

OCEAN RACING CATAMARAN ASSOCIATION (ORCA), INCORPORATED

BYLAWS –

Approved by the ORCA Board of Directors (BoD) on July 9 2017.

1.0 ORCA OBJECTIVES

To foster safe and comfortable ocean racing and cruising activities aboard cruising/racing multihulls (both catamaran and trimaran); to improve the understanding and appreciation of these boats by the yachting world; to gain greater knowledge of the design requirements of these boats, and to more successfully relate these requirements to performance on handicap.

2.0 ORCA HISTORY

The Ocean Racing Catamaran Association was founded on June 19, 1965 in Los Angeles, California. Its initial membership was derived from the membership of the Pacific Catamaran Association as the result of the need, on the part of the cruising-type ocean racing catamaran owners, who had previously founded PCA, to gain freedom to carry out the objectives stated above. ORCA became a California Domestic Stock Corporation on March 31, 1972, but has issued no stock.

3.0 ORCA MEMBERSHIP

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- 3.1 Membership is open to boat owners and non owning interested persons. Voting rights are reserved for owners; each boat is entitled to one vote. If a boat has multiple owners (a partnership) each part-owner (or his written proxy) may cast only his share of the associated boat's vote on any matter or in any election, or the managing owner may cast the boat's entire vote.
 - 3.2 Non-voting (supporting) memberships are available to multihull enthusiasts or to the owners of non-qualified boats who wish to support the association's program.
 - 3.3 The membership fee entitles the associated boat to a rating.
 - 3.4 To qualify for a full membership, the associated boat must be a multihull sailboat, meeting the requirements of this document. Approval will be decided at the discretion of the Board. The underlying principle is safety under racing, cruising, or survival conditions at sea.

- 3.5 A boat and her owner shall comply with recognized principles of sportsmanship and fair play. Members may, in extreme circumstances, be temporarily suspended or permanently banned from ORCA races, for flagrant rule violations or unsportsmanlike conduct.
- 3.6 A completed written application must be received by the Secretary at least 2 weeks before any race that the applicant wishes to participate in. The application will be acknowledged by email, fax or US mail. The BoD can make an exception if 4 board members AND the rating chairman concur.

4.0 ORCA GOVERNMENT

- 4.1 ORCA is governed by a Board of Directors (BoD) presided over by the President of ORCA. The State of California requires that our Corporation have a Secretary and a Chief Financial Officer (CFO). The same person may hold both offices. Officers may also be directors. ORCA shall have at least five (5) Directors.
- 4.2 The BoD sets all policies, modifies Bylaws, approves membership applicants and their associated multihull and creates the rating structure of the fleet. All BoD decisions must be agreed to by four (4) Board members. A two-thirds (2/3) majority of the Association's voting membership can overturn a BoD decision at a Special Election called for that purpose.
- 4.3 BoD members must be voting members and must have been ORCA voting members for at least one (1) year.
- 4.4 BoD members are elected annually in the 4th quarter annual member meeting, and take office in January. There must be at least four (4) board meetings per annum, one in every quarter. The President is responsible for appointing the ORCA officers and may appoint additional Directors as needed, subject to BoD approval.
- 4.5 The Minutes of all BoD meetings, including all decisions, will be published with the names of Directors voting "nay" on any matter that is Moved, Seconded and Passed. If there is general agreement; "There were no nays" is a suitable report on the matter.

5.0 CLASSIFICATION OF BOATS AND RACES

5.1 Guiding Principles

ORCA class boats race long distances without external assistance and need to be self-sufficient. ORCA boats keep their crew on-board and avoid capsize at all cost, and are also prepared to survive these events. ORCA boats are prepared to deal with high winds, large seas, bad weather, crew injury, and are capable of sailing at night. ORCA boats can reach safe harbor, if necessary, without outside assistance. In case of emergency, ORCA boats are prepared to call and signal for assistance. While boat and crew safety are the responsibility of a boat's skipper, the ORCA class safety gear requirements are in place to encourage safe racing. Gear requirements remove the incentive for a skipper to carry less safety gear in order to gain racing advantage by saving weight, and also to provide a more stable basis for performance handicapping.

