CHICAGO YACHT CLUB
RACE TO MACKINAC®
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2019 Chicago Mackinac Safety Requirements - Multihull

Effective date February 1, 2019 - version 1.1 Amended April 29, 2019

Section Name	SER #	Requirement
Overall	1.1	The Safety Equipment Requirements establish uniform minimum equipment and training standards for a variety of boats racing in differing conditions. These regulations do not replace, but rather supplement, the requirements of applicable local or national authorities for boating, the Racing Rules of Sailing, the rules of Class Associations and any applicable rating rules.
Overall: Responsibility	1.2	The safety of a boat and her crew is the sole and inescapable responsibility of the "person in charge", as per RRS 46, who shall ensure that the boat is seaworthy and manned by an experienced crew with sufficient ability and experience to face bad weather. S/he shall be satisfied as to the soundness of hull, spars, rigging, sails and all gear. S/he shall ensure that all safety equipment is at all times properly maintained and safely stowed and that the crew knows where it is kept and how it is to be used.
Overall: Equipment and Knowledge	1.4	All equipment required shall function properly, be regularly checked, cleaned and serviced, and be of a type, size and capacity suitable for the intended use and size of the boat and the size of the crew. This equipment shall be readily accessible while underway and, when not in use, stored in such a way that deterioration is minimized.
Overall: Secure Storage	1.5	A boat's heavy items such as batteries, stoves, toolboxes, anchors, chain and internal ballast shall be secured.
Overall: Strength of Build	1.6	A boat shall be strongly built, watertight and, particularly with regard to hulls, decks and cabin trunks, capable of withstanding solid water and knockdowns. A boat shall be properly rigged and ballasted, be fully seaworthy and shall meet the standards set forth herein. A boat's shrouds and at least one forestay shall remain attached at all times.
Overall: Watertight Integrity	1.7	A boat's hull, including, deck, coach roof, windows, hatches and all other parts, shall form an integral watertight unit, and any openings in it shall be capable of being immediately secured to maintain this integrity.
Sailing without power	1.9	The crew of a boat must demonstrate that normal sailing functions (including but not limited to: raising and lowering sails; trimming sails; steering; raising and lowering dagger boards; positioning canting centerboards and moveable ballast; operating bilge pumps; rotating masts (if applicable); and deploying safety gear) can be performed in the event of a complete loss of power.
Hull and Structure: Exits	2.1.1.1	Exits: A boat shall have at least 2 exits in each hull which contains accommodation.
Hull and Structure: Escape hatches	2.1.1.2	Escape Hatches: A boat shall have either an escape hatch in each hull that contains accommodation for access to and from the hull in the event of an inversion or appropriate tools for cutting an escape opening stowed securely in a location accessible from both inside and outside the boat in the event of capsize.
Hull and Structure: Escape hatches	2.1.1.2.3	Escape Hatches shall be on the side nearest the vessel's centerline if first launch after 2002.
Hull and Structure: Escape hatches	2.1.1.1.2.4	Escape hatches shall be above the waterline when the boat is inverted.
Hull and Structure: Escape hatches	2.1.1.1.2.5	Escape Hatches shall have sufficient minimum clearance of 450mm (approximately 18") in diameter or when an escape hatch is not circular, sufficient clearance to allow a crew member to pass through fully clothed.
Hull and Structure: Escape hatches	2.1.1.2.6	Each Escape Hatch shall have been opened both from the inside and outside within six (6) months prior to the race.
Hull and Structure: Hull Openings	2.1.2	A boat's hatch boards or doors, whether or not in position in the hatchway, shall be secured in a way that prevents their being lost overboard.
Hull and Structure: Cockpit	2.1.3	A boat's entire cockpit shall be solid, watertight, strongly fastened and/or sealed. Weather-tight seat hatches are acceptable only if capable of being secured when closed.

