2018 ORR-EZ™

A Rating System for Sailboat Handicapping

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Offshore Racing Association

www.offshoreracingrule.org

ORR-EZ™

Rules Governing Handicaps and Certificates

I. Introduction and Overview

ORR-EZ is the **ORA** handicapping rule that has been created for entry level and local competition. The initial expense and annual certificate fee to the boat owner are significantly lower than for a full measurement rule like **ORR**. It is also less accurate. Primary speed factors are determined from existing measurement databases of production boats and **ORR** certificates and simple sail measurements. The limited data is run through the **ORR** Velocity Prediction Program (VPP) to produce certificates. In some case where the boat design is not-competitive subjective corrections can be made by the National Rating Review Committee. Like **ORR**, race organizers may select from customizable wind mixes to match the range of boats in the fleet to the expected wind speed and degrees of upwind, downwind and reaching on the race course.

In this document, the terms “handicap” and “rating” are used interchangeably. **ORR-EZ** handicaps are intended to reflect the potential speed of a boat. Conversely, **ORR-EZ** handicaps are not intended to reflect the ability of skipper and crew. The Offshore Racing Association (**ORA**) is the Rule and Rating Authority for administration of **ORR-EZ**. The **ORA** is responsible for the development, promotion and implementation of the rule.

The handicaps of an individual boat are expressed as “time-on-time” or “time-on-distance”. Four ratings will be provided per boat; (1) custom course rating, (2) a distance (point to point) rating as specified by the fleet, (3) a National Rating and (4) 50-50 w/l rating. In addition there are options for one, two or three wind ranges of ratings, customized course wind mixes, other course configurations and scoring options. If the option is for the one wind range choice then it will be the average wind mix that the fleet uses. Further, these ratings will be generated for typical course configuration specified by the fleet, i.e. % windward, % reaching, and % running. There will be a section for non-spinnaker ratings as well. **ORA** reserve the right to add other **ORR-EZ** ratings.

ORR-EZ has a central core that is based on the latest version of the Offshore Racing Rule Velocity Prediction Program (**ORR VPP**) that calculates the speed potential of each boat at any combination of wind speed and wind direction. The **ORR VPP** is a set of algorithms developed through systematic research that use fundamental scientific methods. **ORR-EZ** ratings may be adjusted based on observed performance, especially for those boats whose racing abilities may be compromised by design emphasis on cruising capabilities. These adjustments are applied nationally and made by the **ORR-EZ National Rating Committee** made up of naval architects, designers, sailmakers and other qualified individuals. Requests for rating adjustments are submitted by sailors to this committee for review and adjustment. Adjustments will be made on a quarterly basis.

ORR-EZ handicaps are assigned based on very specific assumptions about the boat's overall configuration and measurements, based on the current **ORR VPP** and might have an added observed performance factor (**OPF**) to account for compromised designs. Each handicapped boat is issued a rating certificate that officially documents the boat's rating (**ORR VPP** plus **OPF**), as well as these key measurements and configuration assumptions. Each boat owner must keep a copy of this certificate and be able to produce it when required by race officials.

ORR-EZ only issues handicaps for monohull sail boats.

Safety requirements are not part of this Rule Book and it is the organizing authority’s responsibility to specify them.

II. Obtaining a Rating

To obtain a new rating certificate or a renewal of an existing certificate, individuals shall complete and submit the appropriate application, which can be found the **ORA** web site at www.offshoreracingassociation.org. Applications are not complete unless accompanied by the required fees. New ratings for boats not in the **ORR-EZ** database will typically be issued a certificate within 30 days of a completed application.

III. Handicapping Procedure

In assigning a rating, **ORR-EZ** may use any data sources that the handicapper(s) deem appropriate including (but not limited to):

- measurements of the boat's sails and rig data as supplied by the applicant, **ORR** measurer or sailmaker;
- hull file geometry as supplied from the **ORA** data base or a constructed hull file;
- displacement data as supplied by the manufacturer or as weighed in lightship configuration or as is contained in the **ORA** default data file;
- observed performance and race results of the boat or other boats that are similar;
- boat configuration data maintained by **ORA**; and,
- ratings for the same or similar boats in other areas of the country.

