



Performance Handicap Racing Fleet

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Narragansett Bay (PHRF-NB)

Regulations - 2021

PHRF-NB Regulations 2021

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PHRF-NB Regulations - 2021

1. Preface

PHRF-NB strives to consistently provide fair ratings for dissimilar boats to race against each other. The best use of these ratings is done by grouping boats in the smallest rating band with like type boats. It is expected that all designs will have preferred conditions and may excel when those are met. The challenge we face is to balance the rating to the local predominate condition in an effort to have the best sailed and prepared boats finish in the top third. The Rating Committee (RC) reviews race results on a regular basis. This is typically done with at least a years' worth of results for a boat type to determine whether ratings need to be adjusted.

2. Administration

PHRF performance handicaps are boat performance handicaps based on the speed potential of the boat determined, as far as possible, by observations of race results, VPP data, and ratings from other Rating Systems. The intent of PHRF handicapping is that any well-equipped, well-maintained and well-sailed boat has a good chance to win; and any boat that wins a PHRF race is indeed well-equipped, well-maintained, and well-sailed. Handicaps are adjusted, as needed, on the basis of the boat's performance so that each boat will have an equal opportunity to win. This is the fundamental concept.

PHRF-NB ratings are set by the Rating Committee (RC). The RC reviews boat data, race results and boat modifications to name a few to determine a boats rating. We, PHRF-NB, will initially set a boats 'base handicap' and then apply adjustments for modifications. For a new boat to PHRF-NB, the RC will look for a boat as similar as possible to the boat being rated, consider VPP data and other PHRF regions/ratings systems to establish a "Provisional Rating". After a year of racing results, which can be reviewed, the RC will adjust as necessary and issue the Rating Certificate. In this way, if/when a sister ship requests a rating the process is to apply adjustments for the particular boat's modifications. The RC encourages all applicants to provide as much and as accurate data as possible. Including all reported sail measurements (Main sail, Largest Jib/Genoa, Largest Spinnaker and Code 0 or Reaching Headsail).

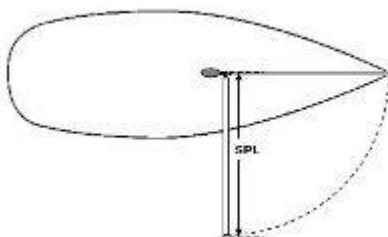
3. Committee Members

The names of the committee members are listed on the PHRF-NB website <http://phrf-nb.org/node/6793> along with the administrators contact information. The committee members are all committed to keeping ratings accurate. I encourage you to contact Administrator with questions or concerns who will direct the inquiries to the appropriate member. They are all involved because they want to make a difference and promote a sport they enjoy.

4. Definitions

LOA	Length overall of hull, should not include bowsprits or boomkins.
LWL	Length waterline, if unmeasured use the brochure/published dimension.
Beam	Maximum width of vessel
Draft	Maximum depth of vessel measured without crew, water, fuel or stores. If unmeasured use the brochure/published dimension. For centerboard yachts, report "board down" draft.
Displacement (DISP)	Weight of water displaced by vessel without crew, water, fuel or stores. If

	unmeasured use the brochure/published value.
Ballast (BAL)	Weight of ballast in pounds. Note any deletions with amount and location.
LP	Line Perpendicular. Measurement from the Head Sail Clew to a point perpendicular to the Luff. For purposes of adjustment this is represented as a percentage of the J dimension.
I	Dimension measured from the sheer line at the mast to the maximum hoist of the jib/genoa.
ISP	Distance from the sheer line at the mast to the maximum hoist of the spinnaker.
J	Distance from the forward side of the mast to the intersection of the headstay and deck.
JC	On boats with asymmetrical spinnaker tacked forward of the headstay (anchor roller, bowsprit or similar) distance from the headstay/deck intersection forward to the tack location for the spinnaker, added to the J dimension. On boats with articulating bowsprits this measurement should be with the sprit parallel with the fore/aft centerline of the boat.
STL/TPS	Spinnaker tack length is from the foreside of the mast to the spinnaker tack location parallel to the waterline with a sprit in its forward most position.
P	Mainsail luff length from the top of the boom to the top of the headboard with the sail fully hoisted.
P2	Mizzen luff length from the top of the boom to the top of the headboard with the sail fully hoisted.
E	Foot length of the mainsail from the aft face of the mast to the clew in its most outboard position.
E2	Foot length of the mizzen sail from the aft face of the mast to the clew in its most outboard position.
MGT/MUW	Mainsail girth from $\frac{7}{8}$ leech to nearest point on mainsail luff.
MGU/MTW	Mainsail girth from $\frac{3}{4}$ leech to nearest point on mainsail luff.
MGM/MHW	Mainsail girth from $\frac{1}{2}$ leech to nearest point on mainsail luff.
MGL/MQW	Mainsail girth from $\frac{1}{4}$ leech to nearest point on mainsail luff.
MHB	Mainsail headboard or Square top width.
SPL	Spinnaker or whisker Pole Length measured with the pole in its fitting and set in a horizontal position athwart ship.



