

# **OFFSHORE RACING ASSOCIATION** **(ORA)**

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## **SUMMARY OF THE OFFSHORE RACING RULE**

### **Offshore Racing Rule - Overview**

Three major US yacht clubs, the Chicago Yacht Club, Cruising Club of America and Transpacific Yacht Club, joined forces in the Fall of 2004 in an alliance called the Offshore Racing Association (ORA). ORA was formed to promote and support the use of VPP-based handicapping and has undertaken the task of developing a new measurement-based rating rule that provides the fairest handicapping possible. This new rule has been given the name Offshore Rating Rule (ORR) and is targeted for use starting with the 2006 racing season.

An important distinction of ORR is that it is aimed at those sailors who want to race their existing boats and be competitive without the pressure to pursue optimization to gain rating advantage from a handicap rule. These mid-level sailors are keen and competitive racers with boats that are well prepared for racing with good sails, clean bottoms and good crew. They prefer to compete on the race course and not in their designers' offices. They want to sail in boats of their choosing that are not dictated by a handicap system. ORA expects that ORR will be used for top end events such as the Newport-Bermuda Race, Transpac and Chicago-Mackinac races, all of which require fair handicaps for very diverse fleets that range from elite racing machines to offshore cruising boats. ORR is not intended for use as a grand prix rule with its inherent opportunity for rating optimization by individual boats at the expense of the rest of the fleet. Rating optimization will be actively discouraged.

ORA's technical team started their work by reviewing the current state of offshore sailboat racing in both the United States and internationally. This review included past and present handicapping systems with particular focus on the successes and failures of each those rules. Keeping those lessons in mind, the technical group determined that the mid-level rule system with the greatest chance of long term success would incorporate many of the elements of AMERICAP II. This rule was developed by US SAILING as an alternative to IMS and includes such attributes as a non-public VPP (velocity prediction program), full measurement (including all features that affect performance), and flexible scoring options. Unfortunately AMERICAP II has suffered from lack of marketing and promotion. Despite this, the fleet of boats holding certificates has continued to grow.

Accordingly, ORA has reached agreement with US SAILING to take over the development and marketing of AMERICAP II. This rule has become widely accepted for the major distance U.S. distance races including Chicago Y.C.'s Chicago-Mackinac Race, Transpacific Y.C.'s Transpac Race and the Newport-Bermuda Race which is co-organized by the Cruising Club of America and Royal Bermuda Yacht Club. Also included are the Marion-Bermuda Race, the Newport Harbor to Cabo San Lucas Race, the Victoria to Maui Race and the Pacific Cup. Several improvements have been undertaken for the 2005 season and further work is already underway for additional improvements for 2006 when the name will be changed to ORR.

It should be noted that the three founding clubs of ORA have had considerable success with VPP-based rules. For them, and the other yacht clubs of similar viewpoint, it is not a time for wholesale change of handicapping philosophy but an opportunity to develop a rating system that incorporates 21<sup>st</sup> Century technology and builds on the lessons learned from preceding handicapping systems.

### **Offshore Racing Rule - Detail**

ORA's requirements for a successful rule:

- 1) **Fair ratings for a diverse fleet of boats.** Our primary constituents are those sailors who compete with boats that are well prepared, but not optimized to beat the rule. The objective of the ORR system is to provide a wide range of boat types with ratings that reflect their true speed potential and therefore make the skill of the sailors the determining factor for winning.
- 2) **Rating sensitivity to differing conditions of wind speed and course content.** Single number ratings are a topic of hot discussion, as some believe this simplified method of scoring is sufficient for handicapping sailboat races. Experience has shown, however, that to fairly rate a diverse fleet for either round-the-buoys or distance racing, it is critical that the rating system be sensitive to the variations in course, wind speed and sea conditions.
- 3) **Simple scoring that allows competitors to approximate their standings mid-race.**
- 4) **Simplified measurement to lower costs.**