- 5.2 ORCA races are divided into three categories by the BoD; Day race, Coastal race, and Ocean race. These categories are noted on the ORCA race calendar. A Day race is the shortest and is not expected to involve night racing. A Coastal race is longer and may involve night racing. An Ocean race is the longest distance and may span multiple days. To be eligible for a specific race category, a boat must meet the size, design, construction, and gear requirements appropriate to that class of race and be approved by the BoD for that category of race. Day races require meeting section 6. Coastal races require meeting sections 6 and 7. Ocean races require meeting sections 6, 7, and 8. These sections have matching paragraph numbers. For example, a paragraph 7.12 will supersede or modify paragraph 6.12, as noted.

Examples of Coastal Races are: Newport Beach to Ensenada, Santa Barbara to King Harbor, Catalina Island Series races, Hardway race (when the Santa Cruz Island option is chosen), Marina Del Rey to San Diego, and the Coastal Race from San Francisco.

The Transpac is an example of an Ocean Race.

5.3 ORCA eligibility.

Conformance with the following sections does not guarantee eligibility for any specific category of ORCA race. A boat may need to demonstrate seaworthiness through a qualifying sail with one of the Directors on board, or by sailing in a minimum of three separate ORCA Day races, at least one in moderate or heavier weather conditions. It is the responsibility of the owner to arrange qualifying sails with individual Board members. The Board may, at its discretion, approve a boat of demonstrated seaworthiness, for the category of race they deem appropriate. A boat's BoD approved highest category of race eligibility will be listed on the membership/boat roster. The BoD will inform an applicant when a rating is requested or a classification (Day, Coastal, Ocean) is changed, whether an inspection and/or qualifying

sail will be required. The BoD may also revoke a boat's approval for ORCA membership.

5.3.1 Capsize review

Any capsizing of an ORCA boat, anywhere, subjects that boat to a mandatory BoD review before being allowed to race as an ORCA boat again. The ORCA BoD will review the details of the capsizing and assign responsibility by percentage in three primary areas; crew error, boat design, and unavoidable happenstance. In the event of a majority "crew error" capsizing; on the first capsizing the skipper will receive a warning and BoD recommendations for future capsizing avoidance, a 1 year suspension from ORCA racing on the 2nd capsizing, and BoD determined harsher penalties on the 3rd, up to and including a possible ORCA lifetime ban. In the event of a majority boat design responsibility, the BoD may consider rating that boat design as inappropriate for ORCA racing, or choose to label it an Extreme boat (see 5.3.2). The BoD may take other actions it deems appropriate, depending on the specific causes of a capsizing. The goal in all cases is to reduce the possibility of future capsizings.

5.3.2 Extreme boats

When a specific boat, or model of boat, demonstrates a higher than normal level of local capsizings, the BoD may choose to flag it as an "Extreme" boat. Extreme boats must carry either an EPIRB or a Satellite phone when participating in Coastal races. The hosting yacht club of a specific race, must approve the participation of Extreme boats.

5.4 An owner wishing to qualify a boat for eligibility for a specific class of ORCA races should submit a request to the BoD beforehand. This request should include a written description of the boat and any intended modifications, as well as the desired class of race eligibility. The BoD will review the proposal and rule whether or not the boat and its proposed modifications will be acceptable.

5.5 Inspection:

Equipment may be inspected at the BoD's discretion by any BoD member, or designated inspector, at any time in the 6 hours preceding or following a race. A BoD member, or designated inspector, will identify himself and his intention to inspect, to the boat owner. Failure to allow pre-race inspection can result in immediate disqualification from the race and/or suspension by ORCA. Failure to carry any of the required gear can result in immediate disqualification and/or suspension. Allowances will be made for equipment failure while a race is underway.

- 5.6 The requirements in this document represent easily observed minimum requirements for participation in ORCA events. No claim is made or implied that observance of these requirements will prevent injury, death, or loss of property. ORCA, its officers, and directors do not certify the suitability of any vessel for participation in any ORCA event. No analysis is made of quality of design, construction, or maintenance. The safety of a vessel and her crew is the sole responsibility of the owner, or owner's representative, who must do his/her best to ensure that the vessel is fully found, thoroughly seaworthy and manned by experienced crew who have undergone appropriate training and are physically fit to face bad weather. He must be satisfied with the soundness of hull, spars, rigging, sails and all gear. He must ensure that all safety equipment is properly maintained and stowed and that the crew knows where it is kept and how it is used. Neither the establishment of these requirements, their use by race organizers, nor the inspection of a vessel under these requirements in any way limits or reduces the complete and unlimited responsibility of the owner or owner's representative.
- 5.7 All boats must meet USCG requirements. No ORCA requirement is intended to reduce or eliminate a USCG requirement. Should an ORCA requirement be less than a USCG requirement, the USCG requirements are to be followed.