ORR-EZ handicaps assume a boat is equipped to race. There are no allowances made for boats in non-race configuration.

A. All Boats SHALL meet the following characteristics for their certificate to be valid:

- the boat shall be self-righting;
- no trapezes, hiking straps, or other hiking devices are permitted;
- moveable ballast boats are permitted;
- the boat shall have an auxiliary propulsion system capable of propelling the boat at hull speed;
- spars shall be banded (black band on white spars, white band on black spars) for the proper P (mainsail luff) and E (mainsail foot) dimensions listed on the **ORR-EZ** certificate. Ketch and Yawl rigs will have PY and EY banded; and,
- the boat shall have pulpits and lifelines that conform at minimum to the US Safety Equipment Requirements.

Handicaps further assume that:

- the boat will have a spinnaker pole/sprit or whisker pole conforming to the base design for that boat;
- for boats with symmetric spinnakers, the SPL is typically equal to J or manufacturers specifications. Spinnaker girths will be taken as 180% of SPL;
- for boats with asymmetric spinnakers, TPS is typically greater than J. Spinnaker girths will be taken as 175% of TPS or manufacturer base boat specifications;
- the default symmetrical spinnaker luff is taken as **0.95*(ISP^2 + SPL^2)^.5**;
- the default genoa LP dimension equal to 155% of the J dimension;
- the boat has a fixed propeller, folding propeller, feathering propeller, outboard motor or retractable propeller;
- the hull and appendages are unmodified from the manufactured version, except that an owner may fair the hull, keel, and rudder to original design specifications without penalty;
- interiors are in the configuration that comes standard from the manufacturer;
- base handicaps assume the dimensions for sails, some spars, propeller and interior, and,

- The owner shall declare any sails or spars with larger dimensions, smaller or retractable propellers or lightened interior and may declare smaller sails for possible rating credit.

B. One-Design Class Certificate:

ORR-EZ may, at its discretion, assign a one-design base rating predicated on Section A above to a “one design class” as determined by the committee in creating the One Design Certificate. The presence of a national or international class association does not guarantee a one-design (OD) base rating will be assigned. Nor does the assignment of a one-design base rating constitute certification that the boat is class-legal. OD, Base ratings shall assume:

- Each boat being assigned the rating shall meet all applicable class standards, except that it need not have a current class measurement certificate and the owner need not be a current member of the class association; and
- **ORR-EZ** crew limits described below in these guidelines shall apply, unless the sailing instructions or notice of race specifically call for use of class rules governing crew number and/or weight.

C. Crew:

The crew weight will be declared on the application as the Maximum Crew Weight (CW) not to be exceeded or a default crew weight will be a maximum crew weight as is calculated for each boat. The owner may, by "owner declaration", adjust his boat's maximum allowed crew weight up or down within calculated limits. The VPP takes this crew weight into account. Where no declaration of crew weight has been made, an Assigned Crew Weight (ACW) of 1.2 * Base Crew Weight (BCW) will be used and will be the maximum allowable for racing. Declared Crew Weight (DCW) shall not be taken as less than the greater of 251.75 Kg (555.0 lb.) or 0.65 times the calculated base (BCW) for the boat. Nor shall DCW be taken as greater than 1.2 times the calculated base (BWC). Boats with DCW greater than base (BCW) do not get credit for the extra crew. These boats will have their ratings calculated with default crew weight, but the full DCW will be used in calculations that move crew onto the rail in optimizing performance to sailing conditions. In the case of a Double Handed Boat Certificate the Crew Weight may be taken as less than 251.75 Kg (555.0 lbs.).

D. Sail Limitations

A boat while racing shall not carry on board more sails of each type than the numbers as listed in Table 1 below unless modified by the Race Organizing Authority in the Sailing Instructions or in the Notice of Race.

