Offshore Racing Association

Bjorn Johnson
Executive Director

Jim Teeters
Technical Director

- What is ORA:
- Handicap System Owner: ORR, ORR-ez and HPR
- Handicap System Developer for ORR and ORR-ez
- But is much more:
- Resource: for Owners, Organizing Authorities, Designers
- Works with US Sailing
- Provides direct and professional responses to the clients needs

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- ORA Team:
  - Board of Directors;
    - Dick Hampikian
    - Frank Kern
    - Sheila McCurdy
    - Dave Cort
    - John Winder
    - Dan Nowlan
    - Jim Teeters
    - Bill Lee
    - Stan Honey
    - Brian Geraghty
    - Beau Vrolyk

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Current Races Using ORR and ORR-ez

Anniversary Regatta	ORR and ORR-ez	Canada-USA
Rolex Big Boat	W/L	USA
Phyllis Kleinman Swiftsure Regattas	W/L	USA
Aldo Alessio	W/L	USA
Corum Cup	W/L	Mexico
MEXORC	W/L	Mexico
Acapulco YC (all races)	W/L	Mexico
Puerto Vallarta Race		Mexico
California Offshore Race Week	ORR-ez	Mexico
Puerto Vallarta Race		USA-Mexico
Pacific Cup	ORR-ez in 2019	USA
Chicago Mac Race		USA
Verve Cup		USA
Cabo Race		USA-Mexico
Islands Race		USA
Bayview Mack Race		USA
Newport Bermuda Race		USA-Bermuda
Ugotta Regatta		USA
Queens Cup	ORR W/L ORR-ez 2018	USA
Annapolis Newport Race	ORR-ez 2017	USA
NYYC Annual Regatta		USA
Marblehead to Halifax Race		USA-Canada
Fast 50 Class		USA
Marion to Bermuda Race		USA
The Corinthians Yacht Race		USA

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- HANDICAP RULE DESIGN PHILOSOPHY:

1. The Customer is Always Right (Even when he is not)
2. What Does the Customer Want?
   - Absolute Fairness? Best sailed boat always wins?
   - Spread the Joy? Every Dog has its Day?
   - Measurement Rule, Totally OBJECTIVE?
   - Observational Rule, Mercy for those that don't win?
3. What is the Customer Willing to Do?
   - Out of Water, In Water Measurements
   - Quick and Easy On-Line Application
4. What are his Expectations?
   - Balance of Fun vs. Competition
5. What Kind of Races Does he Sail in?
   - Windward/Leeward, Round the Buoys, Point to Point
   - Fleet Start, Pursuit

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- HANDICAP RULE SOLUTIONS-1:

PHRF

- Observational/subjective, local sailors
- Any boat should be able to compete, theoretically
- Very simple, single number, or perhaps three numbers
- Single number: every dog has his day (Any given day is unfair)
- Very poor at dealing with one-off designs or changes to existing boats (penalize boats that deviate from standard)
- Some areas very political in determining handicaps
- Inexpensive
- Local control

- HANDICAP RULE SOLUTIONS-2:

ORR

- Full Measurement, (made easy with designer input)
- Length, Displacement, Draft, Wetted Area, Sails, Stability, Props, Crew weight.....
- Velocity Prediction Program: Full polars using formulas calibrated by research:
  - wind tunnels,
  - towing tanks,
  - CFD
- Totally Objective: poorly designed boats not competitive
- Customize Handicaps to any wind/course combination
- Targeted towards serious racer who wants no human intervention/tweaking of ratings
- Some boats don't fit in. (We think this is rare.)
- Moderate price.

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- HANDICAP RULE SOLUTIONS-3:

ORRez – Hybrid Rule

- Power of VPP but fewer measurements, less precision
- Multiple ratings customized to local request
- Subjective element (10%) by national review panel with input from local handicapper
- Like PHRF can properly handicap any boat
- Like ORR can correctly predict the effects of changing sails, crew, keels.....
- Inexpensive
- Sister Ship Data – send in PHRF cert, if applicable, sail measurements
- Build-a-Boat
- Accurate assessment of changes such as sails

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- PROBLEMS SOLVED:
  1. Rational/repeatable method for analysis
     - Handicaps based on an entirely **objective foundation** using actual measurement or sister-ship data that define performance
     - Manages **one off designs** for which there is no performance or handicapping experience
     - Deals with **configuration changes** in a scientifically defensible manner
  2. Subjective overlay, as needed, provided by national panel to ensure equitable ratings
  3. Communications/management
     - On-line & email services for registration/certification/fees.
  4. Appeals process independent of local authority

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ORR-EZ
OFFSHORE RACING RULE

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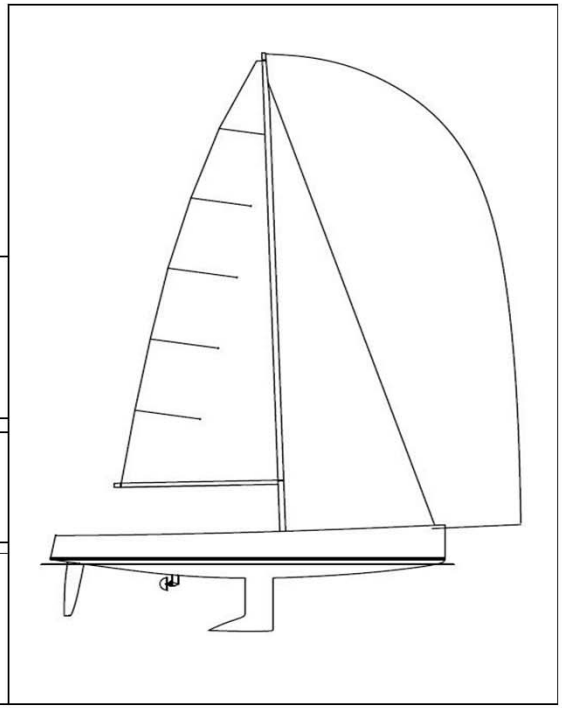
2016 ORRez Certificate



YACHT NAME:	**RELATIVITY**
SAIL NUMBER:	US-51216
OWNER:	
ADDRESS:	
Signature:	

CERTIFICATE #	41983
ISSUED DATE:	25-Jul-16 10:15:42
YEAR VALID:	2016
CLASS:	First 53 F5 (SD)
BUILDER:	Beneteau

OFFSETS FILE:	F045.OFF
MEASUREMENT:	ORRez
RIG TYPE:	MASTHEAD SLOOP
SPINNAKER TYPE:	SYMMETRIC
KEEL TYPE:	FIXED KEEL
PROP INSTALL:	EXPOSED
PROP TYPE:	FEATHERING 3-BLADE

LOA	15.58	DISP Meas	13669	Rig Dimensions		Genoa Meas.		Spinnaker Meas.	
BMAX	4.503	Wetted AREA	49.36	IG	19.29	LP	7.76	SL*	19.03
DRAFT	1.988	LPS	109.8	ISP	19.47	LPG %	146%	SMW*	9.62
CREW	1361	RM20	414	J	5.38	J Luff*	19.50	SF*	9.43
Water Ballast	0.0	Rated L	14.222	P	17.34			A Symm	151.96
				E	5.91			ASL*	
				PY	0.00			AMG*	
Capsize Screen	117.0 (SI)			EY	0.00			ASF*	
				SPL/TPS	5.45	A Genoa	76.6	A Asym	

