



**East Coast Sailing Association**  
P.O. Box 372054 Satellite Beach, FL 32937-0054



## **Performance Handicapping Racing Fleet (PHRF) Policies and Procedures**

**Revision G1, 26 June 2010**

### **Introduction**

The ECSA Rating Committee has adopted the US-PHRF System to provide handicap ratings for sailboats which participate in racing events sponsored by ECSA or other yacht clubs in the area.

### **Rating Committee Organization**

The ECSA Rating Committee is a semi-autonomous body whose Chairman is appointed by the ECSA Rear Commodore taking into account the recommendation of the Rating Committee members. Duties and responsibilities of the Chairman provide that he shall organize a Rating Committee which by invitation shall include one voting Representative from each local yacht club. Representatives on the ECSA Rating Committee are required to belong to United States Sailing Association. If a Representative is unavailable a qualified Alternate may be named. Yacht Clubs represented as of this date are:

**East Coast Sailing Association  
Melbourne Yacht Club  
Eau Gallie Yacht Club**

**Indian River Yacht Club  
Port Canaveral Yacht Club  
Titusville Sailing Club**

The Chairman may designate a Chief Measurer, whose duties shall include the issuance of temporary ratings, which shall be valid until the next meeting. In addition, at the request of the Committee, The Chief Measurer shall inspect and measure any boat when required to provide the Committee with data required to establish or correct a rating.

All representatives shall be voting members. The Chairman shall vote only to break a tie vote by the Committee. A representative shall abstain on a vote which specifically affects the representative's boat's rating.

An owner may request, in writing to the PHRF Chairman, a review of any part of this Policy.

### **Performance Handicapping**

The PHRF method of rating cruising sailboats was developed in Southern California and has been in use for four decades. As the result of its spread to other areas of the United States, the USSA has now recognized PHRF as a subcommittee (US-PHRF) under its Offshore Racing Committee.

US-PHRF acts as a coordinating agency for PHRF organizations located around the United States. Each local PHRF organization is autonomous and establishes its own operating procedures and ratings. Base boat ratings established by the local organizations are published by US-PHRF and distributed annually (with monthly updates) to the local organizations.

PHRF Ratings are boat performance ratings. They are based on the speed potential of the boat, based as far as possible on observations of previous racing experience. It is the intent of PHRF handicapping that any well equipped, well maintained and well sailed boat has a good chance to win; and that any boat that wins a PHRF race is indeed well equipped, well maintained and well sailed.

PHRF ratings are not intended to reflect the skipper and crew capability. Hence, PHRF racing is primarily a test of skipper and crew skill. Ratings are not adjusted to permit a poor and careless skipper to score in the upper third of the fleet.

## ECSA PHRF Policy and Procedures

Doing well in a race, therefore, requires the exercise of skill and ability. Consistently poor performance, sloppy maintenance or deliberately holding back will not normally result in a more favorable rating. Conversely, if a skipper and crew sail the boat well and consistently place high, this of itself will not lead to a rating lower than that of the actual performance potential of the boat. Assuring that the rating is based on the performance of the boat, rather than sailing skill, is an important factor in preserving high morale and wholesome competition within the fleet.

### **Boat Design**

The PHRF is an open rule. Hull design, sail area and cut, the length of spars or battens, the number of sails, etc., are each unrestricted. Class restrictions do apply to PHRF when a One Design Rating is utilized. There are no limitations on ingenuity other than those contained in the USSA rules. Therefore, the responsibility of the skipper to ensure that all modifications covered by this Policy are reported to the PHRF Rating Committee for assessment is paramount to the health of the fleet.

Well designed and constructed boats are not expected to be made obsolete by newer designs under PHRF. PHRF does not use a formula to determine base boat handicaps, because any formula once established can be circumvented by a clever design or skipper. As faster designs appear, they are handicapped accordingly. As a result, one of the major attractions of the PHRF system is that older boats can race competitively with the latest designs.

### **Requirements** [May not be deleted from the yacht during racing.]

To be eligible to obtain a ECSA-PHRF Certificate a boat must either be already listed in the USSA PHRF Rating Book or:

1. Comply with the ECSA cruising boat requirements as follows:

#### **The hull of the boat shall:**

- A. Be minimum length of 20 feet overall with a cabin.
  - B. Be completely strong and water-tight and capable of withstanding solid water and knock-down without significant leakage.
  - C. Have hatches, companionways and ports which are essentially water-tight and capable of being closed securely with strong hardware.
  - D. Have structurally strong, essentially water-tight self-bailing cockpit permanently incorporated as a structural part of the hull.
  - E. Have at least two berths 72 inches by 18 inches with suitable cushions
  - F. Have a suitable marine head.
2. Be self-righting per MORC Minimum Standards [paragraph 22].  
(If questionable, mainsail and largest genoa are attached to mast head, yacht is hauled over until mast touches water, then released. If the yacht returns to an upright position without outside influence it is considered self-righting.)  
Should this test be required, it shall be performed by the owner or his delegate.
  3. Have auxiliary power capable of propelling the boat at three knots in calm air and water. The propulsion capability must be on board during racing.