Table 1

Large headsails	5
or 4 Large headsails plus *1 Large Roach headsail	4+1=5
Small headsails	4
Light staysails	1
*Spinnakers	5
Mainsails	1
Storm Trysails	1
Storm jib (headsail)	1
Heavy -Weather jib (headsail)	1
Mizzens	1
Mizzen Staysails	3

- **Large headsails <50% half width to foot ratio** are those having an LPG greater than 1.1*J with a spinnaker half-width equal to or less than 50% of the foot measurement. Sails in this category must be tacked on the centerline of the boat.
- **Large Roach headsails (LRH)>50% LRH MGM/LRH LPG** ("Tweener") are sails having an LPG greater than 1.1*JLRH (JLRH=Tack point of LRH) (ILRH =highest attachment point of LRH to the mast, LLRH=the Luff of the LRH) with an LRH MGM greater than 50% of the LRH LPG, but with a spinnaker half width less than 75% of the foot measurement. Sails in this category must be tacked on the centerline of the boat and measured as both a spinnaker and a headsail. Sails in this category must be flown outside any other sails that are set.
- **Small headsails,** including inner forestaysail's, are those having an LPG less than or equal to 1.1*J. Sails in this category must be tacked on the centerline of the boat.
- Where the largest headsail for which a boat is rated is a Small Headsail, the total number of headsails allowed shall be the Small Headsail maximum plus two

E. Energy Storage

Unless modified by the Race Organizing Authority the prohibition on the use of stored energy while racing - RRS 52 Manual Power - shall not apply to trimming, hoisting, reefing, furling or dousing of sails, adjusting of backstays and running rigging. Please refer to ORA to have boats rated with movable ballast (water ballast or canting keel).

- The use of stored power for the hoisting of mainsails, or the reefing or furling of sails need not be declared.
- Boats using stored power solely for the adjustment or operation of backstays shall declare this to the Rating Authority.
- Boats using stored power for the adjustment or operation of running rigging other than as noted in Rules 4.08.1 and 4.08.2 shall declare this to the Rating Authority.

F. Certificate

A printed and signed copy of the certificate shall be made available for inspection by the race organizer or race/rule measurer. **By signing the certificate the owner/charterer attests that the information on the certificate is accurate.**

IV. Changes and Adjustments to Handicaps

Changes in ratings shall be made whenever an adjustment is needed to provide equitable handicap racing.

If there are changes to the hull, rig, sails, or other factors upon which a yacht's rating is based, they must be reported immediately to the **ORR-EZ** Committee of the **ORA**.

If any boat races in a configuration that is inconsistent with the assumptions used to establish its rating, whether or not those items are specifically listed on its certificate, that certificate is invalid. If possible deviations on the part of an owner become apparent; other contestants are urged to protest the boat directly in accordance with The Racing Rules of Sailing Rule 64.3, or to bring such deviations to the attention of the **ORR-EZ** Committee.

To prevent boats from being reconfigured for specific races, no boat shall be allowed to change its rating more than once in any given year except in extraordinary cases where the changes reported are clearly permanent. This means that if a boat changes its configuration during the course of a year and a reviewed revised certificate and rating is issued, it must sail in that configuration for the remainder of the year. This shall not prevent an owner or competitors from requesting a rating adjustment or appealing a rating decision as described below, or prevent **ORR-EZ** from changing the rating in order to maintain equitable racing.

A. Requests for Rating Review:

Any person holding a current **ORR-EZ** certificate may request a rating review of his/her boat, or of another boat holding a current **ORR**-**EZ** Certificate. Requests for rating review shall be made using the request for Rating Review Form available from the **ORA ORR-EZ** Committee. The request for review shall be accompanied by a fee of $25.00 for review of applicant's boat or $100 for review of another boat's data. The **ORR**-EZ Committee will perform the review.

B. Appeals:

Any **ORR-EZ** certificate holder who has been denied a rating adjustment by the **ORR-EZ** Committee or who disagrees with the amount of the adjustment may appeal that decision.