Table of Ratings

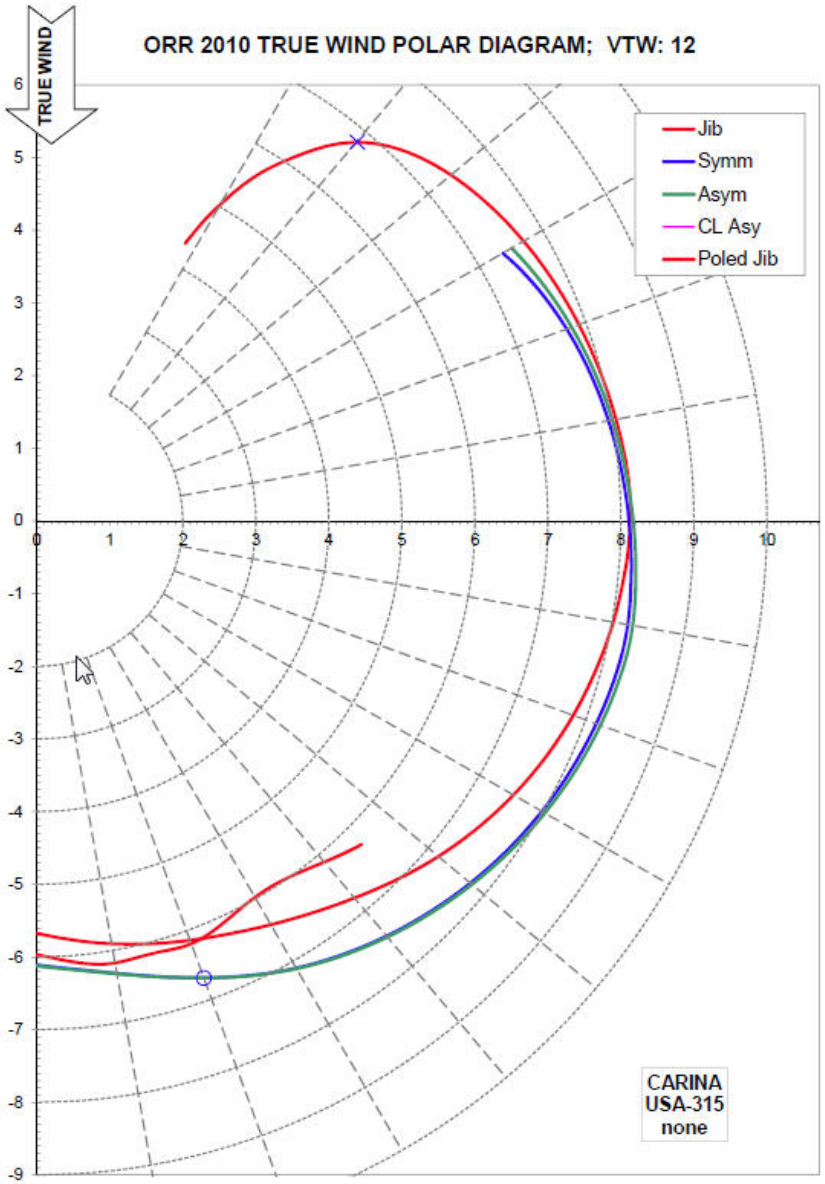
	Racing
Bayview Mackinac:	0.902
Closed Course:	0.914
WL 50/50:	0.881
Non Spin:	0.928

Mainsail Meas.		Mizzen Meas.	
HB*	0.04	HBY*	0.00
MGT*	1.02	MGTY*	0.00
MGU*	1.90	MGUY *	0.00
MGM*	3.47	MGMY *	0.00
MGL*	4.68	MGLY *	0.00
A Main	56.6	A Mizzen	0.0

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

Polar Curves for 1 Wind

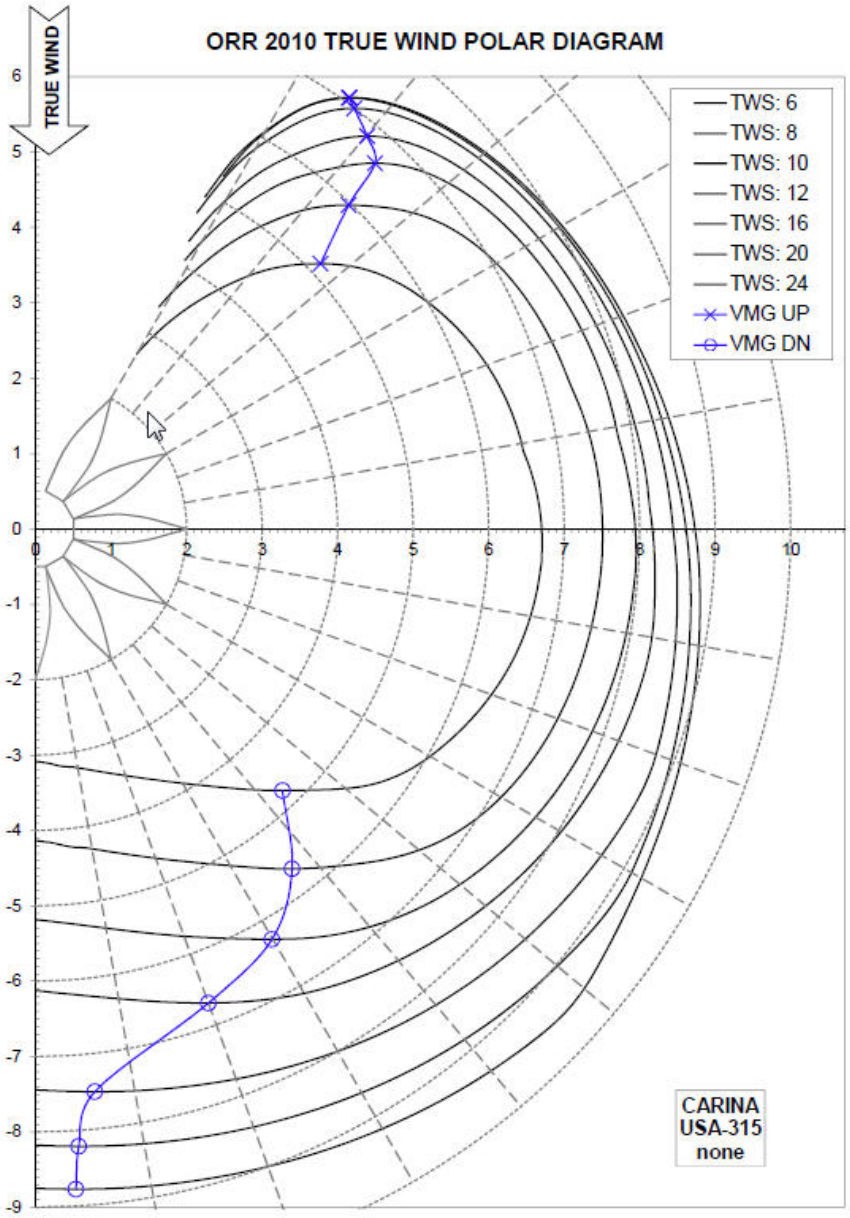
Red: Main+Genoa/Jib
Blue: Main+Symmetric
Green: Main+Asymmetric



