PHRF BC – Rules and Measurement

1. PHRF of BC Rating Certificates

1.1 All paid up yachts with completed applications will be issued a rating certificate which must be carried aboard when racing. The certificate will indicate the rating and how the yacht is equipped.

1.2 Any alteration in the yacht or its equipment will invalidate the current certificate. Owners who make changes to their yachts are obligated to report the change to PHRF BC and obtain a new rating certificate at the time the changes are made.

1.3 Ratings become effective on the date that the Rating Certificate is issued.

2. Eligible boats

2.1 Sailboats 18 feet or longer.

2.2 Eligible yachts must have either an external keel or internal ballast assuring positive righting moment when the mast is depressed to 90 degrees. Multihulls that do not meet this requirement are certified for inshore racing only.

2.3 Yachts with retractable ballasted keels must keep their keels fully extended while racing.

3. Ratings

3.1 The rating assigned is intended to represent the yacht as it is sailed and to rate that yacht fairly in comparison to other PHRF rated yachts in BC and the US generally. Ratings are also generated based on rating information provided by other PHRF jurisdictions with similar wind conditions.

3.2 A yacht's rating is based upon the yacht being fully prepared to race and it being sailed by a highly competitive crew.

3.3 Owners may measure their own yacht and sails or use a third party. Regardless, the owner is responsible for the correctness of all measurements submitted to PHRF BC.

3.4 Owners disputing the measurements of any yacht may do so by filing a measurement protest with the race organizer. For how to do this, see Appeals & Protests on the BC Sailing web site.

3.5 Ratings are issued in seconds per mile.

3.6 Race organizers may wish to score races using a time on time system. A suitable formula is Time Correction Factor (TCF) = 650/(520 + rating). The TCF is calculated to four places after the decimal with the fourth place rounded up if the fifth place is .00005 or higher. A yacht's TCF is multiplied by the elapsed time to determine the corrected time.

4. PHRF of BC Listings

4.1 BC Sailing will maintain files of all available data on all current yachts which have been issued a Rating Certificate.

4.2 BC Sailing will provide a listing of currently rated yachts on the BC Sailing website.

4.3 Race Organizers and yacht clubs may request a current PHRF of BC listing at any time.

4.4 Race Organizers should request that yacht owners provide them with a current valid rating certificate issued by PHRF of BC.

5. Assignment of PHRF BC Base Yacht Ratings

5.1 The Base Yacht Rating for a particular yacht is applied to that yacht when equipped as a standard yacht as defined in section 8.0. Base Yacht Ratings of standard yachts may be reviewed by the Handicappers Committee at any time. All affected yacht owners will be notified if a change to their Base Yacht Rating is being considered.

5.2 A Tentative Base Yacht Rating may be assigned to a yacht without an existing Base Yacht Rating under PHRF BC. The Tentative rating will be used until the Base Yacht Rating is confirmed by the Handicappers Committee at a subsequent Handicappers Committee meeting.

5.3 One Design Rig (ODR) designation is being phased out. The following applies to current ODR yachts:
ODR class yachts are defined as classes marketed with standard rigs and /or standard sails that may not conform to the Base Handicap assumptions used to calculate “As Sailed” ratings for Standard yachts ie. oversize spinnaker poles, oversize mainsails, undersized jibs, etc. and as determined by the Handicappers Committee. These yachts will be assigned Class Base Yacht ratings that reflect their racing in their one-design class rule configuration. ODR yachts that have been altered or that intend to race with sails that do not conform with that yacht’s class rule will be subject to the same rating adjustments as are applied to standard yachts unless the alterations result in a slower “As Sailed” rating than the original ODR rating. If the original ODR Base Yacht Rating is faster than the “As Sailed” rating resulting from rig/sail/yacht alterations the ODR Base Yacht Rating will continue to apply. This Rule will also apply to any yacht designated an ‘X’ with Base Yacht Rating and configuration established at the time of the ‘X’ designation.

5.4 X Designation
When a yacht has been modified so that the Handicappers Committee feels it no longer has the general characteristics of the original Base Yacht, the yacht may be designated an “X” classification, and the yacht will be assigned a new Base Yacht Rating as estimated by the Committee.

