*\*\*\*\*All definitions and measurements as defined by The Equipment Rules of Sailing 2017-2020 and The Racing Rules of Sailing 2017-2020 (or subsequent edition) as available on [sailing.Org](http://sailing.Org). Including the definition that a Headsail (Jib, Genoa, Jib Top) has half width < 75% of the foot length and spinnaker (Symmetric, Asymmetric, Code 0) has a half width > 75% of the foot width\*\*\*\*\*

- A. Headsail maximum LP is 155% of J
- B. A folding or feathering propeller or a retractable outboard motor is used.
- C. The hull and appendages are unmodified (bunk cushions BUT NO OTHER part of the interior of the boat may be removed when racing to reduce damage wear and tear)
- D. Spinnaker pole, pole length is not greater than J
- E. For symmetric spinnaker, Spinnaker maximal width (SMW ) is not greater than 180% of J and spinnaker luff length is not greater than 0.95 time the square root of ( $ISP^2 + J^2$ )
- F. For boats using asymmetric spinnakers ONLY luff length no greater than 1.03 times the square root of ( $ISP^2 + STL^2$ ) and foot length and/or half width not greater than 180% of J
- H. Mainsail Max Girth Measurement
  - 1. Top Width 4% of E
  - 2. Seven Eights Width 22% of E
  - 3. Three Quarters Width 38% of E
  - 4. Half Width 65% of E
  - 5. Quarter Width 90% of E

Adjustments can be made to the base rating if the foregoing conditions are not met. As a guide, typical adjustments for non-base boats are

- A. LP larger than 155% but less than 165%. -3 sec/mile
- B. LP larger than 165% but less than 175% -6 sec/mile
- C. LP less than 135 % +3 sec/mile
- D. Exposed 2-bladed propeller +3 sec/mile
- E. Exposed 3-bladed propeller +6 sec/mile

Other adjustments for non-base boats can be made by the Measurer using data from other PHRF fleets as a guide. Such adjustments may be defined in Appendix A if appropriate.

Since PHRF assumes that a boat is equipped to race, no credit in rating will be given to partially equipped boats, unusually heavy boats (e.g. live aboard) or boats with unusual windage (e.g. with a dinghy on davits).

Boats which have stored power and/or movable ballast as an integral part of their basic design and declare this on their PHRF application will be rated taking these features into account.

## SPINNAKER CLASSES

Any number of spinnakers (meeting the definition of SHW >75% of SFL) smaller than or equal to the maximal size as above are allowed (this would include so called code zero's or other spinnakers on fullers or using snuffer devices )

\*\*spinnaker area/size as determined by ORC measurements available on [orc.com](http://orc.com)\*\*

## NO SPINNAKER SINGLE HEADSAIL CLASSES

One or more classes for "Non Spinnaker" sailboats are used in CORA races to encourage participation for newer racers or racers who do not want to use multiple sails in each race including spinnakers. Boats racing in the "Non Spinnaker" classes will use the same headsail upwind as off the wind. SPECIFICALLY SPINNAKERS, CODE ZEROS, AND BLOOPERS ARE NOT ALLOWED AND ONLY ONE HEADSAIL WILL BE FLOWN OTHER THAN A CUTTER RIG THAT USES A STAYSAIL AT ALL TIMES.\*

\*This is not any way meant to not allow "non-spinnaker" sailboat from using a heavy weather or storm jib when conditions require their use, especially in offshore races.

Base handicaps are determined assuming a spinnaker is used on off wind legs. When non spinnaker boats race against each other using spinnaker ratings, boats with smaller fore triangle areas have an advantage since their spinnaker to non- spinnaker speed difference is less.

In an effort to allow non- spinnaker boats to compete fairly against each other and also to allow non-spinnaker boats to compete against spinnaker boats in a mixed class, the following adjustments will be made to non-spinnaker boats.