Polar Curves for 7 Winds, heavy boat

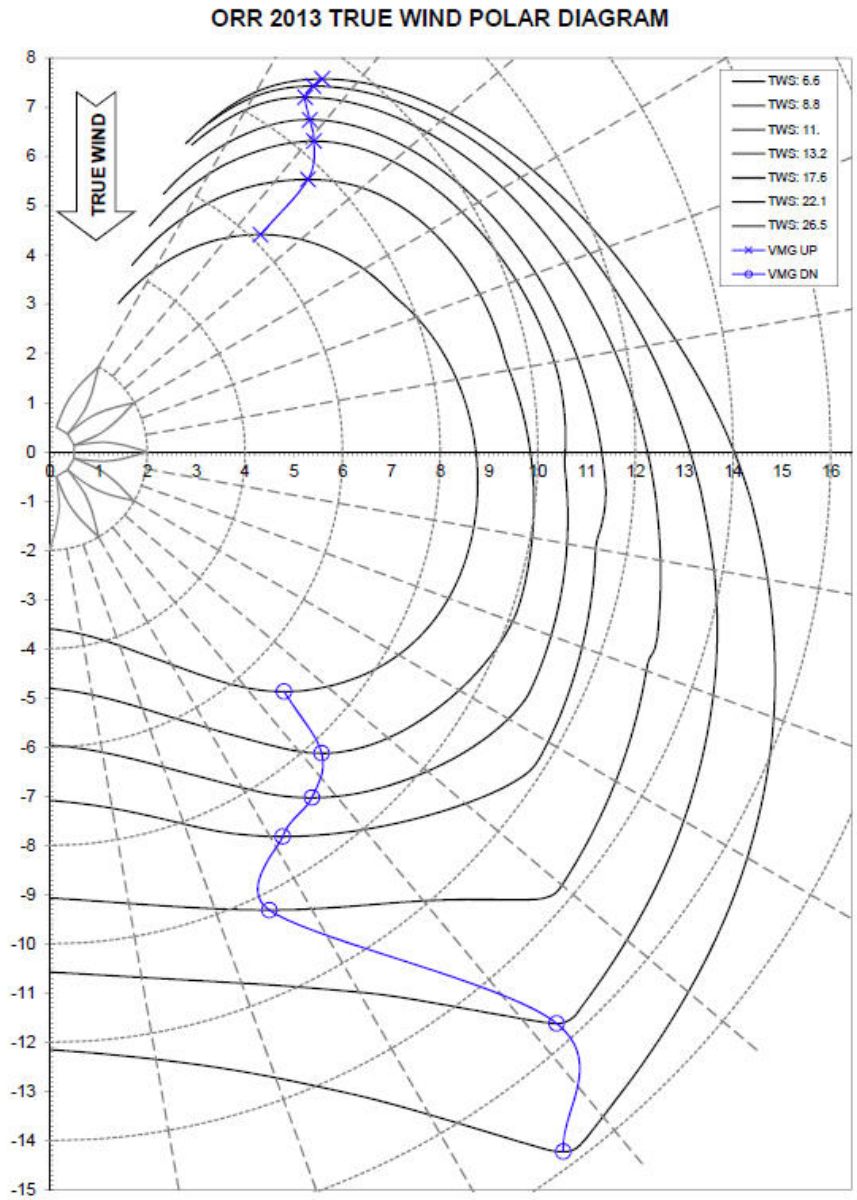
Composite curves of best sail choice for each wind angle.

Blue: Best VMG Up, Down

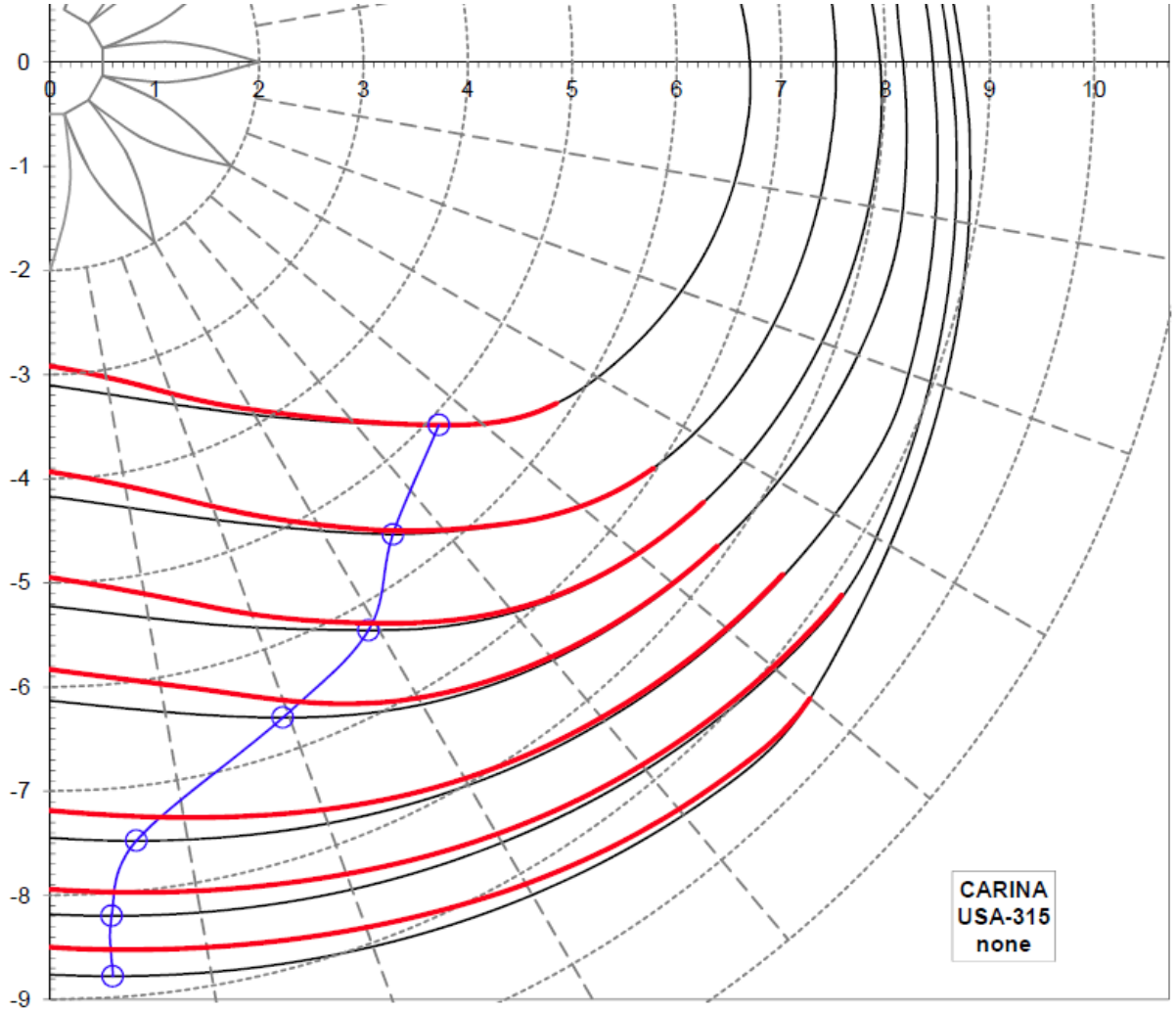


Polar Curves for 7 Winds, light boat

Best downwind VMG at wide angles in high winds

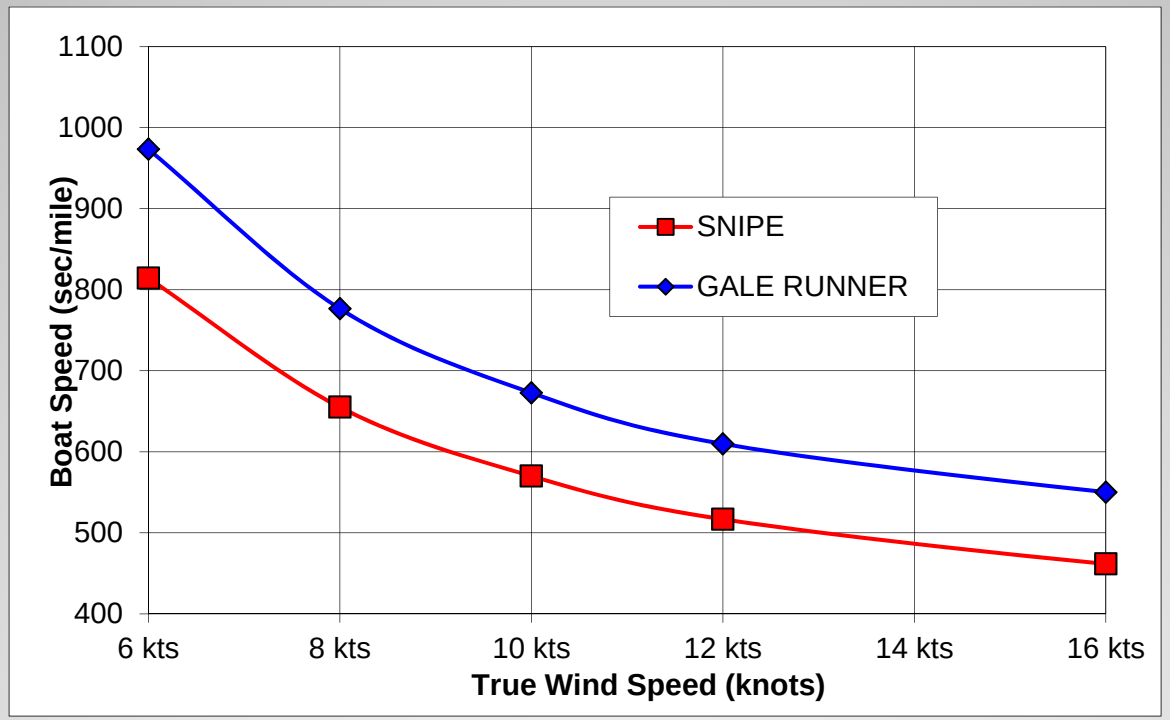


Centerline Asymmetric: Red Curves Show Performance Loss, Hence Rating Credit for "Cruising" Spinnakers