# ECSA PHRF Policy and Procedures

## Base Boat Ratings

A base boat rating (time allowance in sec/mi.) is established for each "standard class boat". A standard class boat is a design which the manufacturer has made (or intends to make) a number of copies with essentially identical hulls and rigs. A standard class boat which has had modifications to its hull or rig is no longer a standard class boat and should be rated accordingly.

**For rating purposes, a base boat is assumed to have:**

- A. A mainsail which when racing is set so as not to exceed Class (P) and (E) dimensions.
- B. A genoa with **LP = 1.55J**
- C. A spinnaker with: Girth = **1.8J**:      Leech = **.95(I<sup>2</sup> + J<sup>2</sup>)<sup>1/2</sup>**
- D. A spinnaker stay-sail.
- E. A spinnaker pole equal in length to (J).
- F. An outboard motor or an inboard with a folding prop.

## Individual Boat Ratings

The rating (time allowance) for an individual boat is determined by the following equation:

**Rating = Base Boat Rating + Mainsail Correction Factor + Genoa Correction Factor + Spinnaker Correction Factor + Correction Factor for Hull/Rig/Unusual Sail Configuration + Miscellaneous Correction Factors**

Appendix A sets forth the details of the base boat rating procedures and the correction factors.

## Weight Limits

Crew weight limits are established by the table below, and are based upon the number of crew members that would normally fit on a boat of a certain length with an average weight of 180 lbs per person. The "Crew Number" in the table of weight limits is provided for reference only; the number of crew members is not limited, only the overall crew weight.

LOA in feet (up to and including)	Crew Weight Limit (lbs)	Crew Number (for Reference Only)
22.5	720	4
25.0	900	5
27.5	1080	6
30.0	1260	7
32.5	1440	8
35.0	1620	9
37.5	1800	10
40.0	1980	11
42.5	2160	12
45.0	2340	13
50.0	2520	14
55.0	2700	15
60.0	2880	16
65.0	3060	17
70.0	3240	18
Over 70	3420	19

## ECSA PHRF Policy and Procedures

If you are sailing under a One Design Rating that establishes its own crew weight limits, then the crew weight limits of the One Design Rating shall override the crew weight limits established herein.

Application of the weight limits shall be at the discretion of the race organizing authority and must be included in the Notice of Race if applicable.

### **Rating Committee Operation**

The Rating Committee shall meet quarterly to act upon all pending requests and conduct business as required. If no rating requests are pending, a monthly meeting may be canceled. A polling of committee members may be taken by phone or email in place of a physical meeting at the discretion of the Chairman. A summary of actions taken by the Rating Committee shall be posted for general information on the ECSA PHRF website.

A quorum shall be three of the Sailing Organizations currently represented on the Committee.

The changing of the base boat rating of a boat shall require the vote of the majority of those present.

The Chairman shall maintain records of each yacht rated. These records include all data used to establish the PHRF rating of the yacht. He shall maintain the Minutes of the Meetings of the Committee as well as all data used as reference during rating discussions. He shall maintain contact with US-PHRF to obtain copies of all pertinent information they publish. Applicable copies of this data will be furnished to each representative.

The current master list of all boats rated shall be published on the ECSA PHRF website. The list shall contain at least the yacht owner's name, boat class, rated sail inventory and the assigned rating.

The Rating Committee Members, in addition to the Chief Measurer, may assign temporary ratings based on a completed application which will be acted on by the full committee at the next regularly scheduled meeting.

The committee shall establish a rating fee based on the estimated annual cost of operating the PHRF System. The fee shall be payable to the ECSA and sent to the PHRF Rating Chairman along with a current signed application. Ratings are valid for the calendar year.

In November, rated boat owners shall be advised that the renewal is due.

### **Procedure for Establishing Ratings or Changes to Ratings**

Requests for initial ratings for a yacht shall be by submission of the ECSA PHRF Application Form to the Rating Committee Chairman. Routine rating applications may be assigned by the Rating Committee Chairman and rating committee members. The Rating Committee Members may assign temporary ratings based on a completed application which will be acted upon by the full committee at the next regularly scheduled meeting. Requests for changes to published ratings shall be submitted to the Rating Committee Chairman and shall include all data/information intended to support the requested change. All applications and requests for changes will be acted on at the next scheduled meeting. Applicants and requesters are invited to attend the meeting.