5.5 PHRF BC Certificate Holders, Race Organizers and Handicappers have the right to submit information to be used in determining a Base Yacht Rating.

6. Club Ratings

6.1 Any club within the Province may elect to modify PHRF BC Ratings. Modifications may consist of rating adjustments applied to yachts with certain types of equipment or characteristics, or to take account of local conditions. Such modified ratings are not valid for open events such as regattas, or for events outside of the owners’ club.

7. Rating Appeals

7.1 The Handicappers Committee shall resolve rating appeals of current PHRF certificate holders regarding their own or other yachts. All PHRF BC member yacht clubs may nominate a representative to the Handicappers Committee.

7.2 Any yacht’s rating may be appealed by any current PHRF BC certificate holder, any handicapper recognized by PHRF BC or the Handicapper’s Committee.

7.3 Certificate holders wishing to appeal a Base Yacht Rating shall submit a completed Rating Appeal Form to the BC Sailing office. Appeal forms are available on the BC Sailing website or from the BC Sailing office. The Appeal Form must be completed in full and accompanied by relevant supporting documentation including all available race results for the past year. The Appeal information will be forwarded to all Handicapper Committee members and any current PHRF BC Certificate Holders that may be directly affected by the requested change.

7.4 A rating appeal presented at two consecutive appeals hearings that pertains to substantially the same issue as previously decided will be subject to a filing fee equal to the annual certificate fee. This fee may be waived at the discretion of the committee.

7.5 Appeals shall be heard twice a year in the spring and fall. A Notice of Appeals Hearing will be sent to all current PHRF BC certificate holders informing them of the time and place of the Hearing. Certificate holders who have applied to the Committee for a Base Yacht Rating change will be required to present their appeal request to the Committee (either in person or by nominee). Any PHRF BC certificate holders affected by another’s appeal will also be given an opportunity to present. Decisions of the Handicappers Committee will be mailed to all affected parties within two weeks of the Appeals Hearing.

8. Standard Yacht

8.1 A Base Yacht is one that is eligible for PHRF BC (Section 2) and is manufactured on a production basis that assures a uniform product. A yacht judged to be modified from its base configuration in any manner may be considered a custom yacht and will be assessed by the Handicappers on a one-of-a-kind basis.

8.2 A Standard Base Yacht is assumed to be configured in the following manner:

(a) Standard sails as defined by the section Standard Sail Areas.

(b) Standard spars from the builder.

(c) Auxiliary power as standard from the builder. Auxiliary power is required, mounted ready for use. The only exceptions are certain classes where mounting is not practical and are designated as such in the PHRF Standard Classes table.

(d) Interior fixtures and accommodation as supplied standard by the builder except that unsecured cushions and salon tables may be removed.

9.0 Sail and Rig Measurement Definitions

BASIC DIMENSIONS

I: Fore triangle height, measured from the "main deck datum" to the top of the genoa halyard sheave. This height is determined by taking the diagonal measurement from the top of the halyard to the shear line at deck edge abeam of the mast, then subtracting 4% of the beam at the mast.

Example: a yacht with a 9.5' beam would subtract .38' (calculated 0.04 x 9.5' = .38') from the distance between the shear at the deck edge to the top of the halyard when determining "I".

ISP: As designed spinnaker hoist height from “main deck datum”, measured in the same way as the I measurement, to the spinnaker halyard sheave.

H: Actual height of the spinnaker sheave above deck datum if modified from design original.

J: Base of fore triangle, measured horizontally from the fore side of the mast to the point where the forestay attaches to the deck.

JC: As designed base of the spinnaker foretriangle. For yachts designed with asymmetric spinnakers JC is measured horizontally from the fore side of the mast to the point where the tack of the spinnaker attaches to the deck or bowsprit. For yachts designed with symmetric spinnakers and conventional mast mounted spinnaker poles JC is measured from the fore side of the mast to the extreme end of the spinnaker pole.

SPL: Spinnaker Pole Length, measured from the fore side of the mast to the extreme end of the spinnaker pole.