The documentation accepted by the **ORR-EZ** Committee is limited to the data requested in the **ORR-EZ** request for rating adjustment form, supporting documents provided in that request, **ORR-EZ** season or a minimum of 12 race results, plus a written narrative describing the reason for the appeal (suggested length of two pages). The request for review shall be accompanied by a fee of $200.00.

When a complete appeal is received, the appellant will be notified of the date of the hearing. The appellant's appeal to the **ORR-EZ** Committee will be decided solely on the basis of his/her written supplied documentation, and these **ORR-EZ** Rules Governing Handicaps and Certificates. The **ORR-EZ** Committee will provide the appellant a written decision on the appeal within ten (10) days of the hearing.

V. Propulsion

Propeller types for boats with inboard engines will be made based on the type of prop and will be made as follows:

Prop Type

- Folding/Feathering/Geared
- Solid 2-Blade, in aperture
- Solid 2-Blade, out of aperture
- Solid 3-Blade
- Saildrive is the same as a Strut Drive
- Other

VI. Definitions

LOA = The length overall of a boat will include the whole hull, but not spars or projections fixed to the hull such as chainplates, bowsprits, boomkins, pulpits, etc.
Rated L= The Sailing Length (L) is an effective sailing length which takes into account the hull form at the ends of the yacht.
CW = Crew Weight
D = Draft
Disp = The displacement is taken from the **ORA** data base of standard designs, manufacturer data or measured certificate (i.e. **ORR**).
E = Distance between colored bands on the boom, or the maximum foot length of the main.
EY = Similar to E, but for a mizzen.
J = Distance between the headstay termination at the deck and the front of the mast at the sheer line.
IG = Height of highest jib halyard above the deck
ISP = Height of highest spinnaker halyard above the deck.
IG = Height of headstay termination above the sheer line.
JLuff = The length of the luff shall normally be the distance between the lowest part of the sail of the luff at the tack and the highest point of the sail on the luff at the head
LP = The distance from the clew of the jib/genoa to the luff, measured perpendicular to the luff.
P = Distance between colored bands on the mast, or the maximum luff length of the main.
PY = Similar to P, but for a mizzen.
ASym = Symmetric spinnaker area.
AAsym = Asymmetrical spinnaker area.
SL = SL shall be the greatest length of a symmetric spinnaker luff and leech measured along the edges of the sail from head to foot.
SF = Symmetrical spinnaker foot length shall be the distance from tack to clew, measured by the shortest path.
SMW = For symmetrical spinnakers only, maximum girth leech to leech. (Fold on centerline, measure max. width, and multiply by two).
SPL = The length of the spinnaker pole (or whisker pole), when in its fitting on the mast, and set in a horizontal position fore and aft, measured from forward face of the mast to the forward most point of the pole and fittings.
TPS = Tack point of an asymmetric tacked on the centerline, to the deck or to a sprit, measured from the tip of the sprit to the front of the mast, horizontally to the water.
ASLU = Asymmetrical spinnaker luff length.
ASLE = Asymmetrical spinnaker leach length.
ASL = Average of ASLU and ASLE.
AMG = Asymmetrical spinnaker mid-girth, found by measuring between the luff and leech.
ASF = Asymmetrical spinnaker foot length.

Main Sail:

HB = head board
MGT = mainsail girth top
MGU = mainsail girth upper
MGM = mainsail girth middle
MGL = mainsail girth lower
A Main = mainsail area

Mizzen:

HBY = head board
MGTY = mizzen girth top
MGUY = mizzen girth upper
MGMY = mizzen girth middle
MGLY = mizzen girth lower
A Mizzen = mizzen area