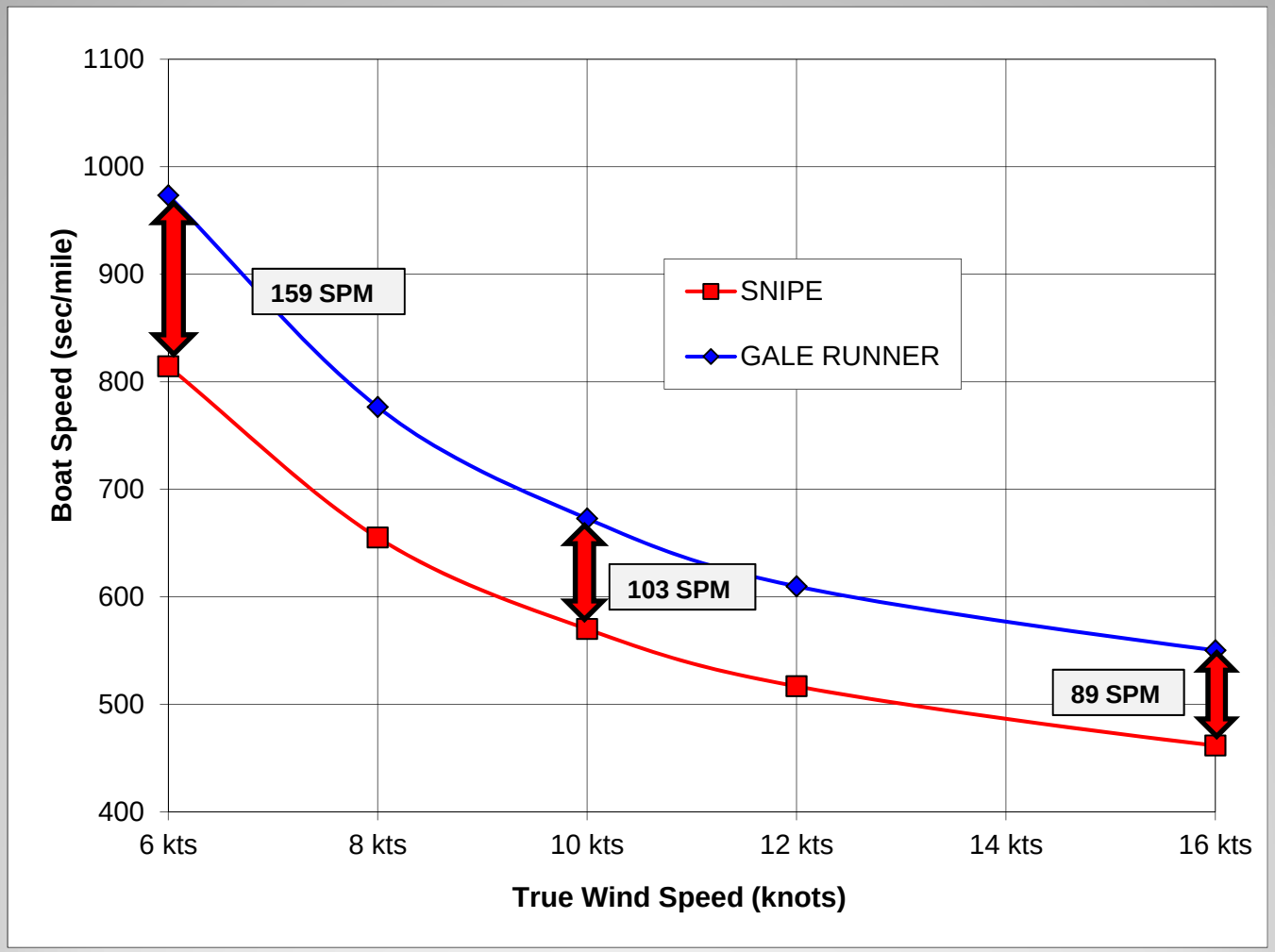


ORR/ORRez Scoring

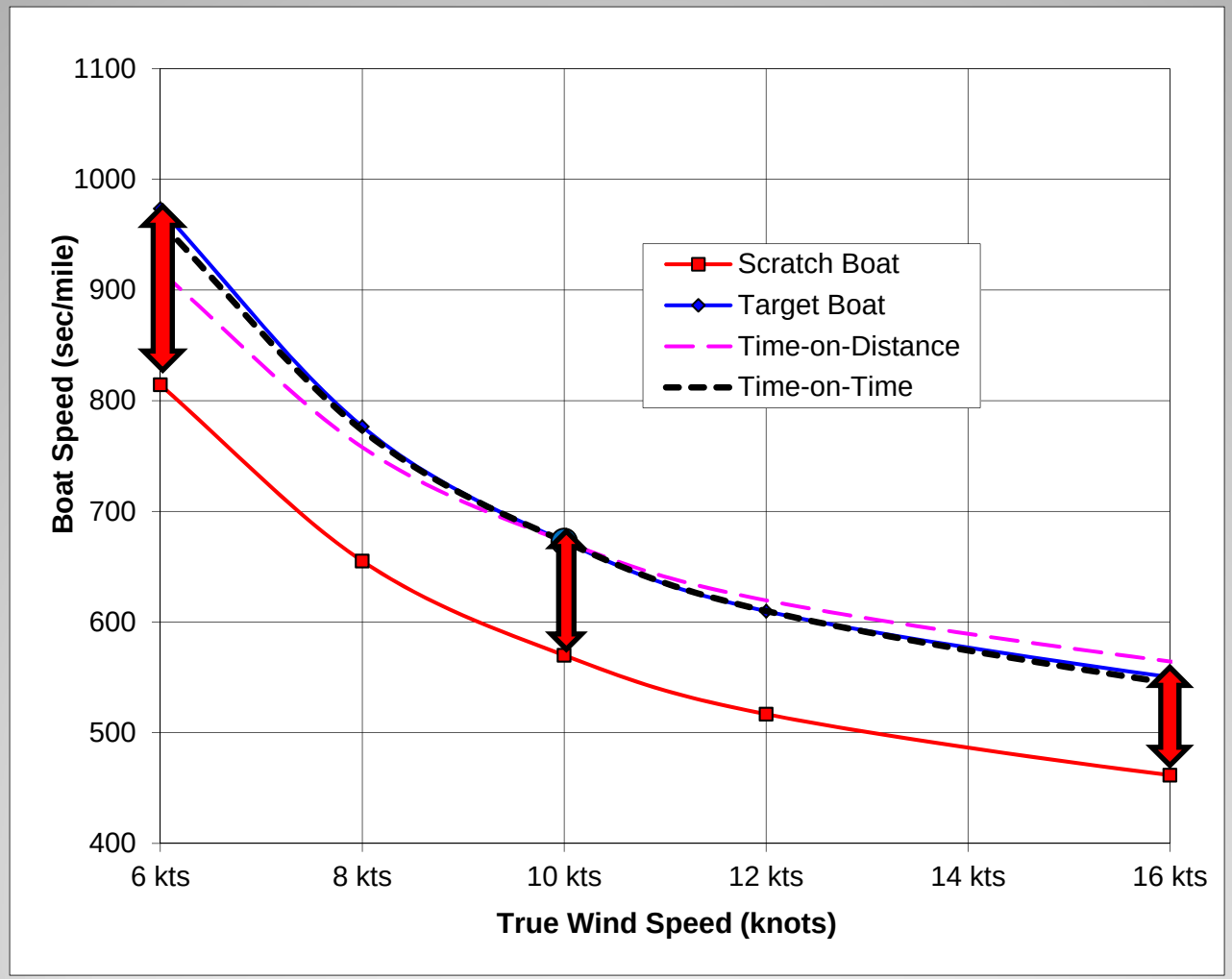
	6 kts	8 kts	10 kts	12 kts	16 kts	20 kts	24 kts
SNIPE	814.3	655.1	570	516.8	461.6	423	392.8
GALE RUNNER	973.5	776.6	672.8	609.8	550.2	506.7	474.5
delta	159.2	121.5	102.8	93	88.6	83.7	81.7
ratio (TCF)	0.836	0.844	0.847	0.847	0.839	0.835	0.828