6.0 RACING REQUIREMENTS- ALL BOATS, ALL RACES

- 6.1 Minimum twenty (20) feet length of waterline (LWL) on hull, excluding rudders, and rudder housings.
- 6.2 Self-bailing cockpit. (If companionway access is below the level of the main deck, suitable door slides or other comparable enclosures must be on board, bringing the height of such access up to the level of the main deck).
- 6.3 Lifelines, Pulpits, Nets, Jackstays/Jacklines/Harnesses
 - 6.3.1 Crewmembers shall be protected from falling overboard from all areas of the boat where they can reasonably be expected to be in the normal course of their duties. These areas of the platform of the boat shall be defined as Working Deck Areas and shall be composed of solid decking or synthetic fiber webbing or netting with openings no larger than four (4) inches square. All decking or webbing/netting shall be capable of supporting a minimum of four (4) 160-pound crewmembers in close proximity.
 - 6.3.2 The perimeter of each Working Deck Area shall be bounded by Pulpits, Lifelines or Safety nets or, alternatively, a system of Pulpits, Safety Nets and permanently mounted Jackstays to which can be clipped one or more moveable Jacklines each of which is attached to a wearable personal Harness (Jackline/Harness Assembly).
 - 6.3.2.1 Lifelines: Lifelines shall be fabricated from stainless steel wire or from synthetic line with the equivalent strength of a 1/8-inch 7x19 coated stainless steel wire. Lifelines shall be supported by sturdily attached stanchions, 24 inches high above underlying solid decks (18 inches high on boats less than 31 feet LOA) no more than 7 feet apart (except in the case of aka-to-main-hull connections on a trimaran, the spans of which can exceed 7 feet). An intermediate lifeline is desired but not required. Lifeline stanchions shall be capable of withstanding a sideways pull of 200 lbs at the top of the stanchion with lifelines in place.

Instead of a stanchioned Lifeline across the forward beam on a catamaran, a headstay bridle will suffice. A tiller cross bar is acceptable as a rear lifeline if it will withstand a 200 lb. lateral pull.

Lifelines may extend downward to deck-level attachments at the bow and/or stern provided Pulpit and Safety Net rules in those areas are also met.

6.3.2.2 Pulpits: Protection for crewmembers by a Pulpit at minimum Lifeline height shall be provided at the bow area on the main hull of a trimaran.

6.3.2.3 Safety Nets: Working Deck Areas not protected by Lifelines (e. g. , areas forward of the forward aka and aft of the aft aka on a trimaran) shall be protected by Safety Nets. These shall be fabricated of line capable of supporting a falling 200-pound person and have no openings larger than 6-inches square. Safety Nets shall extend horizontally a minimum of three (3) feet from adjacent Working Deck Areas they protect.

6.3.2.4 Jackstays, Jacklines, and Harnesses: If the Lifeline option is not employed, each crewmember shall have a readily available Harness Assembly aboard and be able to share in the use of a permanently affixed Jackstay(s) system appropriate to the platform and on-deck structures of the boat. Pulpit and Safety Net requirements outlined above will also be in force.

6.3.3 Bowsprit Tack-point Controls: On boats with Bowsprits, control of the movable tack points of roller-furling headsails or gennakers must take place on an adjacent protected Working Deck Area: crewmembers shall not be required to work any tack device that is more than one arm's length from a protected Working Deck Area.

6.4 Mainsail: Must be reefable.

6.5 Boom: Must have a minimum swing of sixty (60) degrees/side, unobstructed by standing rigging.

6.6 Hulls: Must be joined by adequate structures.

6.7 Sail Plans: The acceptability of extreme sail plans and/or mast height-to-beam-to length ratios shall be decided on an individual basis by the Board.