VII. Certificates:

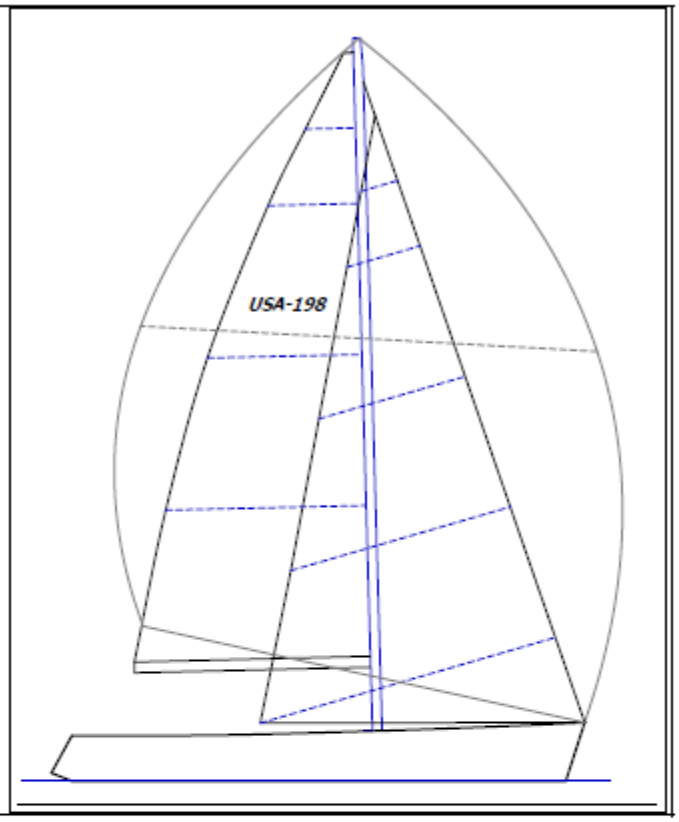
The Certificate shall be carried aboard the boat and be signed by the Owner or Person in Charge.

A. Certificate Example:

2017 Certificate

ORR-EZ
OFFSHORE RACING RULE

ORA OFFSHORE RACING ASSOCIATION



YACHT NAME:	GERONIMO
SAIL NUMBER:	USA-198
OWNER:	Gene Pitkin
ADDRESS:	1309 Napoli St
	Oceanside, CA 92056
Signature:	

CERTIFICATE #	10025
ISSUED DATE:	24-Oct-17 11:54:04
YEAR VALID:	2017
CLASS:	J109 (DK)
BUILDER:	Pearson Composites

OFFSETS FILE:	F199.OFF
MEASUREMENT:	ORRez
RIG TYPE:	MASTHEAD SLOOP
SPINNAKER TYPE:	ASYM-CL
KEEL TYPE:	FIXED KEEL
PROP INSTALL:	STRUT DRIVE
PROP TYPE:	FOLDING

				Rig Dimensions		Genoa Meas.		Spinnaker Meas.	
LOA	35.29	DISP Meas	10927	IG	46.49	LP	20.13	SL*	
BMAX	11.54	DISP Sailing	13090	ISP	49.60	LPG %	152.8%	SMW*	
DRAFT	6.97	Wetted Area	283.5	J	13.30	J Luff*	45.60	SF*	
CREW	1693	LPS	118.8	P	43.25			A Symm	
Water Ballast	0	RM20	823.598	E	15.50			ASL*	50.77
Rated L	32.13	Stab. Index	118.1	PY	0.00			AMG*	30.00
D/Length	176.1	Upwind SA/D	24.95	EY	0.00			ASF*	29.79
		Dnwind SA/D	48.11	SPL/TPS	18.80	A Genoa	463.3	A Asym	1267.4

Standard Ratings	TOD	TOT	Mainsail Meas.		Mizzen Meas.	
GPH	608.4	0.882	HB*	0.62	HBY*	0.00
ORRez IR#	607.4	0.886	MGT*	3.28	MGTY*	0.00
ORRez IR# Non-Spin	620.7	0.867	MGU*	5.87	MGUY *	0.00
Custom Ratings	**TOD**	**TOT**	MGM*	10.14	MGMY *	0.00
California Offshore		0.872	MGL*	13.16	MGLY *	0.00
			A Main	402.7	A Mizzen	0.0

* Note: measurements marked with * may have estimated, default values