### **Owner's Responsibility**

Each yacht owner is responsible that all measurements and data supplied are adequate and valid. The ECSA Rating Committee assigns a PHRF handicap to a boat assuming that it is sailed in Class or Standard Boat condition. That is, with all equipment on board, and with no changes made to the hull and its appendages, spars, standing rigging, and sails. Any change covered by this policy (modification) made to the boat must be reported to the ECSA Rating Chairman by the submission of an updated Rating Application. Owners should be aware that the moment a change covered by this Policy is made to a boat; the current certificate is no longer valid.

If it is the opinion of the Committee that insufficient data has been supplied by the Owner, the Committee may withhold the issuance of a Rating Certificate.

### **Review of Ratings**

# ECSA PHRF Policy and Procedures

A yacht owner may ask for a review of his or any other boat's rating if he feels it is unfair. Yacht owners who are Rating Committee members and who ask for a review of a rating shall not participate in any action or decision resulting from the review procedure.

The ECSA "Rating Review" form shall be used to petition reviews. Changes to rating resulting from review action shall be limited to 6 sec/mi. once each 12 months. Rating reviews will be acted on at the next scheduled rating meeting if received prior to distribution of the meeting agenda to committee members. All parties affected by the review are invited to participate at the meeting.

A question of whether a yacht is being sailed in a PHRF event in conformance with its Rating Certificate configuration shall be processed in accordance with the Racing Rules of Sailing in effect at the time.

## **APPENDIX A** **BASE BOAT RATING AND CORRECTION FACTORS**

### **I. BASE BOAT RATING**

#### **A. Initial ECSA Rating:**

Established as follows:

1. **Class Boat:** Listed in US-PHRF Handicaps Book

The base boat rating will be established by consideration of the US-PHRF data, comparison with similar boats, IOR and MORC data, discussion with other handicappers at the locations shown and any other pertinent data available.

2. **Class Boat:** Not listed in US-PHRF Handicaps Book

Established by comparison with similar boats, IOR and MORC data, discussion with manufacturers and using any other data available

3. **One of a Kind Boat:** Same as above.

4. **One Design Rating (ODR):**

An owner whose boat meets all of the requirements of his ODR class, and whose class ODR rating is listed in the US-PHRF Handicaps Book, may elect to be assigned an ODR rating. If he so elects, none of the requirements of this Policy will apply to his yacht. If an ODR yacht owner elects to race with a non ODR rating, any applicable adjustments will be made to the base boat rating, not the ODR rating.

#### **B. Changing Established Base Boat Ratings:**

Once a base boat rating has been established, it can only be changed by:

1. A Review (See Review of Rating) or,
2. The Rating Committee when it feels available data and information warrants a change, or,
3. The Rating Committee voting to establish a periodic review of all ratings. (Re-compute all Ratings per procedures noted above)

### **II. MAINSAIL CORRECTION FACTOR (MCF)**

Each class boat has a mainsail hoist (P) and foot (E) dimension. When racing, the mainsail shall be set so as not to exceed these dimensions.

## ECSA PHRF Policy and Procedures

MGU, MGM, and MGL shall be the girths of the mainsail at the points  $\frac{3}{4}$ ,  $\frac{1}{2}$ , and  $\frac{1}{4}$  of the length of the leech from the clew, respectively. The measurements shall be taken by folding the sail along the luff to the appropriate dimension and measuring along the fold.

Girths shall not exceed the following values unless the boat is handicapped in the one-design configuration:

The maximum headboard shall not exceed 6 inches or 4% of "E", whichever is larger.

The mainsail upper girth, MGU, shall not exceed the greater of  $0.28 * E + 0.016 * P + 0.85\text{ft}$  or  $0.38 * E$  without penalty. The mainsail middle girth, MGM, shall not exceed the greater of  $0.5 * E + 0.022 * P + 1.2\text{ft}$  or  $0.65 * E$  without penalty. The mainsail lower girth, MGL, shall not exceed the greater of  $0.72 * E + 0.028 * P + 0.85\text{ft}$  or  $0.90 * E$  without penalty.

For any girth measurement that exceeds its limit, a penalty of --1 second per mile shall be assessed for each percent or fraction of a percent that the measurement exceeds the limit. The penalty shall be assessed against that girth measurement with the largest percentage excess.

Any increase in (P) or (E) shall incur a penalty of -1 seconds per mile for each percent or fraction of a percent that the measurement exceeds the class (P) or (E) respectively.

Full battened mainsails are permitted without penalty.

### III. GENOA CORRECTION FACTOR (GCF)

**Definition of a Jib Sail:** To be rated as a jib sail, at any distance from the head() the ratio of the girth to the foot length shall be no greater than the girth's proportionate distance from the head, i.e. mid-girth no greater than 50% of the foot length, girth at 25% from the head no greater than 25% of the foot length.

The Genoa Correction Factor formula is as follows:

**6 Sec/Mile for 135% or less and 12 Sec/Mile for 110% or less.**

Adjustment for genoas larger than 1.55J shall be assessed for all yachts.

