PHRF OF EASTERN CONNECTICUT

The Performance Handicap Racing Fleet of the Eastern Connecticut Sailing Association

2013 REGULATIONS

I. General Regulations

Handicap ratings are based on boat speed potential, determined from the demonstrated speed of "standard" boats that are expertly sailed, well equipped, and conditioned. A standard boat **must** be equipped to the degree intended by the manufacturer, including those appointments and equipment supplied or intended by the manufacturer, such as joiner work, cushions, galley equipment, standing rigging, etc. It is the responsibility of the applicant to provide details of **any and all changes** that have been made to the boat. To qualify for a handicap, a boat must be single-hulled and self-righting. The use of a trapeze, hiking straps, hiking boards, or any other hiking aid is not permitted. A boat shall not have more than one current Eastern Connecticut PHRF handicap at any time. Rating changes based on a change in headsail size will be limited to one per season. Rating adjustments for all hull and rig modifications not covered by the regulations below will be handled on a case basis. A base boat handicap may not be reviewed within 3 years of its last review date.

Boats with an ODR rating must conform to the hull, rig, and sail configuration specified by its One-Design Class. Additional class requirements such as limitations on crew weight, hiking, sail size or materials, number of on-board sails, new sail purchases, etc., will not apply. Practices permitted by the class, but otherwise prohibited by these Regulations, or the Racing Rules of Sailing, such as the use of trapezes or movable ballast, shall not be allowed.

II. Definitions

AMG Asymmetric spinnaker mid-girth, measured from the midpoint of the luff to the midpoint of the leech.

ASF Asymmetric spinnaker foot length, measured in a straight line from tack to clew.

ASLIM Equal to: $1.15\sqrt{(ISP^2 + TSP^2)}$.

BAL Ballast of vessel in pounds.

BEAM Maximum width of the vessel.

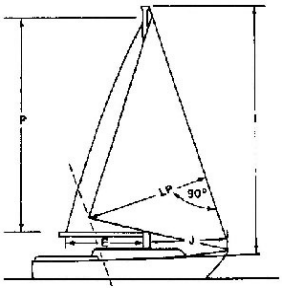
DECK HEIGHT The height of the sheer line abreast of the mast.

DISP Displacement of vessel in pounds, without any water, fuel, etc.

DRAFT Distance from bottom of keel to LWL. Also include draft with board down if centerboard vessel.

E Distance from the after face of the mast to the center of the outhaul sheave or band which ever is less.

EY The mizzen correspondent of "E".



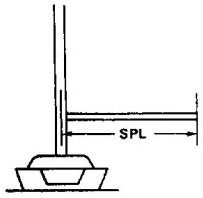
G Maximum symmetric spinnaker girth measured luff to leech (IMS SMW).

I The distance above sheer line to the point of intersection of the head stay and the mast.

ISP The distance above sheer line to the highest headsail halyard (if above the intersection of the head stay and the mast).

J Horizontal base of foretrangle measured from head stay intersection at deck edge to front of mast.

JSP Horizontal distance from front of mast to outboard end of sprit when fully extended.



LLY Luff length of the largest mizzen staysail (mule, etc.).

LOA Length overall of hull.

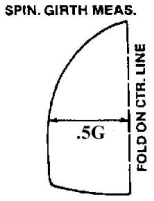
LP Distance perpendicular from the luff to the clew of the jib.

LPY Distance perpendicular from the luff to the clew of the largest mizzen staysail.

LWL Load water line.

MAT Construction material of the keel or mast, e.g., lead, iron, carbon, aluminum.

MGM Mainsail girth measurement from a point along the leech, halfway between the clew and the head, to the nearest point of the luff.



MGT Mainsail girth measurement from a point along the leech, seven-eighths (7/8) of the distance from the clew to the head, to the nearest point of the luff.

MGU Mainsail girth measurement from a point along the leech, three-quarters (3/4) of the distance from the clew to the head, to the nearest point of the luff.

P Height of main luff between black bands or from bottom of upper band to bottom of fixed boom track. (Use top of halyard sheave if no upper band).

PY	The mizzen correspondent of "P".
Rated Sail	Those sails upon which the handicap is based; specifically the largest Jib/Genoa, Mainsail, and largest Spinnaker**.**
SL	Length of symmetric spinnaker measured along either luff, with only enough tension to remove wrinkles. Sail to be stretched flat while measuring.
SLE	Asymmetric spinnaker leech, measured from head to clew.
SLIM	Equal to: $0.95\sqrt{(I^2 + J^2)}$, [or $0.95\sqrt{(ISP^2 + J^2)}$, if ISP is greater than I].
SLU	Asymmetric spinnaker luff, measured from head to tack.
SPL	Spinnaker pole length measured from centerline of mast to outboard end of pole when set in a horizontal position, athwart ship.
TPS	Spinnaker tack point for centerline-tacked asymmetric spinnakers. Measured from face of mast, similarly to "J".
WPL	Whisker pole length. Measured similarly to SPL.

