

**NC-PHRF**  
**HANDICAP RACING FLEET RULES**

**ARTICLE I. PREAMBLE**

**1. PERFORMANCE HANDICAPPING**

PHRF ratings are boat performance handicaps. They are based on the speed potential of the boat, determined as far as possible on observations of previous racing experiences. It is the intent of PHRF handicapping that any well equipped, well maintained, and well sailed boat has a good chance of winning. Handicaps are adjusted as needed on the basis of the boat's performance so that each well sailed boat has an equal opportunity to win. This is the fundamental concept.

PHRF ratings are not intended to reflect skipper and crew capability. Ratings are not adjusted to encourage a poor careless skipper, and conversely, no rating adjustment is made to penalize proficiency. Intensity of competition and the influx of new and aggressive sailors require each skipper to maintain consistently high performance in order to place well.

**2. BOAT DESIGN**

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

PHRF discourages "rule beating" or "gaming the system." If a skipper modifies his boat, NCPHRF will attempt to compensate for the resulting speed potential. The use of taller masts, longer spinnaker poles, extra ballast, gutted interiors or other modifications intended to increase speed are compensated for by the rating assigned. In these cases NCPHRF will always tend to try to err in favor of protecting the fleet until race evidence indicates a better estimate of the speed improvement. Modifications from One Design ratings will start from the standard PHRF base rating.

**3. CHANGES TO DESIGN OR EQUIPMENT**

A skipper may experiment with different ways of improving the performance of his boat. If there are changes to the hull, rig, sails, or other factors upon which the existing rating is based, they must be reported to the handicapper for evaluation. If possible deviations on the part of the owner become apparent, other contestants are urged to appeal to the area handicapper.

**4. HANDICAP RATINGS**

The handicap rating of an individual boat is expressed in seconds per nautical mile. The smallest increment of performance normally used for rating is 3 sec/mi. Observations of numerous races show that it is impossible to spot a boat's potential performance more accurately than this because of the multiple factors involved. Differences in skipper and crew skill represent a much larger factor than 3 sec/mi.

Because headsail size has so much to do with boat speed, PHRF uses this factor as a means of handicapping. A boat's rating is based on its largest headsail; this rating must be used, even though wind conditions may preclude use of the sail. A skipper is not allowed to have his boat re-rated frequently by choosing his headsail to fit expected race conditions.

**5. EQUIPMENT**

PHRF assumes that a boat is equipped to race. It does not attempt to rate a partially equipped boat,

or a boat which differs from others in its class, in that it is unusually heavy, out of balance, or has unusual windage (as from dinghy on davits). However, if the basic hull and rig differ from others in its class, it will, of course, be rated uniquely.

## ARTICLE II. PHRF REGULATIONS

### 1. DEFINITIONS

- J Distance perpendicular from foreside of mast line to the point of intersection of the forestay with deck.
- LP Distance perpendicular from the luff to the clew of the largest jib.
- SPL Spinnaker pole length.
- G Spinnaker maximum girth luff to luff. Fold on center line, measure maximum width and multiply by two.
- I Height of foretriangle. Measured from deck sheer line abeam the mast to highest point of sail attachment.
- P Luff length of mainsail measured from boom to headboard in its highest position.
- E Foot length of mainsail measured from mast to clew in its most outboard position.
- LOA Length overall of the hull. Note bowsprit and/or boomkins separately.
- ISP Height from deck sheer line to spinnaker halyard exit point on mast.
- LWL Load water line.
- BEAM Maximum beam of the vessel.
- DRAFT Draft of hull. Also include draft with board down if centerboard yacht.
- DISPL Displacement of vessel in pounds without crew, water, fuel, or stores aboard.
- BAL Ballast of vessel in pounds. Note any additions or deletions from standard and the location.
- MAT Material of construction.
- SML Spinnaker maximum luff.
- MGT Mainsail girth.
- ASPL Asymmetrical spinnaker pole is the length of a spinnaker pole, bowsprit, any other projection, or mounting point on the bow, for an asymmetrical spinnaker tack point measured from the forward facing tube of the mast along the boat centerline to the maximum projection of the tack point.
- ASML Asymmetrical spinnaker maximum luff is the average luff and leech lengths
- AG Asymmetrical spinnaker girth is the length between the midpoint of the luff and the midpoint of the leech.

### 2. STANDARD ASSUMPTIONS

PHRF base ratings are based on the following assumption:

- A. the spinnaker pole length is equal to J;
- B. the spinnaker maximum width is 180% of J;
- a. the spinnaker maximum luff length is equal to 95% of the jibstay length, i.e.  $.95\sqrt{I^2 + J^2}$
- C. the LP of the largest genoa is equal to 155% of J;

- D. the yacht is in racing condition;
- E. the yacht has a folding or feathering propeller or a retractable outboard motor;
- F. the hull and appendages are unmodified.
- G. A blooper that is flown with a spinnaker must be:
  - a. No longer on the luff than the headstay.
  - b. Tacked to the stem fitting on the bow.
  - c. mid-girth measured between the mid-points of the luff and the leech, shall not exceed 50% of the length of the foot nor shall any intermediate girth exceed a value similarly proportionate to its distance from the head of the sail.
  - d. The distance, measured on the surface of the sail, between the mid-point of the foot and the midpoint of the luff shall not exceed .55 of the length of the leech.
  - e. The LP can be no longer than the largest declared headsail.
  - f. tack pennant not to exceed 30" can be added to restriction A.
- H. Asymmetrical spinnaker girth AG must be greater than 75% of the foot length to rate as a spinnaker.