SPRTL: Sprit Length, the bowsprit length measured from the forestay to the tack point of a fully extended bowsprit.

A bowsprit is any facility that extends the tack of an asymmetric spinnaker or Free Flying Sail beyond the bow. However, for yachts tacking the sail to their standard bow stem, anchor roller or pulpit, SPRTL will be considered to be zero.

WPL: Whisker Pole length, measured from centre of mast to extreme end of pole when the pole is mounted horizontally and 90 degrees from fore and aft.

HEADSAIL (genoa, jib, staysail, or similar) - has a mid girth of less than 75% of foot length and is attached to, or tacked aft of, the forestay. A yacht is rated on, and only need declare, its largest headsail.

LP: Measured from clew to closest point on luff.

LLJ: Luff Length headsail, measured from tack to head when stretched to the maximum tension used when sailing. If in doubt project luff and foot (tack) or luff and leach (head) to the point of intersection.

SPINNAKER - A spinnaker has a mid girth equal to or greater than 75% of foot length.
SLU: Spinnaker Luff length measured from head to tack when stretched taut.*
SLE: Spinnaker Leech length measured from head to clew when stretched taut.*
SGM: Girth of spinnaker measured from the midpoint of the luff and leech with the spinnaker stretched taut across the girth.
SGF: Foot length measured from tack to clew when stretched taut.
*For symmetric spinnakers SLU and SLE will be equal.

FREE FLYING SAIL – Is any sail tacked forward of the forestay. This includes asymmetric spinnakers, code zeros and their derivatives, screechers, flying jibs, and other such sails tacked forward of the forestay.
Free flying sails must be sheeted with the clew led outside the shrouds.
Free flying sails with mid girths less than 55% of foot length are not permitted.
Free flying sails are measured and rated as spinnakers. This overrides Racing Rules of Sailing rule 55.4.
A yacht is rated on, and only need declare, its largest free flying sail.
When a yacht carries both a free flying sail and a symmetric spinnaker, it is the largest of these that is rated as calculated in 11. Actual Sail Areas.

MAINSAIL
P: Luff length mainsail, measured from tack to head when stretched to the maximum sailing tension. The "P" must be marked with black bands when different from standard "P".
E: Foot length mainsail, measured from aft side of the mast to the clew when stretched to maximum sailing tension. The "E" must be marked with "black bands 1" wide if actual "E" is smaller than standard "E"
HB: Headboard, measured from the luff of the mainsail to the leech at the widest part of the headboard.
To find MGU and MGM measurement points:
* Find the mid point of the leech by folding the head to the clew. Mark mid point.
* Find the 3/4 point of the leech by folding the head to the mid point leech. Mark 3/4 point.
MGU: Mainsail Girth Upper, measure from 3/4 leech to closest point on luff
MGM: Mainsail Girth Middle, measure from mid point leach to closest point on luff

10. Standard Sail Areas - dimensions from Standard Yacht
10.1 Jib 0.775 * I * J
10.2 Spinnaker 1.494 * ISP * JC
10.3 Mainsail 0.59 * P * E

11. Actual Sail Areas - dimensions from Actual Yacht
Free Flying Sails are treated as spinnakers.
11.1 Jib 0.5 * LLJ * LP
11.2 Spinnaker 0.83 *((SLU+SLE)/2) * ((SGF+(4*SGM))/5)
11.3 Mainsail (3 * E + 4 * MGM + 4 * MGU + HB) * P / 12
11.4 For yachts where H is greater than ISP use the greater value of SLU or $(0.95 * (H^2 + JC^2)^{0.5})$ to calculate the non standard spinnaker area.
11.5 Two Jib Offwind (0.5 * LLJ * LP) * .9 larger + (0.5 * LLJ * LP) * .8 smaller

12. Sail Measurement
Sail measurement shall be done in accordance with the current ISAF measurement instructions.

Free Flying Sails are measured as spinnakers.