III. Handicap Adjustments

Non-Spinnaker Handicap

Non-Spinnaker handicaps are based on the ratio of mainsail size (including mizzen sails, if applicable), to fore triangle size as follows:
Ratio = (P x E + [PY x EY] + [.6LLY x LPY]) / (ISP x J).

Ratio	Rating Adj.	Ratio	Rating Adj.	Ratio	Rating Adj.
.3 but less than .4	+26	1.2 but less than 1.3	+17	2.2 but less than 2.4	+8
.4 but less than .5	+25	1.3 but less than 1.4	+16	2.4 but less than 2.6	+7
.5 but less than .6	+24	1.4 but less than 1.5	+15	2.6 but less than 3.0	+6
.6 but less than .7	+23	1.5 but less than 1.6	+14	3.0 but less than 3.4	+5
.7 but less than .8	+22	1.6 but less than 1.7	+13	3.4 but less than 4.0	+4
.8 but less than .9	+21	1.7 but less than 1.8	+12	4.0 but less than 4.0	+3
.9 but less than 1.0	+20	1.8 but less than 1.9	+11	5.0 but less than 6.0	+2
1.0 but less than 1.1	+19	1.9 but less than 2.0	+10	6.0 but less than 7.0	+1
1.1 but less than 1.2	+18	2.0 but less than 2.2	+ 9	7.0 + greater	0

Non Spinnaker handicaps **for cat-rigged** vessels shall be equal to their Spinnaker handicap minus 6 seconds per mile.

Headsails

Headsails

A jib shall not have mid-girth, measured between the mid points of luff and leech, which is more than 50% of its foot length. The length of any intermediate girth shall not exceed a value proportionate to its distance from the head of the sail.

Limitations on Jibs

A. Jibs must be sheeted from only one point on the sail except while in the process of reefing.
B. Jibs must be tacked on centerline.
C. No headboards shall be used.
D. Battens may be used only if the LP is 117% or smaller. The number of battens is limited to four, which must be arranged with approximately equal spacing between the head and clew. There is no limit on batten length.

Headsail Adjustments

NOTE Headsail handicap adjustments **shall not apply** to boats with one-design ratings. For unmodified series production boats use the design "J" dimension when determining adjustment.

Spinnaker Class

LP/J Size Range	Rating Adjustment
Up to 1.10	+7
Greater than 1.10 to 1.20	+6
Greater than 1.20 to 1.30	+5
Greater than 1.30 to 1.35	+4
Greater than 1.35 to 1.40	+3
Greater than 1.40to 1.45	+2
Greater than 1.45to 1.51	+1
Greater than 1.51 to 1.55	0
Greater than 1.55 to 1.60	-1
Greater than 1.60 to 1.65	-2
Greater than 1.65 to 1.70	-3
Greater than 1.70 to 1.75	-4

Greater than 1.75 is adjusted proportionally.

Non-Spinnaker Class

LP/J Size Range	Rating Adjustment
Up to 1.10	+16
Greater than 1.10 to 1.20	+13
Greater than 1.20 to 1.30	+10
Greater than 1.30 to 1.40	+ 7
Greater than 1.40 to 1.48	+ 4
Greater than 1.48 to 1.51	+ 1
Greater than 1.51 to 1.55	0
Greater than 1.55 to 1.60	- 1
Greater than 1.60 to 1.65	- 2
Greater than 1.65 to 1.70	- 3
Greater than 1.70 to 1.75	- 4

Greater than 1.75 is adjusted proportionally.

Mainsails

Unless standard for a class, unpenalized mainsail girth shall be limited as follows:

Headboard shall not exceed the greater of 0.04E or 0.5 feet.
MGT (7/8 leech) shall not exceed 0.22E
MGU (3/4 leech) shall not exceed 0.38E
MGM (1/2 leech) shall not exceed 0.65E

Individual girth or headboard dimensions that exceed the standard fraction of actual E, MUST be declared and will be addressed on a case-by-case basis.

If actual E is greater than standard E, a penalty of 2 seconds/mile will be assessed for each 5% or fraction thereof in excess.

Asymmetric Spinnakers

An **Asymmetric Spinnaker** is defined as having unequal leech (SLE) and luff (SLU) lengths, and a mid-girth (AMG) of not less than 75% of its foot length (ASF).

Sprit-Flown If a boat model comes standard from the manufacturer with a sprit, the base boat rating will be based on the largest standard asymmetric spinnaker, as specified by the boat manufacturer. Additional sail area will be penalized at the rate of 1 second per mile for each 2.5% increase, or fraction thereof, in sail area.