### 3. HANDICAP ADJUSTMENTS

#### A. HEADSAILS

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

No adjustment is made for the largest headsail having an LP/J greater than 135% and less than or equal to 155%.

If the largest headsail has an LP/J of 111% to 135% a credit of 3 (three) seconds per mile will given.

If the largest headsail has an LP/J of 110% or less, a credit of 6 (six) seconds per mile will be given.

If the largest headsail has an LP/J in excess of 155% a penalty will be added to the base rating. See the table below.

LP/J%	Adjustment
<= 110	+6
111-135	+3
136-155	Base rating
156-165	-3
>166	-6

Further adjustment to ratings of +3 seconds per mile will be given to full time use of a furling system with the drum above the deck, where the tack of the sail is tacked above the drum, the head connected to the swivel and all headsails fitting into the system. Changing of headsails is permitted, but the rating is based on the largest headsail whether used or not.

No adjustment will assessed for four (4) or less battens, up to and including full length battens, which are approximately equally spaced between the head and clew, in any headsail.

Boats rated as One Design shall have the class largest size head sail and any class furling system incorporated into the Base Rating for the boat and no further adjustment will be given.

The clew of headsails may be held out by a whisker pole, of any length, which must be attached to the mast except while gybing.

Only one headsail may be flown at any time except while changing sails and except on boats designed to carry more than one sail in the fore-triangle such as cutters.

#### B. SPINNAKER

Adjustment is normally based on the largest spinnaker and determined by the change in either, or both G and J stated as a percent.

SPL	=J	Base Rating
	<110%	-3
	>110%	-6
G	=180%	Base Rating
	<190%	-3
	>190%	-6
SML	$\leq 95\%$ jib stay length, i.e. $.95\sqrt{I^2 + J^2}$	
	<105%	-3
	>105%	-6

A change in ISP from the standard shall be penalized separately from any penalty for a change in SPL.e of the boat's J in the same manner

Asymmetrical spinnakers may be flown from the bow, a spinnaker pole, a fixed sprit or a retractable sprit. Adjustments will be based on a percentage in the same manner as the rule regarding symmetrical spinnakers in accordance with the following table:-

ASPL	=J	Base Rating
	<110%	-3
	>110% -=115%	-6
	>115%	Committee Discretion
AG	=180% J	Base Rating
	<190%	-3
	>190 -= 200%	-6
	> 200%	Committee Discretion
ASML	$\leq 95\%$ J	Base Rating
	<105%	-3
	>105% -=110%	-6
	>110%	Committee Discretion

C. MAST

Adjustment is based on the actual mast height.

Standard	0
Tall Rig	Adjustment TBD
Other	Adjustment TBD
In mast furling mainsail, no battens	+9

D. PROPULSION

Adjustment is based on type of propeller and its installation.

Folding/Feathering exposed	0
Solid 2-blade in aperture	0
Solid 3-blade in aperture	+6
Outboard retracted when racing	0
Outboard not retracted	+3
Solid 2-blade exposed	+12
Solid 3-blade exposed	+18
Non-standard	(as estimated)

Note: If propeller or installation type is not included in the adjustment table, then the handicapper should assign the adjustment based on its assumed relation to the table and indicate his action in his notes.

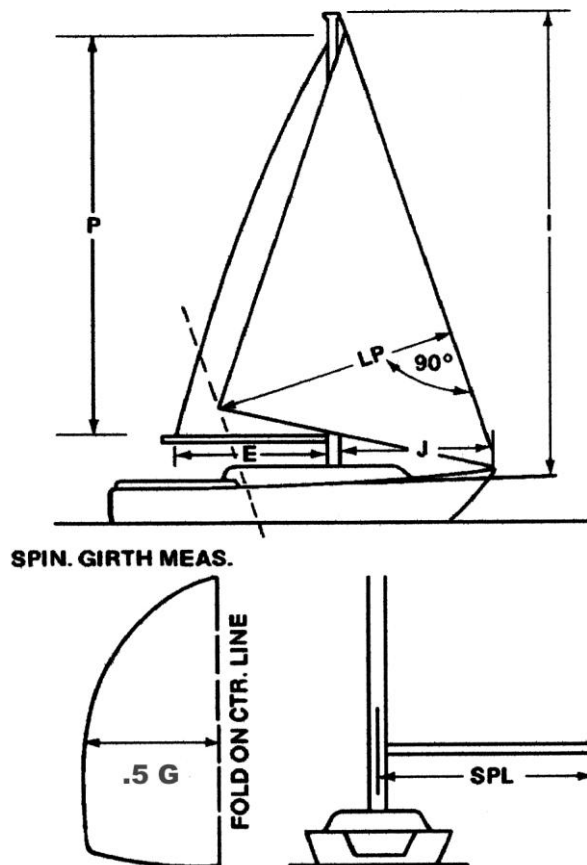
E. Mainsail Girth restrictions and rating.