13. Adjustment for Non-Standard Jibs - First Code

13.1 A yacht will be rated on its largest headsail (see definition Headsail)..

13.2 Jibs, genoas, and other sails that are classified as headsails shall be tacked on centerline.

13.3 Sail Area Factor Headsail (SAFJ)

$$SAFJ = \frac{\text{Actual Headsail + Standard Main}}{\text{Standard Headsail + Standard Main}}$$

13.4 A yacht's rating will be adjusted for a Non Standard headsail as per the following table.

SAFJ	Adjustment	Code
1.17+	-15	L
1.13+ - 1.17	-12	9
1.09+ - 1.13	- 9	8
1.05+ - 1.09	- 6	7
1.01+ - 1.05	- 3	6
0.97+ - 1.01	0	5
0.94+ - 0.97	3	4
less than 0.94	6	3

14. Rating Adjustment for Non-Standard Spinnakers - Second Code

Free Flying Sails are rated as spinnakers

14.1 A yacht will be rated on its largest spinnaker.

14.2 Sail Area Factor Spinnaker (SAFS)

$$SAFS = \frac{\text{Actual Spinnaker + Standard Main}}{\text{Standard Spinnaker + Standard Main}}$$

14.3 A yacht's rating will be adjusted for a Non Standard Spinnaker as per the following table.

SAFS	Adjustment	Code
1.705+	-69	P
1.675+ - 1.705	-66	O
1.645+ - 1.675	-63	N
1.615+ - 1.645	-60	M
1.585+ - 1.615	-57	L
1.555+ - 1.585	-54	K
1.525+ - 1.555	-51	J
1.495+ - 1.525	-48	I
1.465+ - 1.495	-45	H
1.435+ - 1.465	-42	G
1.405+ - 1.435	-39	F
1.375+ - 1.405	-36	E
1.345+ - 1.375	-33	D
1.315+ - 1.345	-30	Z
1.285+ - 1.315	-27	Y
1.255+ - 1.285	-24	X
1.225+ - 1.255	-21	W
1.195+ - 1.225	-18	V
1.165+ - 1.195	-15	U
1.135+ - 1.165	-12	9
1.105+ - 1.135	- 9	8
1.075+ - 1.105	- 6	7
1.045+ - 1.075	- 3	6

0.955+ - 1.045	0	5
0.895+ - 0.955	3	4
0.835+ - 0.895	6	3
0.775+ - 0.835	9	2
0.715+ - 0.775	12	1
0.000+ - 0.715	15	S

14.4 When a yacht intends to use two headsails with LPs over 100% when sailing off the wind the combined area of the two shall be calculated and used when calculating SAFS if it is larger than the Actual Area Spinnaker.

14.5 To be classified as NFS (No Flying Sails) a yacht may not fly any sail forward of the mainmast which does not qualify as a a headsail (Rule 9), nor fly more than one headsail from the forestay.

14.6 Yachts classified as NFS shall receive the following credits:

Size	Spin Code	Adjustment
Jib coded 7, 8, 9	A	15
Jib coded 4, 5, 6	B	18
Jib coded 1, 2, 3	C	21

Yachts changing from flying sails to NFS shall have any existing spinnaker code adjustment and bowsprit adjustment backed out before applying the NFS adjustment.

15. Spinnaker Pole and Whisker Poles

15.1 Owners are encouraged to review Racing Rules of Sailing (RRS) rule 55.3 which forbids poling out the clew or sheet of an asymmetric spinnaker.
RRS 55.3 also forbids poling out a headsail if a spinnaker is set.
Rules that apply to spinnakers also apply here to free flying sails.

15.2 Symmetric spinnakers with SPL longer than "J" shall result in Actual Spinnaker Area being calculated with SGM = 1.8 * SPL or the sail's measured girth whichever is greater.

15.3 If a spinnaker pole is used for the tack of an asymmetric spinnaker or free flying sail and the pole is longer than JC, then SPRTL adjustments apply (see Bowsprits). In this case, SPRTL is measured from the forestay to the tack point of the pole.

15.4 A whisker pole with a length up to 0.8 * LP or J, whichever is larger, may be used with no penalty.

15.5 Whisker poles longer than .8 * LP shall be assigned ratings up to 9 seconds faster as determined by the Handicappers.