Pole-Flown An AMG of up to 180% x J and an average of the leech and luff lengths ((SLE+SLU)/2) not exceeding SLIM, shall be permitted without penalty. Oversized sails and poles will be penalized using the same methodology as for symmetric spinnakers, except that AMG shall be substituted for G, and the average of the leech and luff lengths will be substituted for SL. Symmetric Spinnakers may also be flown from the pole on a boat utilizing this configuration.

Centerline or Retrofit Sprit Asymmetric spinnakers may be flown from the deck, or an extension thereof, with a pennant not exceeding 2 feet in length, or from a non-articulating retrofit sprit, and will receive a handicap adjustment as follows:

TPS / J %	Rating Adjustment
Less than or equal to 100%	+9
Greater than 100% to 108%	+6
Greater than 108% to 116%	+3
Greater than 116% to 124%	Zero
Greater than 124% to 132%	-3
Greater than 132% to 140%	-6
Greater than 140%	-9

Boats electing this configuration shall be allowed an AMG of up to 180% x TPS, and an average of the leech and luff lengths ((SLE+SLU)/2) not exceeding ASLIM, without penalty. Oversized sails will be penalized using the same methodology as for symmetric spinnakers; substituting AMG for G and TPS for J, and the average of the leech and luff lengths will be substituted for SL.

NOTE: Boats electing this configuration will not be permitted to fly spinnakers from a traditional spinnaker pole, and vice versa.

Code Zero Spinnakers Code 0/Close Reaching Spinnakers, are designed to fill a hollow in the polar diagram. They normally have an area of about 60% of a full sized asymmetric and are effective in 40 to 80 degrees apparent wind. These sails are characterized as being made of a laminate or aramid material and have a substantial luff rope for the large luff tensions that these sails require. For handicap purposes, Code 0 spinnakers shall be treated as an asymmetrical spinnaker. Battens are not permitted and they shall be sheeted from only one point.

Symmetric Spinnakers

A **Symmetric Spinnaker** shall have a mid girth of 75% or more of its foot length and be symmetrical about a line joining its head to the center of its foot.

Spinnaker rating adjustment is based on the largest spinnaker measured by the G/J ratio and the SL/SLIM ratio. A luff length equal to SLIM is standard. The maximum girth without penalty is equal to 1.8 x J. If spinnaker luff length is greater than standard, excess length is converted to excess girth. Convert the excess luff to excess girth using the following formula: G/J Rated = (G/J Actual) (SL/SLIM).

Girth Adjustments for Symmetric Spinnakers

G/J	Rating Adjustment
Up to 1.80	0
Greater than 1.80 to 1.85	-1
Greater than 1.85 to 1.90	-2
Greater than 1.90 to 1.95	-3
Greater than 1.95 to 2.00	-4
Greater than 2.00 to 2.05	-5
Greater than 2.05 to 2.10	-6

Greater than 2.10 will be adjusted proportionally.

Maximum Spinnaker Pole Length (SPL) Without a Penalty

For spinnakers where G is less than or equal to 1.8 x J, SPL=J.

For spinnakers where G is larger than 1.8 x J, SPL=G/1.8.

If SPL exceeds both J and G/1.8, use the Girth Adjustment Tables (substituting 1.8 SPL/J for G/J) to determine penalty.

The spinnaker/pole penalty shall be the greater of either the girth penalty or the pole penalty.

Whisker Poles There is no whisker pole length (WPL) limit.

Modified Appendages All modified rudders shall initially be given -3 sec. penalty until reviewed by the council. Modified keels must be reported to the Application.

Mast Height Adjustments

(Only applicable when "I" & "P" change equally.)

Standard Mast Height is "I"
Excess or deficient height is measured by mast ratio. Mast Ratio= Actual "I"/Std. "I"

Mast Ratio	Rating Adj.
Greater than 0.91 to 0.93	+12
Greater than 0 .93 to 0.95	+ 9
Greater than 0.95 to 0 .97	+ 6
Greater than 0.97 to 0.99	+ 3
Greater than 0.99 to 1.00	0
Greater than 1.00 to 1.03	- 3
Greater than 1.03 to 1.05	- 6
Greater than 1.05 to 1.07	- 9
Greater than 1.07 to 1.09	-12
Greater than 1.09 to 1.11	-15

Greater than 1.11 is adjusted proportionally.

Engine or prop too small to drive vessel at KTS = 0 .8 (1.3√LWL) -6
(Not applicable if temporary engine outage.)

Propeller Adjustments

Inboard Engine	
2 or 3 blade folding or feathering	0
Solid 2 blade aperture	0
AutoProp	+ 3
Solid 2 blade exposed to water	+ 6
Solid 3 blade in aperture	+ 6
Solid 3 blade exposed to water	+12
Outboard Engine Propellers	
Std. retracted when racing	0
Engine not retracted, prop immersed on both tacks:	
2 blade	+ 6
3 blade	+12

Roller-Furling Headsails A boat utilizing a roller-furling headsail with an above-deck drum, will receive a 3 second, non-spinnaker rating credit.