Mainsails with significant upper girth roach are becoming more prevalent. If these are not recognized and appropriately rated, their unrated advantage will force the fleet towards these sails. The following restriction on mainsail girth is therefore adopted.

Rated without adjustment are one design mainsail girths or IMS default girths (see table).

Mainsails exceeding these values by up to 5% shall receive a -3 second per mile adjustment. Excessive girth beyond 5% over the IMS default table, shall be additionally adjusted depending upon the amount of increased girth. In addition, if the headboard is in excess of the greater of 6 inches or .04E, then a penalty adjustment shall be applied.

Girth point	Maximum without adjustment
MGT (7/8 Leech)	0.22E
MGT (1 Leech)	0.38E
MGT (2 Leech)	0.65E
MGT (3 Leech)	0.90E



### ARTICLE IIIc SPECIAL RULES AND PROCEDURES GOVERNING ASSIGNMENT OF RATINGS

1. **DURATION OF RATING.** Once a rating has been assigned to a yacht, such rating shall remain in effect, until it is changed at a meeting of the Board of Handicappers. If the yacht=s hull, rigging, sails, or equipment are changed, the rating can be changed by the local Handicapper in accordance with standard policies of the Board of Handicappers. A base rating of a previously-rated yacht may be changed without advance notice to the yacht owner at the first meeting of the calendar year to review all yachts. A provisional rating of a yacht may be changed without notice to the owner in accordance with Paragraph 2. below. Any change in the base rating of a previously-rated yacht other than as specified in the two preceding sentences, may be made only as follows:
  - A. in accordance with the appeal procedures of Paragraph 4. of this Article; or
  - B. by giving notice in writing to the owners of the yachts whose base ratings are to be reconsidered two weeks prior to the meeting of the Board of Handicappers at which the rating is to be reconsidered.
2. **PROVISIONAL RATINGS.** Yachts eligible to compete in a race sponsored by a member club which do not have a rating assigned by the Board of Handicappers may be rated by the rating representative of the sponsoring club. The rating representative shall consult, when time permits, at least two members of the Board of Handicappers in arriving at a provisional rating. The Board of Handicappers shall have the power to assign a provisional rating to any class of yacht which is new to this organization and has little or no reliable racing history in other PHRF fleets. All boats assigned this provisional rating will be reviewed, and be subject to adjustment at each regular meeting of the Board of Handicappers until a fair base rating can be determined.
3. **ADJUSTMENTS TO RATINGS.** When a yacht=s hull, rigging, sails, or equipment are changed from what which was used as the basis of the rating assigned by the Board of Handicappers, the member club sponsoring a race or races in which such yacht is competing may adjust the rating. Yachts may not make changes in sail

inventory during a series solely to take advantage of variable conditions from race to race.

4. **APPEAL OF RATING.** At any meeting the Board of Handicappers may consider appeals of presently-rated yachts. Any member in good standing may appeal the rating of any yacht, including his own, by filing a written appeal with the Board of Handicappers. The written appeal must also be delivered to the owner of the yacht whose rating is being appealed two weeks before the meeting, if the owner is other than the person making the appeal. The owner may file a written response with his club's representative or the Chairman of the Board of Handicappers at any time prior to the meeting.
5. **PROTESTS INVOLVING RATINGS.** Protest involving infringement of rating certificates will be handled by the Protest Committee for the race in question. Member clubs who sponsor races are encouraged to utilize their rating representative to measure sails or inspect equipment of yachts who have been protested for having sails or equipment which does not conform to that utilized as the basis for assignment of the rating. The Board of Handicappers shall have no function in protests involving ratings.
6. **ONE DESIGN RATINGS.** One Design (OD) boats are rated in their One Design configuration and National Class Rules apply. One Design boats rated in PHRF will have all class restrictions incorporated in the base rating, including, but not limited to, requirements for lifelines, pulpits, auxiliary propulsion, sail size and materials, spinnakers and poles, and if centerboards, any restriction on locking of the board in the down position, and crew weight limits.

No modification from the OD configuration or class rules will be permitted for boats rated as OD.

Boats with OD ratings will be rated as standard PHRF boats if any modifications are made to the class configuration or deviations from the class rules.

#### **ARTICLE IV. SAFETY REQUIREMENTS**

The safety and seaworthiness of a yacht is the sole and inescapable responsibility of the owner. He must ensure that all safety equipment is properly maintained and stowed and in an accessible location known to the crew.

Hulls of offshore yachts shall be self-righting, strongly built, watertight, and capable of withstanding solid water and knockdowns. They must be properly rigged and ballasted and be fully seaworthy.

Boats with moveable keels that require the keel to be down to self-right shall be sailed with the keel locked down.

All equipment must function properly and be of a type, size, and capacity suitable and adequate for the intended use and size of the yacht.