Calculate  $M/G = (P \times E) / (I \times J)$  then adjust spinnaker rating by the following to obtain non-spinnaker rating:

MIG Adjustment:		Adjustment: +sec/mile
From	To	
.40	.49	30
.50	.59	29
.60	.69	28

.70	.79	27
.80	.89	26
.90	.99	25
1.00	1.09	24
1.10	1.19	23
1.20	1.29	22
1.30	1.39	21
1.40	1.49	20
1.50	1.59	19
1.60	1.69	18
1.70	1.79	17

Etc.

## Appendix A

Adjustments for heavy displacement boats using asymmetrical Spinnakers.

In order to encourage non spinnaker boats to move to spinnaker racing, the following adjustments will be made to the ratings for boats designed for symmetrical spinnakers that use asymmetrical spinnakers. These adjustments allow for the use of a retrofitted sprit pole up to 3 feet in length.

### Max Asym foot length Adjustment

1.60 X J +9 sec/mile

1.80 X J +3

1.90 x J - 3

Other adjustments may be made by the Measurer to the initial ratings of boats whose skipper and crew are new to racing to provide encouragement. Such adjustments would be e.g. to compensate for small headsails, roller furling etc and will be temporary.

Also boats moving down to non spinnaker may be given a negative adjustment by the Measurer and boats moving from non spinnaker to C fleet may be given a positive adjustment by he Measurer.

## INITIAL RATING ASSIGNMENT

Ratings are determined and assigned to the applicant by the Measurer after completion of a rating application. It is the responsibility of the applicant to make the Measurer aware of all differences or modifications from original factory specifications at the time of rating application.

US Sailing thru it Offshore Sailing Committee has assigned National Reference Ratings for ~150 common racing boats with extensive racing data and these ratings will be used where applicable to try to eliminate any local bias in ratings. As of this writing these are published in "History of US PHRF Affiliated Fleet Handicaps 2017" which is updated yearly by US Sailing

## ADJUSTMENT BY MEASURER

1. The Measurer may adjust the rating assigned on initial application until the boat has sailed 10 races unless paragraph 2 applies.
2. The Measurer may adjust a boat's rating at any time as a result of modifications made to the boat. It is the owner's responsibility to report to the Measurer any modification made to the boat after the initial rating assignment.
3. Any modification to a boat shall render the existing rating invalid until the Measurer is notified of the modification. The existing rating will remain invalid until it is adjusted or it is verified that no adjustment is necessary.

## ADJUSTMENT BY RATING COMMITTEE

1. Ratings may be adjusted at any time by vote of a Rating Committee. Owners whose boat ratings are to be considered will be notified by the Measurer.
2. The Measurer will chair Rating Committees and may provide input, but shall not vote on rating adjustments. Rating Committee members in the same fleet as a boat whose rating is being considered may provide input but shall abstain from voting.

## RATING APPEALS

1. Any boat may appeal any rating.
2. The boat must submit its appeal in writing to the Measurer and submit evidence to substantiate the appeal.
3. Any boat appealing its own rating shall have the right to present its case in person or writing at the appeal hearing. Notification of time and place of appeal hearing shall be made by the Measurer in a timely manner.
4. Any boat having an appeal lodged against it by another boat shall be notified of the appeal as soon as possible by the Measurer. Such boat shall have the right to defend its case in person or writing at the appeal hearing. Notification of time and place of appeal hearing shall be made by the Measurer in a timely manner.
5. Appeals shall be decided by vote of a Rating Committee. The Measurer will chair the Rating Committee and may provide input, but shall not vote on appeals. Rating Committee members in the same fleet as a boat whose rating is under appeal may provide input but shall abstain from voting.

\*\*\*\*\* The definition of all measurements discussed above are as follows\*\*\*\*\*

I	Foretriangle Height
J	Foretriangle Base
P	Mainsail Mast Luff Distance
E	Boom Outer Point Distance
LP	Largest Headsail Luff Perpendicular
ISP	Spinnaker Halyard Height
SL	Spinnaker Luff/Leech Length (Symmetric spin)
SLU	Spinnaker Luff Length (Asymmetric spin)
SLE	Spinnaker Leech Length (Asymmetric spin)
SFL	Spinnaker Foot Length
STL	Spinnaker Tack Distance(Length)
SMW	Spinnaker Maximal Width/Girth
SHW	Spinnaker Half Width