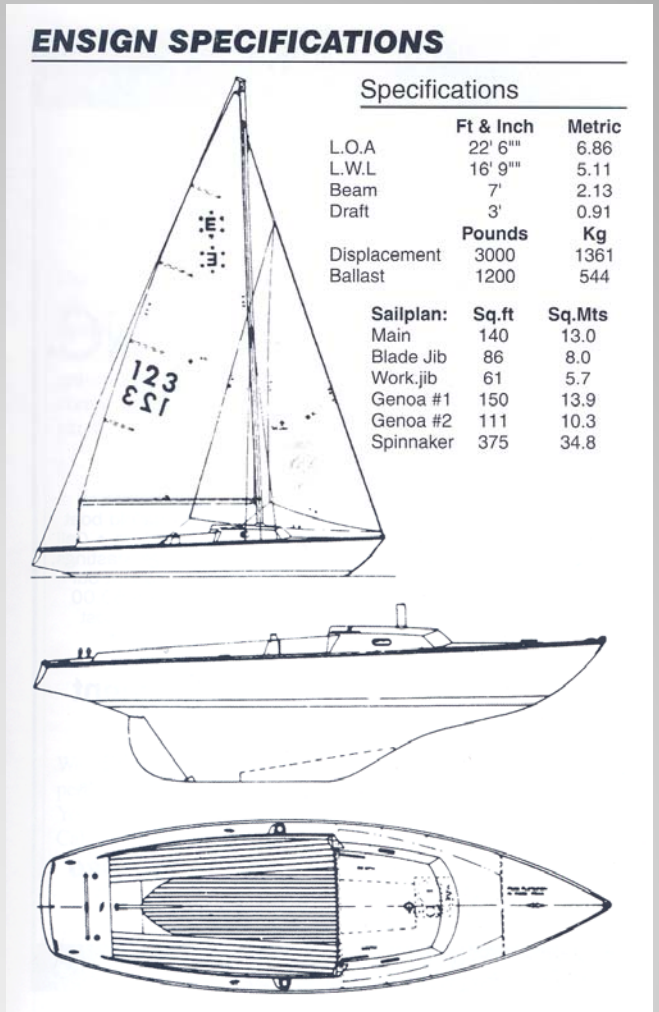
ORR/ORRez Scoring



ORR/ORRez Scoring



- ORR/ORRez Build-a-Boat: No VPP Model



ENSIGN SPECIFICATIONS

Specifications

	Ft & Inch	Metric
L.O.A	22' 6""	6.86
L.W.L	16' 9""	5.11
Beam	7'	2.13
Draft	3'	0.91
	Pounds	**Kg**
Displacement	3000	1361
Ballast	1200	544

Sailplan:	Sq.ft	Sq.Mts
Main	140	13.0
Blade Jib	86	8.0
Work.jib	61	5.7
Genoa #1	150	13.9
Genoa #2	111	10.3
Spinnaker	375	34.8

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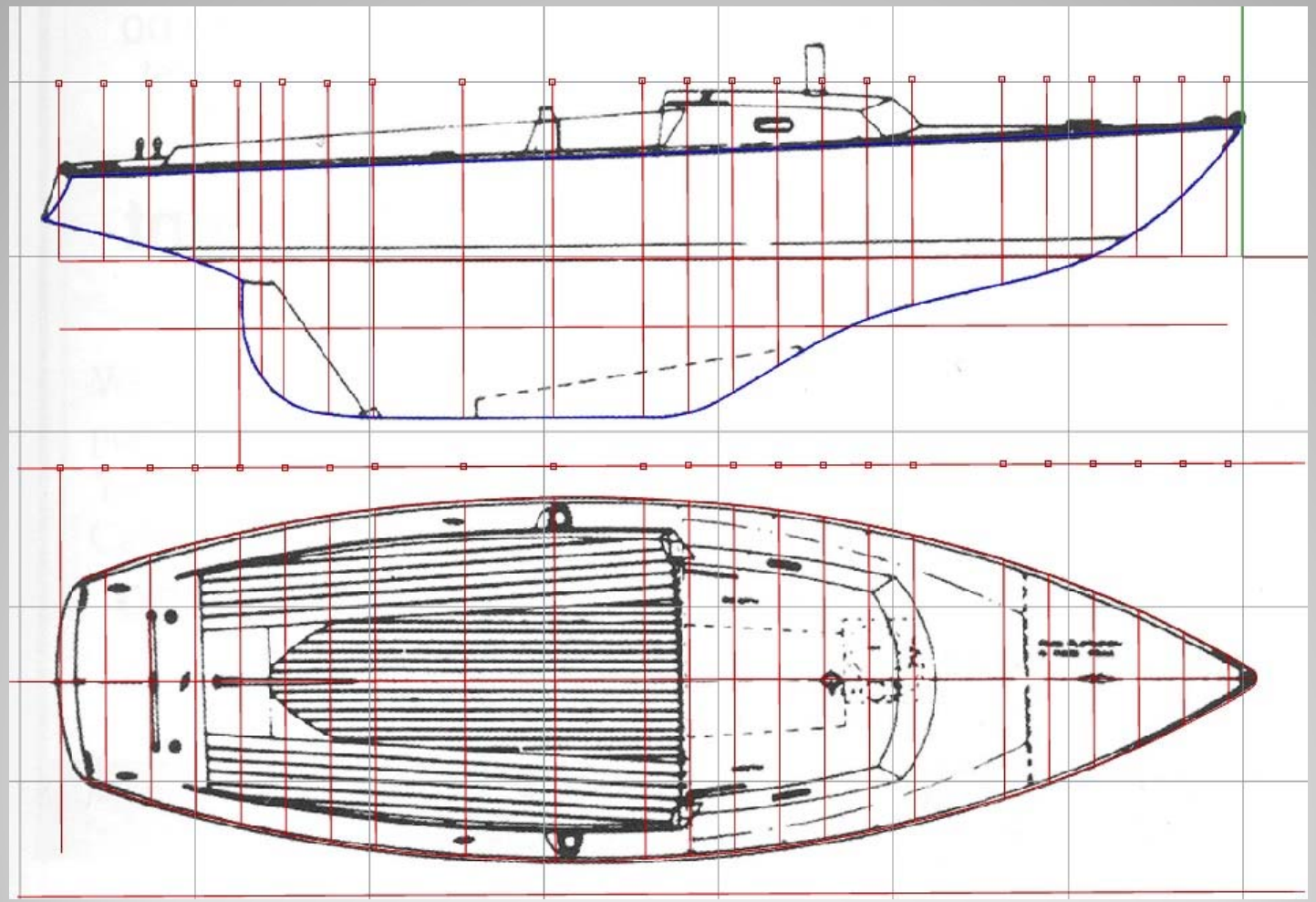
- ORR/ORRez Build-a-Boat – Scan Brochure