ALU/SLU	Length of Asymmetrical/Symmetrical luff from head to tack.
ALE/SLE	Length of Asymmetrical/Symmetrical leech from head to clew.
AF/SFL	Length of Asymmetrical/Symmetrical foot from clew to tack.
AMG/SMG/AMU/SMU/SHW	Asymmetrical/Symmetrical spinnaker girth from $\frac{1}{2}$ luff to $\frac{1}{2}$ leech.
Rig Type	The sail plan configuration (sloop, yawl, ketch, cutter, Cat, etc.)
Rig	Either masthead or fractional referring to the location of the headstay on the

	mast.
Composite Rigging	Defined as synthetic rigging used to support the mast laterally and as a headstay. Composite backstays, runners or check stays are not included.
Keel Material	Lead, Cast Iron, etc.
Keel Weight	Weight of keel in pounds if known.
Mast Material	Aluminum, wood, carbon, etc.
Other Ballast	Note any additional ballast with amount and location. Typically found to be bilge ballast or corrector weights.
Spinnaker Types	Identifies types of spinnaker to be used, symmetric and/or asymmetric.
Asymmetric Spinnaker Tacked to:	Location asymmetric spinnaker is attached to boat, for example anchor roller, bow sprit, spinnaker pole etc.
Code Zero	A spinnaker designed for reaching that is typically just over the 75% mid-girth requirement.
Engine	Inboard or outboard
Prop Type	Refers to the type of propeller, fixed, folding, feathering etc.
Prop Install	How is the propeller installed, sail drive, shaft/strut, aperture, drop box etc.
Keel Type	Fin, bulb/strut, full, canting, bilge, winged, centerboard, etc.
Rudder	Type of installation, e.g. spade, and keel, skeg, outboard.
Yacht Name	Name of boat, e.g. "Clara"
Model	e.g. C&C 35 Mk2, for a custom boat (designer): CTM Farr 45'.
Sail #	Number displayed on your sails
Hull Serial #	Hull serial Identification number (HIN) located on starboard corner of transom.
Designer	Yacht designer
MFCTR	Yacht Manufacturer
Date MFD	Date of manufacture of model year, if known.
Other Ratings	Indicate a PHRF rating received from another area, e.g. NE-PHRF Base 72; IMS GP 622; ORA-1, Base 90.
SA / DISP	Sail Area (as defined in the appropriate section) / (Displacement/64) ^{2/3}
DISPL / L	(Displacement / 2240) / (.01 x LWL) ³

5. Base Configuration

5.1. PHRF-NB considers the base boat to be as follows:

- a. **Genoa/Jib** - This is determined by looking at the original design. If a boat was originally designed with overlapping genoas, we set the base rating for the design with a 155% genoa. Adjustments for varied sail sizes are then based on this.
 - i. If a boat is designed with non-overlapping headsails (jibs) we set the base rating on this (<118%). These boats will typically have the side shroud chain plates attached at the hull deck joint.
 - ii. The RC will make this determination when the base rating is established and it will be noted in our base rating database.
- b. **Spinnakers** - It is assumed the boat has a spinnaker. We will review sail plans, design literature and drawings to determine the type when a base rating is determined. Details of measurements can be found in [section 6.3](#).