6.8 Functioning navigation Lights and sufficient, functional energy source capacity to power navigation lights or running lights continuously and cabin lights under normal use for one twelve (12) hour night without recharging required.

- 6.9 Rotating Masts: Provision shall be made that the mast will stay in place under adverse sea conditions.
- 6.10 Head: A sheltered head is required- a bucket is acceptable.
- 6.11 Auxiliary propulsion: Sufficient power and fuel for the boat to achieve a speed equal to the square root of her waterline, for a distance of 15 nautical miles in flat water without a headwind.
- 6.12 Fuel Storage: Fuel for a minimum of four (4) hours of cruising required.
- 6.13 Ground Tackle: Minimum of one functional anchor required of appropriate size and length for boat size. Minimum 15' chain and 100' line.
- 6.14 Minimum Number of Crew:
The minimum number of crew refers to able-bodied working crewmembers. Small children and non-sailing guests do not count as crew. Qualifying crewmembers shall be over 16 years of age, or weigh over 150 pounds, or have demonstrable or documentable sailing expertise.

BOAT LWL, FEET	MINIMUM QUALIFIED CREW
20. 0- 30.00	2
30.1 – 49.00	3
49.1 or larger	4

The one exception to this minimum number of crew rule is when the race organizer specifies the number of crew, as in the Crew-of-2 Around Catalina race.

ORCA ratings are calculated for the normal number of crew racing (the rated number of crew). Boats may occasionally sail with one less than their rated number of crew, but not with less than their minimum number of crew. Ratings will not be adjusted for sailing with one less than the rated number of crew, or for sailing with more than the rated number of crew, in any specific race.

- 6.15 Crash Bag: A waterproof "capsize safety pack" or watertight "capsize compartment" secured in an easily accessible area (after capsize) which contents will include but not be limited to: a VHF radio and flares.
- 6.16 Water Storage: Water or other potables in the minimum amount of two quarts per crewman must be stored aboard in sealed containers. One-half this supply must be drinking water and must be readily available to the crew.
- 6.17 One Coast Guard approved (for adult) type IV flotation device, located readily available to the helmsman.

- 6.18 A functioning VHF marine radio is required with Channels 6, 12, 16, 22A, 68, 69, 71 and 78A. This is in addition to the requirement of 6.15.
- 6.19 Adequate First Aid Kit and First Aid Manual.
- 6.20 One functioning whistle for each crewmember.
- 6.21 One foghorn. A lung powered foghorn is required as backup to a compressed gas foghorn.
- 6.22 Two functioning flashlights or electric lanterns.
- 6.23 Bosun's chair or climbing harness.
- 6.24 Adequate tool kit.
- 6.25 *{unused}*
- 6.26 Appropriate charts and current functioning navigation equipment to satisfy the requirements of a specific race.
- 6.27 Adequate, functioning Bilge pump.
- 6.28 Radar reflector for emergency use.
- 6.29 Two (2) fire extinguishers currently tested and of proper type and size for the boat.
- 6.30 One adequate marine type compass and one secondary compass.
- 6.31 Liability Insurance. Thirty thousand dollar (\$30,000.00) minimum.
- 6.32 Racing Safety Equipment: Additional racing safety equipment, or crew, as required by a sponsoring organization's race rules shall be carried during any given race.
- 6.33 Meet all appropriate US Coast Guard requirements.

7.0 ADDITIONAL REQUIREMENTS FOR COASTAL RACES

7.11 Auxiliary propulsion: Sufficient power and fuel for the boat to achieve a speed equal to the square root of her waterline, for a distance of 30 nautical miles in flat water without a headwind. (Supersedes 6.11)