ORR will incorporate the following features to meet these objectives:

- a) **Non-public rule formulations.** We take it as given that any measurement-based rating rule whose rating processes and formulations are open to designer scrutiny will come under extreme optimization pressure. As a mid-level handicap rule that is committed to serving a broad diversity of designs, ORR recognizes this danger of exploitation. ORA's goal, through non-public rule formulations and frequent rule changes, is to

- minimize the threat of boat obsolescence from rule-beating design optimization.
- b) **Full measurement of design features affecting performance.** ORR is an objective handicapping rule that does not incorporate subjective rating "adjustments". Therefore all of the significant design features of a sailboat affecting its performance are measured. To ignore any of the speed producing features, such as stability or wetted area, would leave the rule open to exploitation.
  - c) **Scientific research and development.** ORR is not a subjective rule. Changes that are needed to forestall optimization/obsolescence must be improvements to the rule and therefore based on science guided by observation. This requires a funded program of aerodynamic and hydrodynamic investigation, and incorporation into the VPP. To this end, ORA will be using the services of the Sailing Yacht Research Foundation (SYRF), recently incorporated as a 501.c.3 (non-profit) organization. SYRF's mission statement is "to research, develop, enhance, promote, and educate the public regarding measurement rating and handicap rules for use in national and international offshore racing competition between sailboats."
  - d) **Race observation and feedback.** Of paramount importance is providing informed feedback on what is happening on the race course. Incorporation of race results, modified by astute observation, into a performance database will provide specific speed differences between boats to guide further VPP development. ORA has formed a team of experienced handicappers to provide the necessary race observations and rule development feedback.
  - e) **Scoring program and Race Management Handbook.** ORA will provide each race committee with a proprietary scoring program that offers a number of scoring options. These options will allow the committees to customize the wind speed and course mixes to suit their anticipated conditions. This new scoring program will allow committees to choose something as simple as single number time-on-time or time-on-distance handicaps or as accurate as performance curve scoring. As an example, the 2005 Transpac Race, which is primarily downwind, is using the VPP speed predictions at specific combinations of course content and wind speeds to determine a single number time-on-distance rating. So that the power of VPP handicapping is properly applied by each individual race committee, ORA will be providing a comprehensive Race Management Handbook and will have a technical team in place to provide guidance.
  - f) **Simplified measurement procedures.** ORR is a measurement-based handicapping rule which requires accurate recording of the hull and appendage offsets, as well as calculating the weight of the boat and the stability. In order to minimize the cost of measurement, several options are offered to provide these measurements. Any boat that currently holds an IMS or AMERICAP II certificate can automatically obtain an ORR certificate without further measurement. A production boat with a sistership that holds a certificate is not required to be fully measured out of water but will need a few simple measurements to be recorded to verify the sistership status. Custom boats will be required to be fully measured using the standard wand system or the designer can supply the lines electronically

(which will also need a couple of simple measurements to verify accuracy of the lines plan). For in-water measurements, boats can be checked for flotation by measuring freeboards or the boat can be weighed on a certified scale. An inclining test will be required of all boats except that sistership data may be used in certain cases. The objective of ORA is to work with each individual owner to minimize the cost of measurement balanced against the need for an accurate rating.