- c. **Mainsails** – It is assumed that the mainsail conforms to the original design or Maximum Girths as described in [6.1.a-c.](#)
- d. **Propeller** - It is assumed in the base rating that the boat has either a folding propeller on an exposed shaft or sail drive or an outboard. Vessels not equipped with one of the configurations will have an adjustment applied to their rating.
- e. **Displacement** – We acknowledge that this is a grey area as many designs are delivered well outside of the ‘listed displacement’. Despite this we will use the listed displacement as the basis for base ratings.
- f. **Boats rated in a One Design configuration** - shall comply with all applicable Class requirements/restrictions. Variations shall be reported to the Rating Committee. If the excursion(s) is deemed significant, a PHRF-NB base rating will be issued, which notes the modification(s).
- g. **To summarize** - We assume the boat is in all respects, as delivered from the original manufacturer. Any change to the original manufacturer design or specification not covered in these rules shall be reported and subjected to a review for possible adjustment.

6. Sails

6.1. Mainsails

- a. **Standard** – ORC maximum girths or as designed and rated originally.
- b. **Oversize Girths** - For mainsails whose girths are greater than ORC standards, greater than original design, greater than class rules, or for a change in size, ratings will be adjusted as follows: (% increase is the sail area increase based on the following formula:

$$Area = \frac{P}{8} (E + 2 \cdot MQW + 2 \cdot MHW + 1.5 \cdot MTW + MUW + 0.5 \cdot MHB)$$

- c. **Limits** - The following limits apply for mainsails based on ORC:

ORC Mainsail Maximum Girths

MHB (Headboard/Square top) =	0.065 x E
MUW (Girth at 7/8 leach) =	0.22 x E
MTW (Girth at 3/4 leach) =	0.38 x E
MHW (Girth at 1/2 leach) =	0.65 x E
MQW (Girth at 1/4 leach) =	0.90 x E

Adjustments

% Increase	Adjustment Sec/mile
.1 % to 4%	- 1
4.1 to 8%	- 2
8.1 to 12%	- 3
12.1 to 16%	- 4
16.1 to 20%	- 5
etc.,	

- d. **Undersize Girths** - For mainsails whose girths are less than ORC standards, less than original

design, less than class rules, or for a change in size, ratings will be adjusted based on the above formula [\(6.1.b.\)](#):

- i. **Adjustment** - This adjustment will not be applied unless measurements are supplied with the Certificate information

Adjustments

% Decrease

Adjustment Sec/mile

2.0 % to 4%	+ 1
4.1 to 8%	+ 2
8.1 to 12%	+ 3
12.1 to 16%	+ 4
16.1 to 20%	+ 5
etc.,	

- e. **Substantial changes to the sail profile,**

Regardless of Area, substantial changes to the sail profile shall be reviewed by the Committee for possible adjustment.

6.2. Headsails

- a. **Luff:**

The luff of a headsail shall be attached to the headstay.

- b. **Mid Girths:**

LP \geq 118.1 – midgirth shall be $<50\%$ of sails measured foot

LP $<$ 118.1 – midgirth shall be $<55\%$ of sails measured foot

For boats with a 155% headsail as base refer to Table A for adjustment

For boats with a $<118\%$ headsail as base refer to [Table B](#) for adjustment.

Table A

LP% Lower Limit	LP% Upper Limit	Spinnaker Adjustment	Non-Spinnaker Adjustment
167.1	170	-5	-5
164.1	167	-4	-4
161.1	164	-3	-3
158.1	161	-2	-2
155.1	158	-1	-1
151.1	155	0	0
148.1	151	1	1
145.1	148	2	2
142.1	145	3	3
139.1	142	4	4
136.1	139	5	5
133.1	136	6	6
130.1	133	7	7
127.1	130	8	8

124.1	127	9	9
121.1	124	9	10
118.1	121	9	11
Less than 118%	118	9	12

Table B

LP% Lower Limit	LP% Upper Limit	Spinnaker Adjustment	Non-Spinnaker Adjustment
167.1	170	-14	-17
164.1	167	-13	-16
161.1	164	-12	-15
158.1	161	-11	-14
155.1	158	-10	-13
151.1	155	-9	-12
148.1	151	-8	-11
145.1	148	-7	-10
142.1	145	-6	-9
139.1	142	-5	-8
136.1	139	-4	-7
133.1	136	-3	-6
130.1	133	-2	-5
127.1	130	-1	-4
124.1	127	0	-3
121.1	124	0	-2
118.1	121	0	-1
Less than 118%	118	0	0

c. Roller Furler Credit (+3)