No adjustment is assessed for double headsail configurations.

If a blooper is used, it shall be considered as a genoa for purposes of determining the largest genoa in the sail inventory.

### III. SPINNAKER CORRECTION FACTOR (SCF)

#### **Non-Spinnaker Corrections:**

If no spinnaker is included in the sail inventory, a symmetrical or asymmetrical spinnaker adjustment (as determined by the stock/standard configuration of the boat) in seconds-per-mile shall be added to the base boat rating for that boat where the value to add is calculated as follows:

Symmetrical Spinnaker Adjustment:

**$(0.028 * (0.95 * \text{Square Root of } (I \text{ squared} + \text{SPL squared})) * \text{SPL} * (\text{Base PHRF Rating} + 546)) / \text{Rated Sail Area}$**

Asymmetrical Spinnaker Adjustment:

**$(0.028 * (1.15 * \text{Square Root of } (Ic \text{ squared} + \text{SPLc squared})) * \text{SPLc} * (\text{Base PHRF Rating} + 546)) / \text{Rated Sail Area}$**

Rated Sail Area is calculated by the following formula:

## ECSA PHRF Policy and Procedures

$$\text{Rated Sail Area} = (I \cdot J) / 2 + (P \cdot E) / 2 + (PY \cdot EY) / 2$$

Except that the adjustment for a Catalina 22 shall be +12 sec/mi instead of the value calculated in accordance with the formula.

Over-Sized Spinnakers:

If the largest spinnaker girth is greater than **1.8SPL**, the base boat rating shall be corrected as follows:

$$\text{Girth Correction} = \frac{30(1.8\text{SPL} - \text{Girth})}{1.8\text{SPL}} \text{ sec/mi.}$$

The Girth Correction derived from this formula shall be rounded to the nearest integer.

If the largest spinnaker leech is longer than  $.95(I^2 + J^2)^{1/2}$ , the base boat rating shall be adjusted as follows:

$$\text{Leech Correction} = 60 \frac{.95(I^2 + \text{SPL}^2)^{1/2} - \text{Leech}}{.95(I^2 + \text{SPL}^2)^{1/2}} \text{ sec/mi.}$$

The Leech Correction derived from this formula shall be rounded to the nearest integer.

$$\text{SCF} = (\text{Girth Correction plus Leech Correction}) \text{ sec/mi.}$$

No correction shall be made for girths less than 1.8J or leeches shorter than  $.95(I^2 + J^2)^{1/2}$ .

Spinnaker poles or whisker poles shall not exceed J by more than three inches. The correction for oversized poles is as follows:

$$\text{Spinnaker Pole Correction} = 30 \left(1 - \frac{\text{SPL}}{J}\right) \text{ sec/mi.}$$

The Spinnaker Pole Correction derived from this formula shall be rounded to the nearest integer.

If an adjustment for an oversized girth has been assessed, the larger of spinnaker pole or girth adjustment will be applied (no correction will be made for a matching spinnaker pole).

Spinnaker poles which are parallel to the centerline when in use and do not articulate to either side shall receive a correction factor according to the following formula:

$$\text{Bow Pole Correction} = 18 \left(1 - \frac{\text{BPL}}{J}\right) \text{ sec/mi.}$$

The zero data point for determining BPL shall be the forward face of the mast.

The Spinnaker Pole Correction derived from this formula shall be rounded to the nearest integer.

Boats with ODR classification resulting from factory equipped bow poles shall not be assessed any additional penalty using this formula.

No spinnaker correction factor shall be used when calculating a boat's non-spinnaker rating.

### V. CORRECTION FOR HULL MODIFICATIONS

A standard class boat which has a hull modification which significantly changes its performance shall be established as a nonstandard boat and assigned a unique base boat rating or an adjustment shall be assigned by the Rating Committee.

## ECSA PHRF Policy and Procedures

### VI. CORRECTION FOR RIG MODIFICATIONS

For boats with a non-standard rig, adjustments will be considered on a case by case basis.

### VII. MISCELLANEOUS CORRECTION FACTORS

A. Class boats with fixed prop installations shall be given an adjustment of +21 sec/mi. for two blade and +30 sec/mi. for three blade, if the boat can be driven at 1.0 sqrt LWL (in knots) in smooth water with that propeller.

B. For class boats originally equipped with an outboard, a +3 sec/mi. allowance shall apply if an inboard is installed.

C. Boats with roller furling genoas shall receive an adjustment of +6 sec/mi.

D. Boats with Dacron sails (main & jib) shall receive an adjustment as follows:

Up to 30 Feet:	+3 Seconds/Mile
Above 30 Feet:	+ 6 Seconds/Mile

E. Boats with modified cruising interiors (extra weight) from original design weight may receive an adjustment as determined by the PHRF Committee.