- g) **Safety features as part of the handicapping system.** While type-forming is not a part of the ORR handicapping system, there are certain items that must be incorporated into the rating rule to insure a minimum level of safety. One such feature is the stability index which has been an integral part of the IMS and AMERICAP II rules. This concept was incorporated into both rules after detailed research into resistance to capsizing and capsize recovery. ORA embraces this methodology and therefore to insure a reasonable degree of capsize safety; all boats competing in ORA events must meet minimum standards of stability index. Likewise, requirements for minimum construction scantlings for hulls, keels and rudders are necessary to insure that all boats are capable of competing offshore and are not reducing structure to gain a speed advantage at the expense of safety.
- h) **Compensation for cruising features.** ORA is developing a system of compensation for features that compromise the performance of a boat while racing. This compensation will be applied within the VPP in a scientifically appropriate manner. Examples include deck and interior layouts that make sail handling difficult, heavy construction of the hull/deck structure or the interior, and cruising amenities such as windlasses, radars, etc. ORR handicaps will reflect these compromises and provide gradations from cruising boats to pure racers. ORA will not break the fleet into racers and racer/cruisers but instead will assess each individual boat and provide compensation accordingly so that cruising oriented boats can race on equal footing with more racing oriented yachts.
- i) **Determining handicap position while racing.** One frequently heard complaint of complex scoring methods such as performance curve scoring, has been the difficulty for sailors to determine positions during the race. ORA is developing an innovative new "smart" scratch sheet and an onboard spreadsheet that are customized to each boat in the race. These scratch sheets will allow sailors to determine how they are doing against their competitors at any time.
- j) **Comprehensive rule book and guide for sailors.** ORA will be issuing a rule book for the 2006 season that will supercede the current AMERICAP II rules. The new rule book is a comprehensive set of rules and regulations that must be met by each competitor in order to provide fair racing. In addition, each boat owner will be given a descriptive guide to the rules, written in plain language to eliminate any difficulties of understanding.
- k) **Performance information available.** One of the major features of a VPP-based rating rule is the added bonus of providing comprehensive speed data for each boat to use as the starting point for their onboard polars. ORA will make available to individual owners a performance package of polar data.

## **ORA – Technical Team**

ORA has formed a technical committee that is responsible for transforming AMERICAP II into ORR for 2006 and to guide the future direction of the rule. Responsibilities of this committee include:

- Write and maintain a detailed book of rules and regulations.
- Write and maintain guides for race organizers and sailors.
- Review design features that ORR will and will not rate and formulate restrictions and limitations as necessary.
- Write and update the scoring programs and interact with race committees to insure proper handicapping.
- Monitor races and “real world performance” to check on accuracy and fairness of ORR ratings. Advise on perceived discrepancies.
- Advise on all technically related policies of ORA.

Current membership includes:

Jim Teeters, Technical Chairman – Teeters Yacht Technology  
Alan Andrews – Alan Andrews Yacht Design  
Jim Antrim – Antrim Associates Naval Architects  
John Collins – PHRF New England  
Bill Cook, Cruising Club of America – Cook Yacht Design  
Robbie Doyle – Doyle Sailmakers  
Stan Honey, Transpacific Yacht Club  
Bill Langan, Cruising Club of America – Langan Design Associates  
Bill Lee, Transpacific Yacht Club – Wizard Yachts, Ltd.  
Larry Leonard – Quantum Sail Design Group  
Shawn O’Neill, Chicago Yacht Club  
Dr. Robert Ranzenbach - Quantum Sail Design Group  
Peter Reichelsdorfer – North Sails  
Grant “Fuzz” Spanhke – North Sails  
Olin Stephens – Sparkman & Stephens  
Jim Taylor – Jim Taylor Yacht Design  
Ron White, Chicago Yacht Club  
John Winder, Cruising Club of America

In collaboration with this team, US SAILING will be responsible for several aspects of the rule including processing certificates and training measurers. The designated US SAILING representative is Dick Hampikian with the Offshore Office providing support as required.

It should be noted that a number of US and international designers and other industry professionals have asked to be kept informed of ORR developments and will serve as a sounding board for committee proposals.

## **Summary**

The Offshore Racing Association (ORA) was formed to bring together those US yacht clubs that require an objective, comprehensive measurement handicapping rule that is firmly grounded in the best science available. With the demise of IMS racing in this country, many race organizations are at a crossroads with respect to the rating rules they use. The ORA members, after a review of past experience and current alternative rules, remain convinced that full hull and appendage measurement and a VPP-based rule are the only way to fairly and reliably handicap a fleet of diverse boat types in the varying conditions faced in the races they manage. Discussions with other US clubs and organizations that run offshore distance races have revealed similar viewpoints. For the coming sailing season, ORA will build upon the successes of its member clubs with further development and promotion of the AMERICAP II rule. Simultaneously, the technical committee will steer this development and produce a new comprehensive VPP-based rule that will be introduced in 2006 as the Offshore Racing Rule (ORR).