- i. Headsails shall comply with the following:
- ii. All sails to be used shall have a luff length 2.5% of the I measurement shorter than the head stay length as measured from the deck sheer line to the mast intersection.
- iii. Furler bottom drum mounted above the deck.
- iv. The sail shall be attached to the bottom drum, hoisted in a foil extrusion and have a top swivel, the system shall be functional.
- v. The sail shall be furled when not in use and racing.

OR

d. Cruising Headsail Credit (+6)

- i. Cruising Headsails shall comply with the following:
- ii. The cruising headsail shall have a luff length 2.5% of the "I" measurement shorter than the head stay length as measured from the deck sheer line to the mast intersection.
- iii. The cruising headsail shall be attached to the bottom drum, hoisted in a foil extrusion and have a top swivel, the system shall be functional.
- iv. The cruising headsail is the primary headsail used on the boat. Any additional headsails used must be less than 110% LP. The cruising headsail is stored on the head stay when not racing.
- v. The cruising headsail is regularly used as the primary genoa/headsail when the boat is day sailing or cruising.
- vi. The cruising headsail has a UV leach cover attached to the sail (e.g. stitched or glued).
- vii. Sail's material must be: Woven Polyester, Polyester Composite or Polyester laminate, with an additional layer of woven polyester (taffeta), or Composite skin, both with the intent of adding durability to the sail. Exotic materials are not allowed; (Pentex, PEN, Aramid, Technora, Carbon, Spectra, Ultra-PE).
- viii. **Cancelling the Cruising Headsail Credit** - After a Cruising Headsail credit is issued and a request for a Roller Furl Credit ([6.2.c.](#)) is received; a new rating will be issued and the Cruising Headsail Credit will be rescinded for the remainder of the season.

6.3. Spinnakers

a. Symmetrical Spinnakers

- i. Maximum Standard luff length shall be not greater than $.95 * \sqrt{(ISP^2 + SPL^2)}$
- ii. Maximum Standard foot length and Mid-Girth shall be not greater than $1.8 * SPL$
- iii. Any change in STL not accompanied with a commiserate change in SMG shall be reviewed by the Committee for possible further adjustments not covered within these rules. Owners are advised to consult with the Committee before making such a change.
- iv. Any change in ISP not accompanied with a commiserate change in AREA shall be reviewed by the Committee for possible further adjustments not covered within these rules. Owners are advised to consult with the Committee before making such a change.

b. Asymmetric Spinnakers:

Asymmetric Spinnakers shall comply with the following requirements:

- i. Maximum Standard luff length shall be $\leq 110\% \times \sqrt{ISP^2 + STL^2}$
- ii. Maximum Standard SMG shall be $\leq 1.8 \times STL$
- iii. SMG shall be $\geq 75\%$ of foot length.
- iv. Boats articulating the tack of an asymmetric spinnaker shall indicate this on their application.
- v. Any change in STL not accompanied with a commiserate change in SMG shall be reviewed by the Committee for possible further adjustments not covered within these rules. Owners are advised to consult with the Committee before making such a change.
- vi. Any change in ISP not accompanied with a commiserate change in AREA shall be reviewed by the Committee for possible further adjustments not covered within these rules. Owners are advised to consult with the Committee before making such a change.

c. General

- i. Boats using both symmetric and asymmetric spinnakers from a standard spinnaker pole shall indicate this on their application. Spinnaker staysails shall be allowed when using a boats spinnaker rating.
- ii. All sails classified as spinnakers shall be passed forward of the headstay during tacking and gybing maneuvers. A Code 0 is a spinnaker.
- iii. [Appendix A](#) references how spinnakers are adjusted based on the boat configuration.
- iv. [Appendix B](#) is an open list of **Boats with Standard Asymmetrical Spinnaker Areas**

d. Oversize (SPL) (SPL/Lu) (Area)