16. Bowsprits

16.1 Yachts originally designed with a symmetric sail plan retrofitting to an asymmetric spinnaker with tack point on centreline shall receive a 6 second credit. Yachts that have both an asymmetric and a symmetric spinnaker do not qualify for this credit.

16.2 Yachts that have bowsprits **added** to the original as-designed yacht shall receive the following adjustments:

Bowsprit Length (SPRTL)	Code H Adjustment
Up to and including 20% of JC	No adjustment
Greater than 20%, up to and including 30% of JC	-3
Greater than 30%, up to and including 40% of JC	-6
Greater than 40%, up to and including 50% of JC	-9
Greater than 50% of JC	-12

There is no adjustment for bowsprits that are unchanged from the original as-designed yacht.
There is no adjustment for bowsprits on boats rated as No Flying Sails.

16.3 Yachts that have increased the length of an existing bowsprit, whether original or not, shall receive the following adjustment. Such adjustment being in addition to any that were applied to

the existing bowsprit.

Bowsprit Length Increase	Code H Adjustment
Up to and including 10% of JC	-3
Greater than 10%, up to and including 20% of JC	-6
Greater than 20%, up to and including 30% of JC	-9
Greater than 30%, up to and including 40% of JC	-12
Greater than 40% of JC	-15

17. Rating Adjustment for Non-Standard Mainsails - Third Code

17.1 Sail Area Factor Main (SAFM)

$$SAFM = \frac{(0.33 \text{ Std Spin}) + (0.67 \text{ Std Jib}) + \text{Actual Main}}{(0.33 \text{ Std Spin}) + (0.67 \text{ Std Jib}) + \text{Std Main}}$$

17.2 A yacht's rating will be adjusted for a Non-Standard Mainsail as per the following table.

SAFM	Adjustment	Code
1.086+	-19	L
1.066+ - 1.086	-15	9
1.046+ - 1.066	-11	8
1.026+ - 1.046	- 7	7
1.006+ - 1.026	- 3	6
0.986+ - 1.006	0	5
0.966+ - 0.986	3	4
0.946+ - 0.966	6	3
0.926+ - 0.946	9	2
0.906+ - 0.926	12	1
0.000+ - 0.906	15	S

18. Non-Standard Engine and Propeller Installation - Fourth Code

18.1 Standard yachts normally equipped with inboard engines shall rate 6 seconds faster when converted to outboard engines.

18.2 Standard yachts normally equipped with outboard engines shall rate 6 seconds slower when converted to inboard engines.

18.3 Yachts with engine and propeller installations incapable of driving the yacht at 90% of hull speed shall receive a 6 second penalty (Code 7).

18.4 A yacht with an inboard engine will receive one of the following rating adjustments as appropriate:

Feature	Adjustment	Code
Folding or feathering prop	0	5
Solid 2 blade exposed to flow	6	4
Solid 3 blade exposed to flow	12	2

Sail drives shall be considered inboard engines and treated as above.

18.5 A yacht with an outboard engine will receive one of the following rating adjustments as appropriate:

Feature	Adjustment	Code
Outboard mounted on a bracket or in a well, ready for immediate use with fuel tank connected	0	M
Outboard on board but not ready for use (stowed)	-6	E
No outboard	-9	F

19. Miscellaneous

19.1 Standard yachts with alterations may have adjustments made to their ratings as follows:

Item	Adjustment	Code
Unanticipated alteration	as estimated	D
Removal of standard equipment	as estimated	G
Hull alteration	as estimated	H
Keel alteration	as estimated	K
Significant rig alteration	as estimated	R
Rudder alteration	as estimated	S
Extreme displacement	as estimated	W

19.2 All changes made to a yacht will be deemed to be speed enhancing.

20 Changes and Modifications to these Rules

Certificate Holders should be aware that the formulas and tables listed can be altered and that the Handicappers will attempt to improve the handicapping system by making adjustments from time to time. Certificate holders are encouraged to make submissions for consideration at any time to the Handicappers Committee through the BC Sailing office.

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