For the US sailor, there are now a number of options for rating rules, all of which have their place. As designer and sailing guru Bill Lee likes to point out:

“It is important to pick the right rating tool for the rating rule application. The only measurement rule choice to do a wide range of existing boats over a wide range of courses is a VPP-based system.”

The wisdom behind those words has guided ORA in developing the Offshore Racing Rule. Our core constituents race in offshore events. It is ORA’s belief that the right rating tool should minimize optimization, allow handicaps to reflect actual race conditions, and provide verifiable measurement data necessary to ensure safety offshore.

The following are a sampling of questions that have been directed to ORA.

- **Is ORR a "one number" rule, or will there be multiple ratings for use in different courses or conditions?**

ORR is not a single number handicapping system. ORR can be used to provide single number time-on-time or time-on-distance ratings where appropriate but even these single numbers will be based on average conditions for the individual racing event. Performance curve scoring will also be offered to provide more accurate handicapping where desired, again with wind/course mixes that are representative of the individual event.

- **Why don't we continue to use either the IMS or AMERICAP rule and the associated VPP?**

IMS racing in the U.S. has declined recently due a number of factors. The original MHS Rule was instituted in 1978 with the hope that it could provide fairer handicaps for cruiser/racers than the IOR Rule was then offering. As MHS gave way to IMS and IOR disappeared, the elite grand prix boats slowly but surely gained both racing and political dominance. That dominance meant that changes to the rule were slow to be instituted. That preserved the value of the grand prix racing fleet, but unfortunately at the expense of the other, less racing-oriented boats. AMERICAP II was developed in response to the decline of IMS but was never marketed or promoted properly. ORR is using the fundamental VPP from AMERICAP, but is adding features and regulations that will strengthen the rule technically for the broad U.S. fleet. ORA is committed to providing sufficient marketing and promotion of the rule to insure its long term acceptance.

- **How will management and administration of ORR be handled? What organizations will take on these tasks?**

The Offshore Racing Association was formed by the three yacht clubs in the U.S. that have been primarily responsible for VPP-based handicapping of offshore racing. The CCA was the yacht club behind the development of the MHS rule, first used in the Newport to Bermuda Race in 1978. Transpacific Yacht Club and Chicago Yacht Club have been instrumental in the development of AMERICAP II and its application to diverse fleets of racing boats. ORA has reached an agreement with US SAILING to take over the marketing and promotion of AMERICAP II which will be renamed ORR for the 2006 season. Administration of the rule will be handled by the three clubs in collaboration with US SAILING. It is the long term goal of ORA to provide professional management of the rule.

- **Why is this VPP-based rule better suited to scoring a distance ocean race than a rule like IRC?**

IRC is a single number rating rule developed by the very capable handicapping team at the Royal Ocean Racing Club in England. The IRC concept is to simplify the measurement, handicapping and scoring to the greatest extent possible, and still provide reasonably fair ratings. IRC assigns single ratings for each boat, to be used in all sailing conditions. All sailors know, however, that wind speeds and course content vary from race to race and venue to venue. In order for the single number handicapping system to work, IRC must assume average conditions for the entire worldwide fleet of boats for the entire season. This averaging is acceptable for some competitors, especially if they are sailing in a season long championship. This same concept applies to PHRF ratings which are generally single number and are meant to represent the average of conditions in the particular region where the rating was issued.