- i. Oversized Symmetric spinnakers will be adjusted based on [Table C](#). Oversized Asymmetric spinnakers will be adjusted based on [Table D](#).
 - a.) Area used to compare larger or smaller size spinnakers shall be calculated with the standard IRC Spinnaker Area Formula:
 - i.) $SPA = ((SLU + SLE)/2) \times ((SFL + (4 \times SHW))/5) \times 0.83$
 SLU, SLE, SFL and SHW of the largest area spinnaker on board shall be declared.
 - ii.) This formula shall apply to either Symmetrical or Asymmetrical spinnakers. (Unless otherwise defined in this document)
 - iii.) If a boat has a Class, Designer or Regional Area that shall govern.
 - ii. For boats that were designed originally with Symmetric Spinnakers, the Standard SMG and SFL is based on $SPL \times 1.8$ and MAX LUFF based on $.95 \times \sqrt{ISP^2 + STL^2}$ with all other dimensions entered into the above Area Formula (SPA) to determine the **Standard Symmetric Spinnaker Area**, unless there is an OD, designer or regional standard for the boat. Any changes to the Spinnaker Area will be adjusted based on [Table C](#).
 - iii. For Boats that were designed originally with asymmetric spinnakers (but not having a controlling reference 6.3.d.i.a.)iii.) (above) the Formula used to compute the **Standard Asymmetric Spinnaker Area** shall be $(ISP \times STL \times 1.8 \times .83)$. Adjustments to the Base rating will then be based on [Table D](#).

- a.) If a boat's **Performance Factor** exceeds 3.5 based on the formula: $[(.67 * LWL) + (.34 * LOA)] * (SA / DISP)$ where $SA = (((STL * ISP) + (P * E)) / 2)$ the **Standard Asymmetric Spinnaker Area** shall be $(ISP \times STL \times 1.8 \times .73)$.

iv. **Undersized Area** will not be adjusted unless measurements are supplied with the Certificate.

Table C

Symmetrical Spinnaker

(Area)	Sec/Mile Adjustment	(Area)	Sec/Mile Adjustment
<90%	7	>127% to 130%	-10
>=90% to 93%	5	>130% to 133%	-11
>93% to 96%	3	>133% to 136%	-12
>96% to 100%	0	>136% to 139%	-13
>100% to 103%	-1	>139% to 142%	-14
>103% to 106%	-2	>142% to 145%	-15
>106% to 109%	-3	>145% to 148%	-16
>109% to 112.0%	-4	>148% to 151%	-17
>112% to 115%	-5	>151% to 154%	-18
>115% to 118%	-6	>154% to 157%	-19
>118% to 121%	-7	>157% to 160%	-20
>121% to 124%	-8	>160% to 163%	-21
>124% to 127%	-9	Etc.	Etc.

Table D

Asymmetrical Spinnaker

(Area)	Sec/Mile Adjustment	(Area)	Sec/Mile Adjustment
<75%	12	>128% to 133%	-7
>=75% to 80%	9	>133% to 138%	-8
>80% to 85%	7	>138% to 143%	-10
>85% to 90%	4	>143% to 145%	-11
>90% to 94%	2	>145% to 147%	-12
>94% to 100%	0	>147% to 149%	-13
>100% to 101%	-1	>149% to 151%	-14
>101% to 109%	-2	>151% to 153%	-15
>109% to 118%	-3	>153% to 155%	-16
>118% to 123%	-4	>155% to 157%	-18
>123% to 128%	-6	Etc.	Etc.

e. Asymmetric Spinnaker Conversions

- i. Boats converting from symmetrical to asymmetrical spinnakers will be adjusted as follows below.
- ii. For boats that were designed originally with Symmetric Spinnakers that have converted over to an Asymmetric on centerline, the Standard Spinnaker Area for the boat shall be the Standard Symmetric Spinnaker Area. Adjustments to the Base rating will then be based on [Table D](#) and [Table E](#).
- iii. Boats with the sail tacked to the bow on centerline without also using an articulating pole/symmetrical spinnaker pole will receive between 0 and 12 sec/mile credit. This will be based on the formula below.
 - a.) Downwind SA = Mainsail Area + Spinnaker Area (ISP x (J x 1.8))/2
 - i.) Mainsail Area shall be the larger of the Areas between the formula in [6.1.b](#). or (P x E x .585)
 - ii.) Spinnaker Area as applicable in [6.3.d. i.-iv](#).
 - b.) Downwind SA-DISP / DISPL - L. This Ratio is inputted into Table E below:

Table E

Ratio	Adjustment
$\geq .001 < .1$	12
$\geq .1 < .16$	9
$\geq .16 < .226$	7
$\geq .226 < .275$	5
$\geq .275 < .3$	3
$\geq .3 < .375$	1
$\geq .375$	0

6.4. Reaching Headsails (Flying Headsails)

- a. These sails are defined as either spinnakers that do not conform to [6.3.b.iii](#). or headsails not conforming to [6.2.a](#).
- b. Sails in this class shall be subject to Table F below:

Table F

SMG/SFL Ratio	Sec/Mile Adjustment
70 to 74.99%	-2
65 to 69.99%	-3
60 to 64.99%	-4
55 to 59.99%	-5
50 to 54.99%	-7

6.5. Non-Spinnaker Adjustments

- a. Compute mainsail to genoa sail area ratio with the following formula:

$$\frac{P * E}{I * J}$$

- b. Apply ratio to the Table G below.

Table G

Main/Genoa Ratio	Adjustment sec/mile	Main/Genoa Ratio	Adjustment sec/mile
.50 + - .60	24	1.7 + - 1.8	12
.60 + - .70	23	1.8 + - 1.9	11
.70 + - .80	22	1.9 + - 2.0	10
.80 + - .90	21	2.0 + - 2.2	9
.90 + - 1.0	20	2.2 + - 2.4	8
1.0 + - 1.1	19	2.4 + - 2.6	7
1.1 + - 1.2	18	2.6 + - 3.0	6
1.2 + - 1.3	17	3.0 + - 3.4	5
1.3 + - 1.4	16	3.4 + - 4.0	4
1.4 + - 1.5	15	4.0 + - 5.0	3
1.5 + - 1.6	14	5.0 + - 6.0	2
1.6 + - 1.7	13	6.0 + - 7.0	1
		> 7.0	0

- c. Whisker or spinnaker poles may be used to hold the clew of the headsail outboard. The poles length shall not exceed the SPL as shown on the rating certificate.
- d. Whisker poles shall be marked with a black band at the SPL
- e. Headsails shall be attached to a stay along the luff
- f. Only one headsail shall be used at a time with two exceptions:
- g. While changing sails two sails may be raised for a short period of time
- h. Boats noted as cutter rigged on the certificate may fly a staysail. The inner fore stay shall remain rigged at all times. Note that 6.5.d. above applies to both sails.
- i. Spinnakers or free flying sails shall not be used during non-spinnaker racing.
- j. Whisker or Spinnaker poles which exceed rated SPL shall be subject to Table H below:

Table H

OVERSIZE WHISKER/SPINNAKER FOR NON-SPIN

SPL	SEC/MILE	SPL	SEC/MILE
Up to 101%	0	>111% to 114%	-4
>101% to 104%	-1	>114% to 117%	-5
>104% to 107%	-2	>>117% to 121%	-6
>107% to 111%	-3	Etc	

7. Hull/Mechanicals

7.1. Engine

It is assumed that the boat has a means of auxiliary propulsion. This is included in each boat's base rating. We also assume that the boat either has an outboard engine that may be stowed below while racing or an inboard engine fitted with a folding/feathering propeller. Adjustments from this are as follows in Table I below.

Table I

Position	# of Blades	Type of Propeller	Sec/Mile
Aperture	3	Solid	6
Aperture	2	Solid	3
Aperture	2 or 3	Feathering/Folding	-3
Exposed to Flow	2 or 3	Feathering/Folding	0
Exposed to Flow	2	Solid	6
Exposed to Flow	3	Solid	12
Sail Drive	2 or 3	Folding	0
Sail Drive	2 or 3	Solid	Varied
None/Insufficient	- - -	- - -	-3
Outboard (not in water)	- - -	- - -	0
Drop Box Propeller	2 or 3 or 4	Solid	Varied

7.2. Length Waterline Changes

LWL changes will be reviewed by the committee on a case-by-case basis.