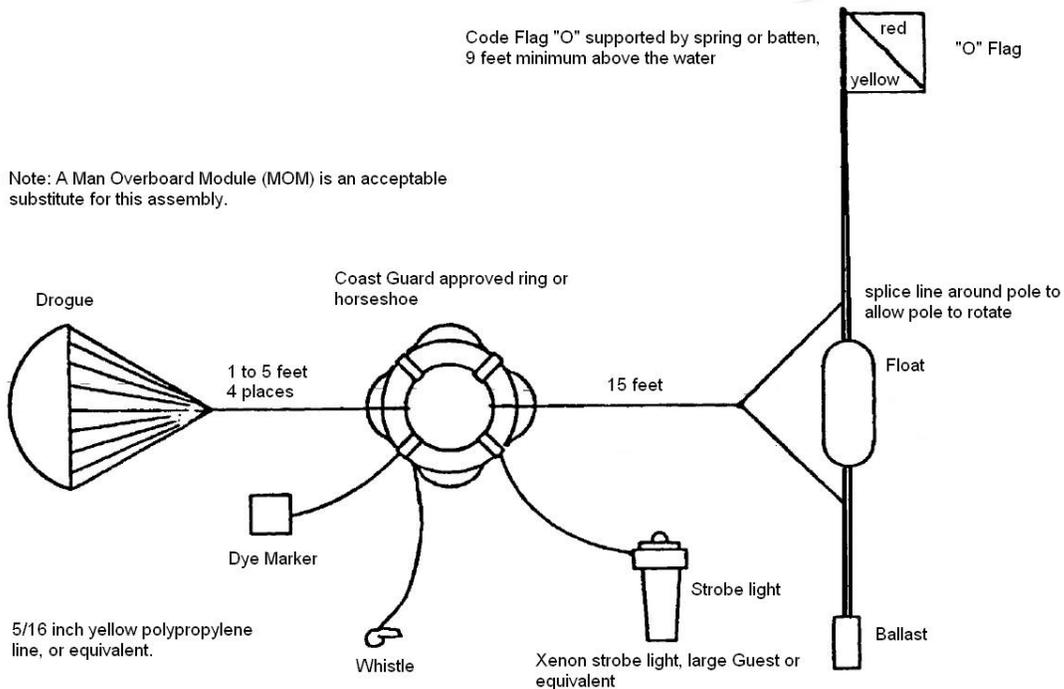
7.13 Two (2) functioning anchors of a size commensurate with the size of the yacht with at least 15' of chain and 100' of line each. Anchor manufacturers data shall be required to establish minimum main anchor, chain, and line size in case of question. (Supersedes 6.13)

7.14 Add 1 to the crew requirements of 6.14 (modifies 6.14)
The one exception to this minimum number of crew rule is when the race organizer specifies the number of crew, as in the Crew-of-2 Around Catalina race.

7.15 {unused}

7.16 Water Storage: Water or other potables in the minimum amount of two quarts per crewman per day for three days, must be stored aboard in sealed containers. One-half this supply must be drinking water and must be readily available to the crew. (Supersedes 6.16)

7.17 Man-Overboard-Pole/Life-Ring Assembly: As specified in the diagram below. A "MOM" is an acceptable substitute. (In addition to 6.17)



- 7.18 A functioning 25W VHF marine radio with external antennae is required with Channels 6, 12, 16, 22A, 68, 69, 71 and 78A. (Supersedes 6.18)
- 7.22 One functioning pocket size waterproof flashlight or strobe light for each crewmember. (in addition to 6.22)
- 7.35 Crew Shelter. Shelter shall be provided for the rated crew number. Shelter shall provide a minimum of 3'6" headroom over a minimum of six (6) square feet of cabin sole. This shelter shall be sufficient to protect crew members from the elements (including, but not limited to: wind, waves, dampness, cold, and sun. Shelter shall be in an enclosed structure and shall be accessible through a minimum opening of 18" x 14". A hatch securing this opening must be such that it can be opened from the inside. Shelter shall have adequate ventilation.
- 7.36 Crew Accommodations: Bunk sleeping space shall be provided for half the rated crew requirement rounded up to the nearest whole person.
A bunk shall be defined as:
- 7.36.1 An area sufficient to shelter a fatigued or injured crewmember from the elements and allow sleep in relative comfort. An unpadded cabin floor is not "relative comfort".
 - 7.36.2 Accessible enough to allow a second crewmember to tend to an injured crewmember.
 - 7.36.3 Large enough to accommodate the largest crewmember.
 - 7.36.4 Elevated sufficiently above the sole/bilge/floor of the boat that the bunk, bedding and its occupant not get wet in heavy sea conditions.
- 7.37 Sufficient inflatable, functional life raft(s) capable of taking crew off under adverse sea conditions. This rule is applicable to all non-positively buoyant boats. Otherwise, for a positively buoyant boat, a life raft is not required.
- 7.38 Stove: A Stove is required and it shall be able to boil two quarts of water in a reasonable short time.
- 7.39 Food Storage: Sheltered food storage capacity adequate for any given race or cruise must be available.
- 7.40 One lead line or fathometer.