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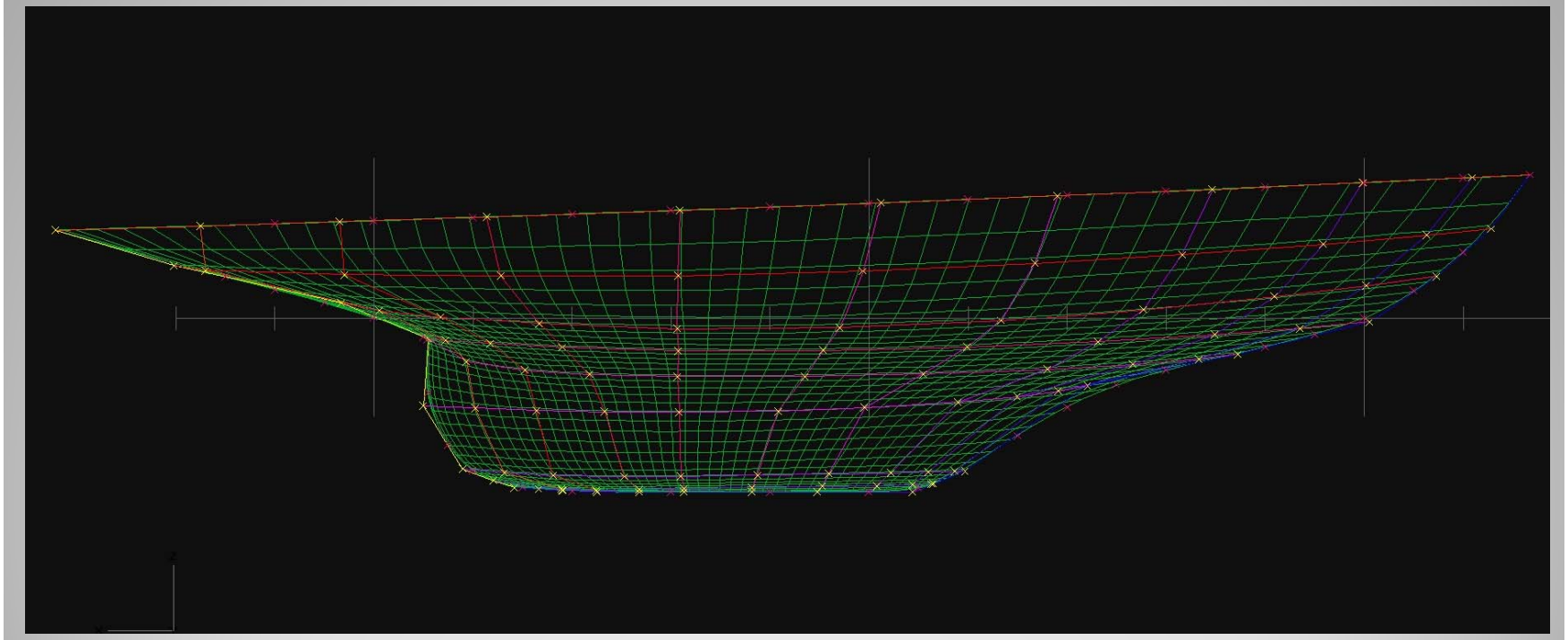
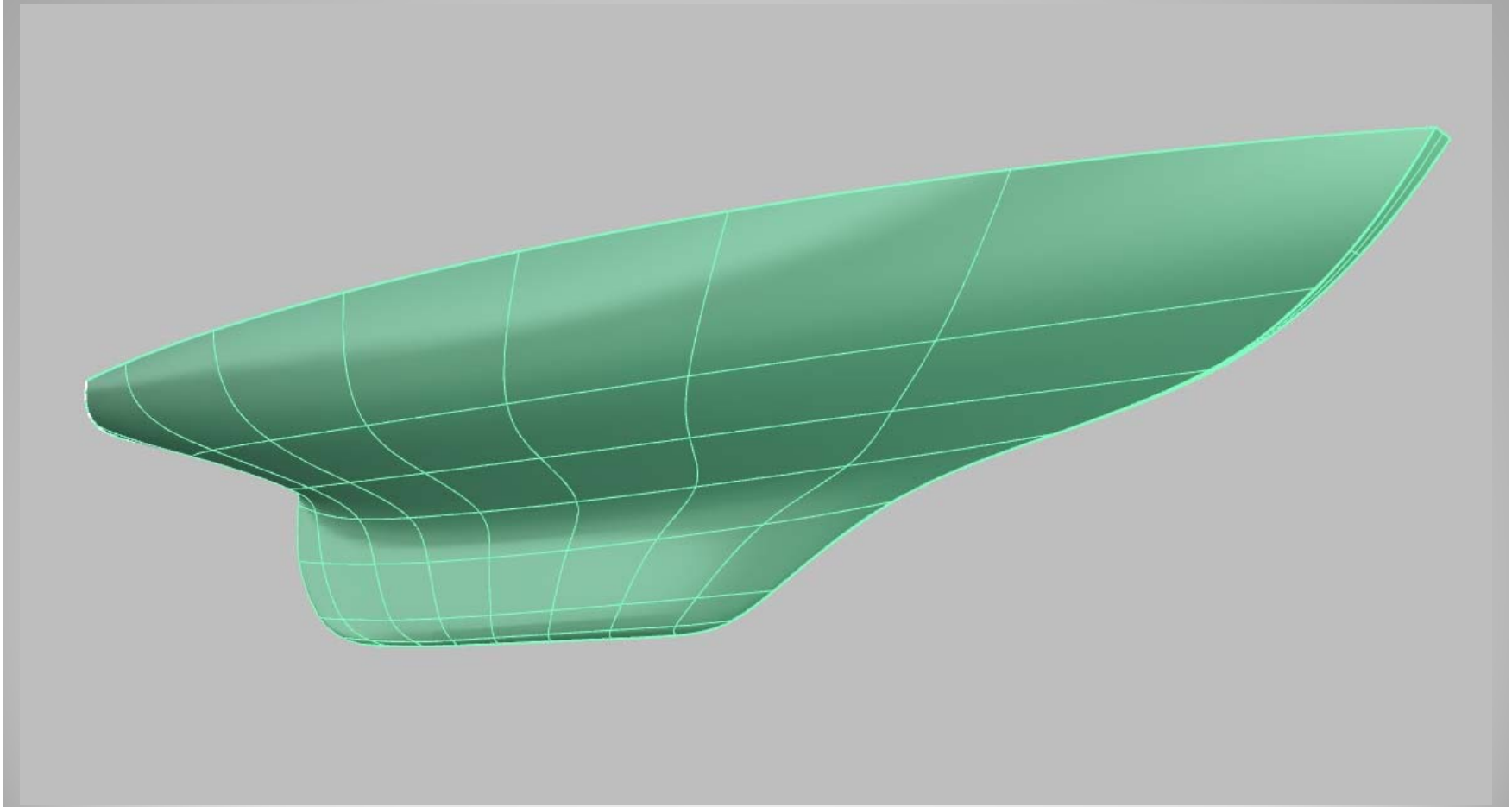
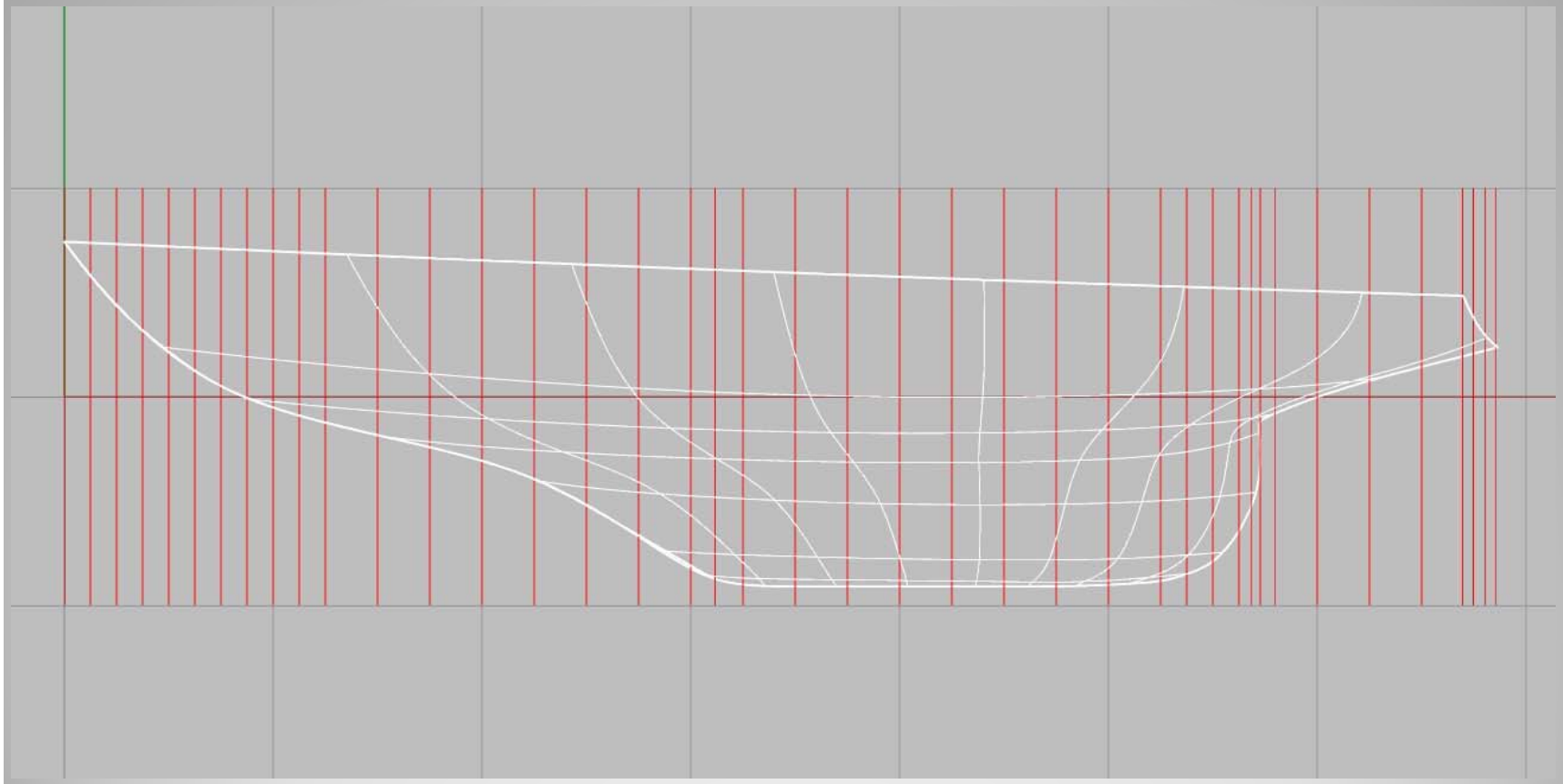
- ORR/ORRez Build-a-Boat – Loft Surfaces