Note that this typically implies significant changes to a boat. If you are interested in modifying your boat and believe a LWL adjustment is due, please contact PHRF-NB in advance to discuss.

7.3. Displacement Changes

The typical adjustment for displacement modifications is based on 5 sec/mile for 10% of displacement. The committee will review all displacement adjustments on a case-by-case basis.

7.4. Keel Type Changes

Keel type changes are typically reviewed as outlined below. They will be reviewed on a case-by-case basis.

- i. Shallow Draft – 6-12 sec/mile
- ii. Center board – 6-9 sec/mile
- iii. Iron vs Lead – 3 sec/mile
- iv. Dagger boards – 0 sec/mile

7.5. Draft Changes

Draft changes are reviewed by the committee and typically are 3 sec/mile for each 0.5 ft. of change

(+/-).

7.6. Water Ballast

Water ballast changes will be reviewed by the committee on a case-by-case basis. In general, the modification will be assessed a -1 sec/mile adjustment for every 1% of additional displacement.

8. Modifications

8.1. Reportable Modifications

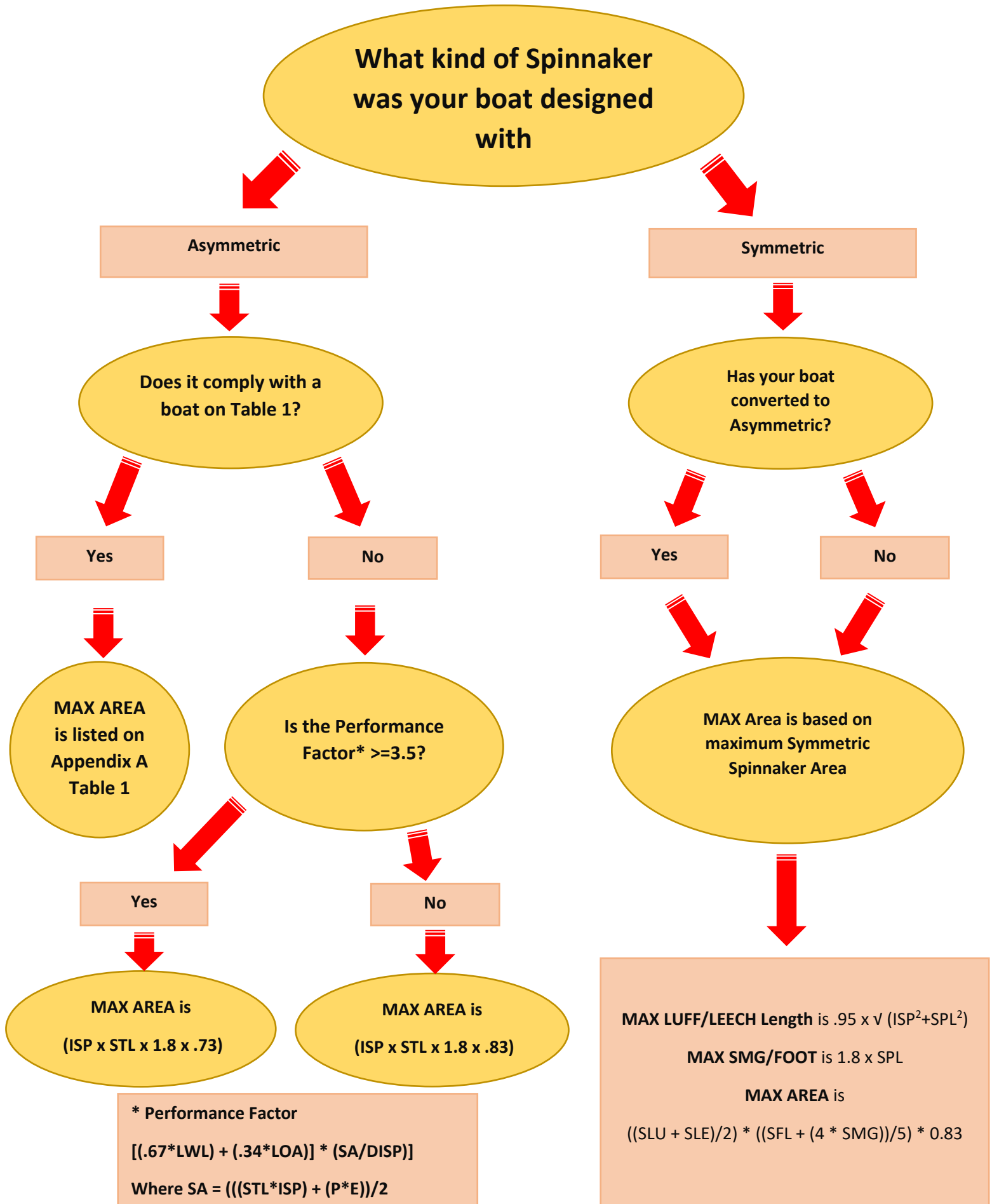
- a. Any changes in material, size, or shape (other than fairing to original design specification) of the hull, deck, rudder, or keel.
- b. Any canard rudder, other lifting or steering device forward of the keel; or any rudder, steering or stabilizing device added to the boat.
- c. Any addition of a lifting, foiling device to the boat.
- d. Removal or relocation of any interior or exterior structural components; changes in construction technique/schedule, or changes in materials of bulkheads and or interior cabinetry, that results in the removal or relocation of weight.
- e. Removal or replacement of standard tables, floorboards, headliners, lockers, locker doors, permanent berths and head enclosures, i.e., you are not allowed to "strip the boat".
- f. Removal or addition of any internal ballast of lead or similar density material. Any movable ballast, (i.e. water ballast): indicate weight, location, volume and rate of transfer if applicable.
- g. Any modification to rig dimension, i.e. increase/decrease in mast(s) height, boom(s) length or spinnaker pole length.
- h. Spinnaker or whisker poles and asymmetric spinnaker tack points exceeding 101% of J.
- i. Change in cross section, weight or material of mast(s) or boom(s).
- j. Addition or elimination of spreaders, shrouds or stays including running backstays, baby stays, check stays, jumper struts or installation of split backstays.
- k. Use of cobalt, boron, titanium, or carbon fiber in rigs, lifelines or lifeline stanchions.
- l. Use of fixed or adjustable bowsprit for flying spinnakers.
- m. Changing headstays, stays or shrouds to carbon, PBO or other composite materials
- n. Changing location of headstays, stays or shrouds.
- o. Headstays, mast stays, mast bases and or partners that are adjustable while racing, whether accomplished mechanically or hydraulically.
- p. Use of hiking straps, trapeze wires, or similar devices that would allow the torsos of the crew or skipper to be extended beyond the beam of the boat.
- q. Increasing the sizes of sails.