The difficulty for distance races is they are singular events with no opportunity for averaging. In particular, the races that are associated with the three founding members of ORA have prizes so highly sought after that boats are built specifically to win those races. To provide fair handicaps for these events, the rating system must take into account the anticipated course mix and must provide the ability to adjust for wind speed differences where that type of rating is appropriate. To put it simply, the three races run by the three founding yacht clubs are predictably different from each other in terms of their conditions. The Transpac is a moderate to heavy air downwind contest while the Newport Bermuda is usually a beating/reaching race and the Chi-Mac is usually a light to moderate downwind race. It is simply impossible to use the same universal single number rating for these three very different races and expect reasonable and fair results. This is the reason for promotion of a VPP-based handicapping system for offshore racing.

- **What range of boats will ORR attempt to rate? Water Ballast? Canting keels? Will there be speed limits?**

ORR will rate both water ballasted and canting keel boats. These types of boats can be very difficult to rate fairly because their performance at certain wind angles is significantly greater versus conventional boats than at other wind angles. This performance diversity within the racing fleet is more accurately handicapped by a VPP-based rule than by any single number system.

Negotiations are currently underway between the two race organizers that have consistently applied an upper speed limit to their racing fleets. The Transpac Race and the Newport Bermuda Race are attempting to define an acceptable, common upper speed limit. It is hoped that other races will adopt the same upper limit and provide a common target for big boat development.

- **Is there still an effort at a grand prix rule? What is happening with box rules?**

Last year there was an attempt by ORC, RORC and US SAILING to develop a grand prix rule. That effort was abandoned when the parties could not agree on the use of box type rules versus a formula based rule such as IRM. Subsequent to that break-up, there has been a growing fascination with the use of box rules as the success of the TP-52 class becomes apparent. ORC is now circulating proposals for box rule classes that are smaller than the 52. There are other, individual efforts afoot to develop larger box rule classes.

While these attempts at developing grand prix classes are applauded by ORA, it is also clear that those same boats will want to participate in premier offshore races on handicap in order to compete for the overall prize. Therefore ORR must have the capability to rate not only the average cruiser/racer but must also provide fair handicaps for the elite grand prix level boats.

As a separate development, the Transpacific Yacht Club has been working to develop a grand prix version of AMERICAP II for their 2005 race to Hawaii. This "Barn Door" rule has been specifically developed for the turbo-sleds that compete head to head for the first to finish prize. It is ORA's long term objective to develop a similar approach for using a simplified VPP-type rule that will foster grand prix competition, but also still allow those boats to fit within the more widely used ORR formulation. In other words, even with a specific grand prix VPP, there will be certain races that will attract the grand prix boats to race in the broader fleet.

- **How will foreign competitors learn about ORR and get rated? If ORR is not widely used outside of the U.S., will this decrease the number of international competitors?**

It is sad to say that the number of international competitors that travel to foreign regattas is a very small number. This is due to a host of issues that have nothing to do with the choice of rating rules and have more to do with cost of travel, lack of extended vacation time, etc. However, it is important to say that as many impediments to foreign participation should be removed as possible by those responsible for developing rating systems. Therefore ORA has elected to stay in close contact with the Offshore Racing Congress (ORC) in order to provide as much transportability between IMS and ORR as possible. Any foreign boat that holds an IMS certificate can receive an ORR certificate without further measuring and vice versa. Likewise if sistership data is available, then a production boat from outside the U.S. could easily obtain an ORR certificate. It should be noted that IMS and ORC Club are still extensively used for racing in all of North Europe (Germany, Holland, Scandinavia), Italy, Spain, New Zealand and others.

- **If I optimize my boat to race under IRC, will that hurt my handicap when I race under ORR?**

IRC, being a simple rule, requires optimization to be competitive. For example, stability and wetted area are unmeasured and it pays to increase spinnaker area. Boats that increase their stability, or increase spinnaker area, or pursue any of the other optimization schemes available will be fairly assessed for those changes under ORR. Therefore, a boat that is optimized for IRC does not need to make changes to be competitive for ORR races. However, the advantage that IRC optimized boats enjoy against non-optimized boats will be eliminated when racing under ORR.

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