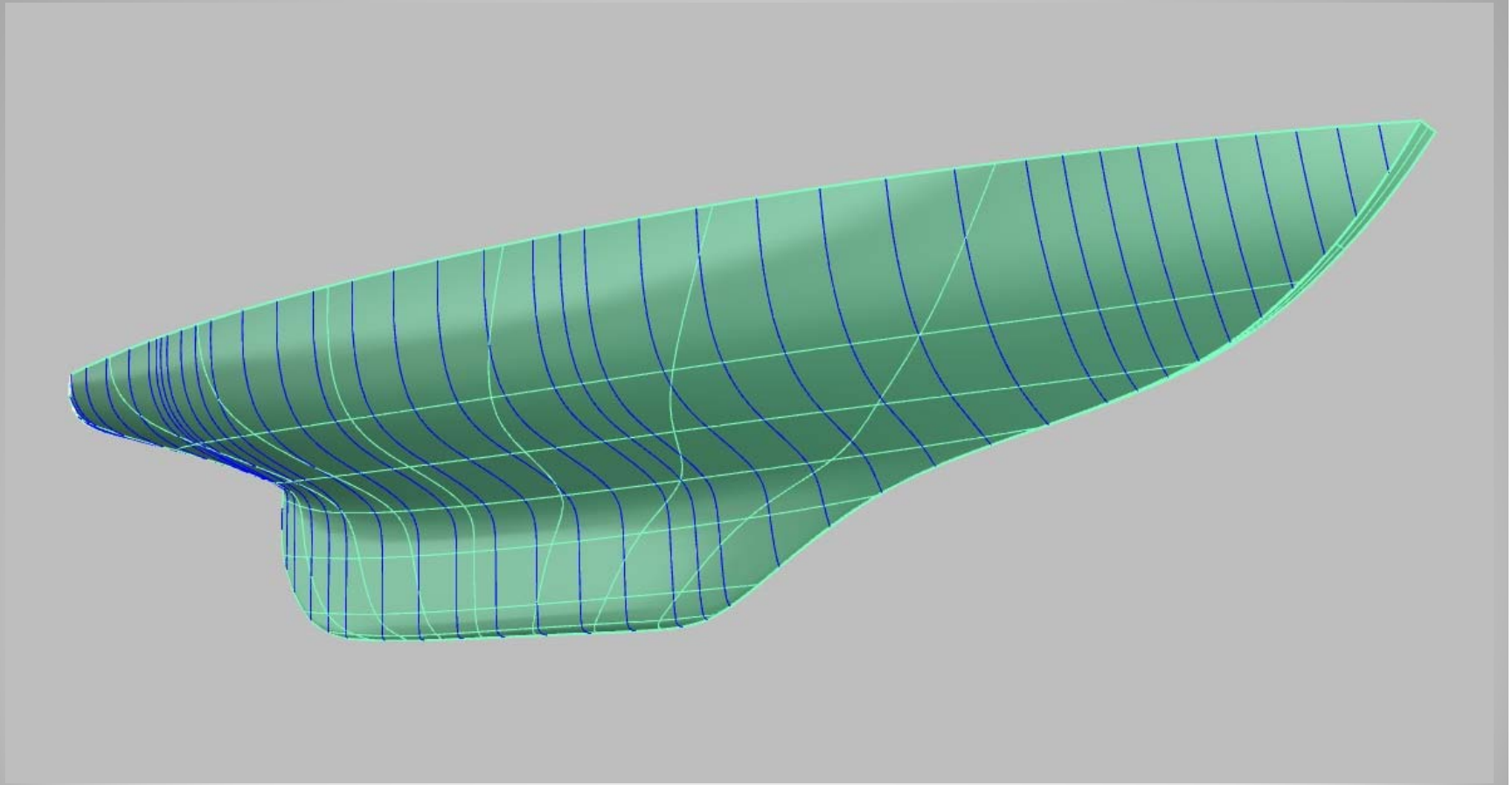
- ORR/ORRez Build-a-Boat – 3D Model



- ORR/ORRez Build-a-Boat – Define Cuts



- ORR/ORRez Build-a-Boat – Offsets File



ORR/ORRez Handicaps

TABLE OF RATINGS	Time-on-Time (TOT)	6kt	8kt	10kt	12kt	16kt	20kt	24kt
GPH: 517.5								
CLOSED COURSE:	1.065	637.9	534.2	478.1	446.4	409.0	383.9	362.9
WW 60%,LW 40%:	1.074	867.9	706.9	614.8	565.5	511.9	483.6	460.4
WW 50%, LW 50%:	1.071	859.0	699.7	608.2	556.7	498.8	466.8	439.4
Bermuda Course:	1.141	794.5	615.2	513.4	446.9	373.7	331.4	299.6
Ocean Non-Spin:	1.036	888.8	681.4	564.4	489.8	410.3	364.1	327.4
Offshore Offwind:	1.069	741.1	596.5	516.8	466.5	402.5	355.9	317.3