8.2. Non-Reportable Modifications

- a. Removal of cushions is permitted.
- b. Changing material used for backstay.
- c. Fairing to bring the hull, keel or rudder into design specifications. Wet sanding and/or waxing are allowed.
- d. Flexible flaps to fair the skeg into the rudder are allowed provided they do not extend deeper than the skeg.
- e. Water, fuel, and holding tanks maybe emptied as provided by US SAILING.
- f. Removal, addition and/or relocation of deck hardware.
- g. Running rigging of any size or material.

- h. There are no restrictions on instruments electronic or mechanical, autopilots, and on-board computers except that outside information may be received only as permitted by US SAILING.
- i. Use of full battens in mainsail.
- j. There are no restrictions on type of material or construction technique except as outlined in 6d and for the Cruising Headsail credit above.
- k. Any number of storm jibs (LP less than 95%) can be used.

Appendix A - Spinnakers adjustment based on the boat configuration



Appendix B - Boats with Standard Asymmetrical Spinnaker Areas

This Table 1 is not meant to be all inclusive and may be updated as more data becomes available.

TABLE 1

Boat	MAX AREA (SQ FT)	Reference
J70	488	CLASS
J80	700	CLASS
J92	1001	PHRF DATA
J92s	893	PHRF DATA
J109	1163	CLASS
J120	1776	PHRF DATA
J121	1658	PHRF DATA
J122	1663	CLASS
Club Swan 42	1991	CLASS
Melges 24	601	CLASS
Melges 32	1347	CLASS