8.0 ADDITIONAL REQUIREMENTS FOR OCEAN RACES

8.1 Minimum thirty-one (31) feet length of waterline (LWL) on hull, excluding rudders, and rudder housings. (Supersedes 6.1)

8.41 EPIRB

8.42 Sea Anchor or Drogue

8.43 SSB (Single Sideband Radio) or Satellite phone

9.0 HANDICAPPING AND CONFIGURATION CONTROL

9.1 HANDICAPPING

ORCA races are won on Corrected Time order of finish. There are two rating systems in use for these purposes, depending on the length and character of the race. Short day sails employ a Time Corrected Factor (TCF) such that:

$$\text{Corrected Time} = \text{Elapsed Time} \times \text{TCF}$$

Which is called a "Time-on-Time" system, whereas longer, overnight races during which diurnal wind effects usually are encountered, employ a Performance Handicap (PHRF) such that:

$$\text{Corrected Time} = \text{Elapsed Time} - ((\text{PHRF} \times \text{Distance of Race}) / 3600)$$

Which is called a "Time-on-Distance" system. Experience has shown that the former is best when all boats are sailing in the same wind whereas the latter is best when the boats, strung out down the race course, encounter different winds along the course. (Elapsed Time and Corrected Time are in decimal hours, PHRF is in seconds, Distance of Race is in nautical miles)

Each ORCA yacht is assigned both of these ratings by the ORCA Board, based on the ORCA rating methodology. Initially, for a new boat, the ratings are determined from measurements of a set of boat parameters relevant to boat speed, entered into the ORCA formulas. These parameters are summarized in 9.2.1 under the heading "Controlled Parameters". After racing experience with the boat has been gained, these initial ratings are slowly altered to better account for the boat's actual performance as opposed to its potential performance. Thus, a Measurement Rule gives way to a Performance Handicap wherein all effects, including crew skill and long-term tactics they employ, are taken into account. The achieved performance in a latest race is lightly weighted and combined with a heavier-weighted rating derived from all previous races to produce the slowly changing new rating as a function of performance. The implication is clear: ratings get changed only by participation in these events.

9.2 CONFIGURATION CONTROL

The continued success of both ratings introduced in 9.1 is dependent on maintaining Configuration Control over the actual configurations of all boats as opposed to their listed configurations. At present, ORCA uses the honor system to accomplish this: it is the responsibility of the owner to ensure that the listed and actual configurations are the same and to notify, in writing, the BoD of any alterations at least 14 days prior to any race (notification to be received at least 14 days prior). The BoD will acknowledge by email, fax, or US mail. The rating committee will decide if the alteration will result in a rating change, and notify the owner and the hosting yacht club in time for the race. Temporarily altering the basic configuration of a boat to suit the conditions of specific races is not

permitted. This includes adding/subtracting crew members to gain advantage. Configuration changes, such as a change in sail area, will result in a recalculated rating based on a boat's current achieved rating. A skipper (the ORCA member who will be the "skipper of record") change is considered a configuration change, and must be reported in the same manner as other alterations.

9.2.1 CONTROLLED PARAMETERS

Measurable boat parameters (refer to the ORCA Measurement form for detailed parameters and measurement instructions) that ORCA keeps under configuration control for ratings purposes include the following:

- Length overall (LOA)
- Waterline length (LWL)
- Weight loaded for sailing, without crew and perishables
- Vertical height and foot of Foretriangle
- Height of the highest spin block if higher than top of Foretriangle
- Widest beam
- Length of ama (for trimarans)
- Area of sails
- Various mast parameters
- Number of crew (this "Rated Number of Crew" will be listed on the member/boat roster)

APPENDIX A: Coast Guard Requirements

Inland and International Navigation Rules are available on the following website:
http://www.navcen.uscg.gov/mwv/navrules/rotr_online.htm