Chicago-Mackinac All-Purpose TOT	1.078	Puerto Vallarta TOT:	0.682	Acapulco	TOD	TOT
Chicago-Mackinac Offwind TOT	1.069	Cabo San Lucas TOD	472.9	WW/LW:	608.2	0.969
Pacific Cup TOD	396.3	Cabo San Lucas TOT:	0.771	Random:	517.5	0.976
San Francisco Bay TOT:	0.859			WW/LW5:	614.8	0.969
				StatFit:	510.2	0.973

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-
- **Talking points ORR and ORR-ez:**
-
- Rule is for the majority of the US Fleet
- Neither are Grand Prix Rule and not intended to be one but fully capable of rating Grand Prix Boats against non-Grand Prix Boats. IRC (measurement Rule) or ORCi (VPP Rule) are meant to be Grand Prix Rules as is HPR.
- Does not penalize boats with less stability-IRC and ORC like high stability boats and penalize many of the C/R types of boats that make up the majority of the US Fleet as Vcg is a moving target.
- ORR and especially ORR-ez is meant for the average guy not the optimized racer
- ORR is a middle measurement rule that has data inputs by certified measurers. ORR-ez is a hybrid Rule.
- ORR does not sell the VPP so that designers can't optimize to the rule.
- ORR is more about the crew and the fairness of the rule rather than about the boat design. ORR-ez uses an observed component factor
- ORR and ORR-ez should attract entrants that like to sail their boats in a competitive race within a measurement and scientifically based framework as opposed to an observed performance rating (PHRF).
- ORR-ez is a hybrid of the two (ORR and PHRF)
- The OA has the ability to customize the handicap for specific conditions

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- The ***ORA*** (Offshore Racing Association) ensures that the **ORR** (Offshore Racing Rule) is the rating rule that most closely equalizes a diverse fleet over a specific race course and uses the prevailing wind conditions.
-
- **The ORR administration team maintains up-to-date scientific measurement and calculation to:**
-
- Use its proprietary Velocity Prediction Program (ORR-VPP) to determine a boat's speed potential at different wind speeds.
- Compares data from hundreds of boats to predict the performances of a range of boats at different wind speeds and wind angles.
- Applies time on time scoring to compare each boat's finish to the elapsed time of first boat to finish.
-
- **The ORR is an equitable rating system that drives fair racing by:**
-
- Determining the ratings for boats of different types from Grand Prix Racers to Racer/ Cruisers in order to race against each other on an even handicap basis who race on courses that have a variety of wind speeds and directions.
- Allowing crews to compete based on talent and skill rather than conditions that favor certain boat types.
- Minimizing the "arms-race" effect of costly optimizations to hulls and rigs.

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- **Fair racing under the ORR and ORR-ez results in:**
-
- Encouraging owners of existing boats with limited budgets to participate in local, regional and offshore racing.
- Top finishes based on crew performance rather than certain favored types of boats.
- Decreasing an owner's inclination to only enter races that favor his or her boat.
-
-
- **The *ORA* assists Organizing Authorities to:**
-
- Select the best application of the ORR and ORR-ez for their races and fleets.
- Create easily understood scratch sheets.
- Help competitors determine their fleet position while racing
- Publish scoring results quickly and accurately.
-
-
- **The *ORA* assists boat owners to:**
-
- Get measured in the most efficient and economic manner.
- Decipher the measurement certificate.
- Identify details of boat trim and sail selection to help owners get the best performance from their boats.
- Understand ratings for different conditions and course configurations.

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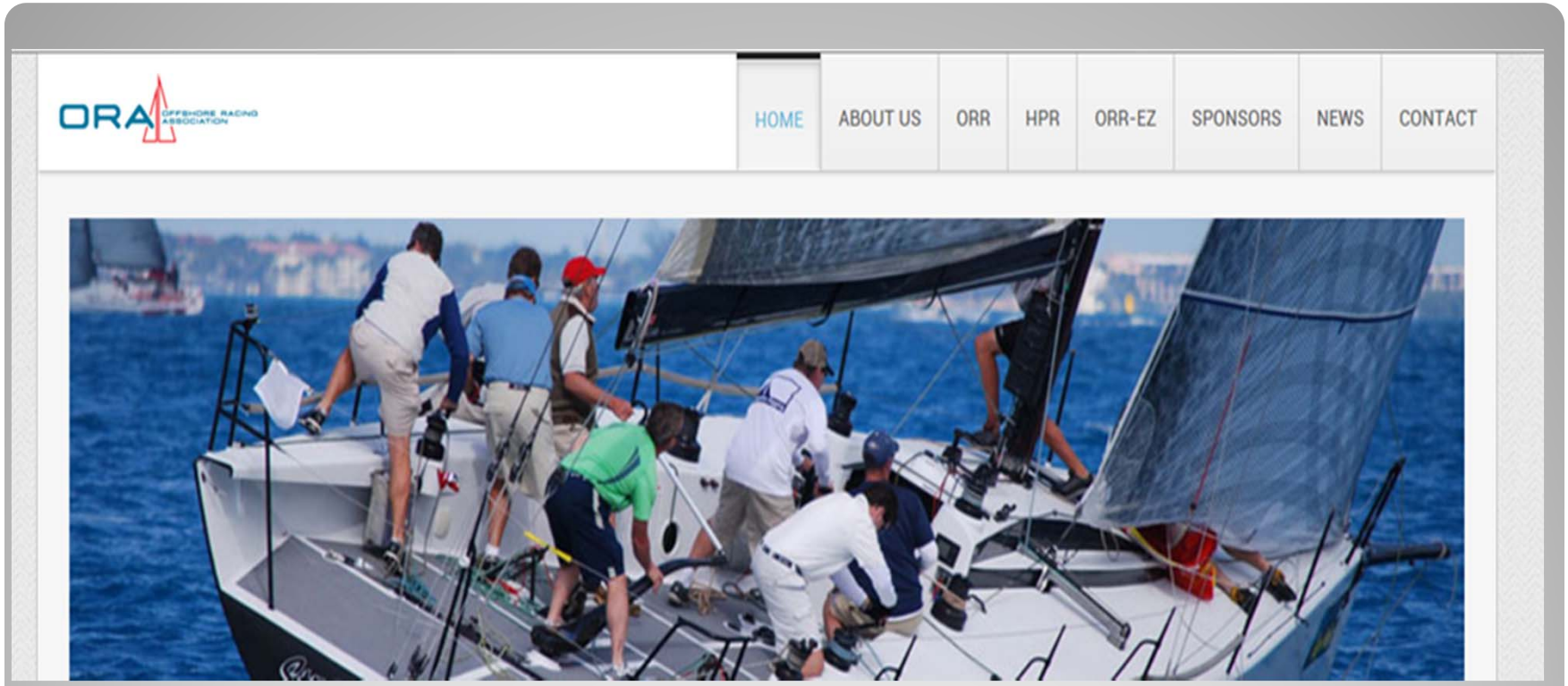

https://offshoreracingassociation.org

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Overview of ORR-ez

A new handicapping system for sailboat racing.

ORR-ez is a hybrid Velocity Prediction Program (VPP), with both scientific and observed factors used to create ratings.

ORR-EZ
OFFSHORE RACING RULE

ORR-ez Rulebook

ORR-ez Application

- Custom course rating, distance rating, 50-50 windward leeward rating, optional wind speed ratings - one, two, or three wind speeds
- Fully customizable for the race course configuration and custom wind mixes
- One rating for point to point distance racing
- Capability for pursuit racing

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APPLICATION FOR ORR-EZ RATING

PLEASE ENTER ALL DIMENSIONS IN NUMBER.DECIMAL FORMAT IN US STANDARD (feet/decimal feet/pounds) or ATTACH A COPY OF ORR or PHRF CERTIFICATE along with SAIL MEASUREMENT CERTIFCATES.

Contact Information

Name (*)

Address (*)

City (*)

State (*)

Zip (*)

Phone (*)

Email (*)

Boat Information

Sail No (*)

Boat Name (*)

ORR CERT No

Class/Make/Model (i.e. J-35, Ben

Application Page

Questions?

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