Hull and Structure: Through Hulls	2.1.6	A boat's through-hull openings below the waterline shall be equipped with sea cocks or valves, except for integral deck scuppers, speed transducers, depth finder transducers and the like; however a means of closing such openings shall be provided.
Hull and Structure: Floatation	2.1.7	A boat shall be designed to ensure that the boat is effectively unsinkable.
Hull and Structure: Accommodations	2.3.1	A boat shall be equipped with a head or a fitted bucket.
Hull and Structure: Accommodations	2.3.2	A boat shall have bunks sufficient to accommodate the off watch crew.
Hull and Structure: Accommodations	2.3.3	A boat shall have a stove with a fuel shutoff.
Hull and Structure: Accommodations	2.3.5	A boat shall have adequate hand holds below decks.
Hull and Structure: Dewatering pumps	2.5.1	A boat shall have a permanently installed manual bilge pump of at least a 10 GPM (37.8 liter per minute) capacity and which is operable from on deck with the cabin closed with the discharge not dependent on an open hatch. Unless permanently attached to the pump, the bilge pump handle shall be securely attached to the boat in its vicinity via a lanyard or catch. A bilge pump discharge shall not be connected to a cockpit drain. The bilge pump shall not discharge into a cockpit unless that cockpit opens aft to the sea.
Hull and Structure: Dewatering pumps	2.5.2	A boat shall have a portable manual bilge pump of at least 10 GPM capacity capable of dewatering any part of the boat. When not in use, the pump shall be attached to the boat.
Hull and Structure: Mechanical Propulsion	2.7.1	A boat shall have a mechanical propulsion system that is quickly available and capable of driving the boat at a minimum speed in knots equivalent to the square root of LWL in feet (1.8 times the square root of the waterline in meters) for 10 hours.
Hull and Structure: Mechanical Propulsion	2.7.3	A boat's engine and generator installation (if so equipped) must conform to ABYC, ISO, or U.S. Coast Guard standards.
Hull and Structure: Nets or Trampolines	2.8	All trampolines shall be (a) essentially horizontal; (b) Made from durable woven webbing, water permeable fabric or mesh with openings not larger than 2" (5cm) in any dimension. Attachment points shall avoid chafe and the junction between net and boat shall present no risk of foot trapping; (c) Solidly fixed at regular intervals on transverse and longitudinal support lines and (d) Able to carry the full weight of the crew either in normal working conditions at sea or when the boat is inverted.
Hull and Structure: Nets or Trampolines	2.9	Each multihull shall have one or a combination of netting, coamings, bulwarks, railings, lifelines or jacklines, extending from the aft most part of the cockpit or steering station to the aft most part of the central pulpit or forestay, to keep the crew aboard while sailing and sail handling in conditions expected for Offshore, Coastal or Inshore racing. If lifelines are used, they may be either stainless or HMPE with a minimum diameter of 3/16" (5mm), they must be taut, supported at distances of no greater than 87" (2.2 m), and be a minimum of 24" (762 mm) above the deck with a maximum vertical gap of 15" (381mm).
Hull and Structure: Nets or Trampolines	2.1	A trimaran with a single crossbeam shall have nets between the central hull and each outrigger on each side between two straight lines from the intersection of the crossbeam and the outrigger, respectively to the aft end of the pulpit on the central hull, and to the aftermost point of the cockpit or steering position on the central hull (whichever is furthest aft).
Hull and Structure: Nets or Trampolines	2.11	A catamaran shall have nets covering at least the area bounded: (a) laterally between the hulls and (b) Longitudinally between transverse stations through the forestay base and the aftermost point of the boom lying fore and aft. However, a catamaran with a central nacelle (non-immersed) may satisfy the regulations for a trimaran
Safety Equipment: Personal	3.1.1	Each crewmember shall have a life jacket that provides at least 33.7lbs (150N) of buoyancy, intended to be worn over the shoulders (no belt pack), meeting either U.S. Coast Guard or ISO specifications. Alternatively, each crewmember shall have an inherently buoyant off-shore life jacket that provides at least 22lbs (100N) of buoyancy meeting either U.S. Coast Guard or ISO specifications.

Safety Equipment: Personal	3.1.4	Each crewmember shall have a safety harness and compatible safety tether not more than 6'7" (2m) long with a minimum tensile strength of 4500 lb. (20 kN). The tether shall have a snap hook at its far end and a means to quickly disconnect the tether at the chest end.
Safety Equipment: Navigation Lights	3.3.1	A boat racing between sunset and sunrise shall carry navigation lights that meet U. S. Coast Guard or applicable government requirements mounted so that they will not be obscured by the sails nor be located below deck level.
Safety Equipment: Navigation Lights	3.3.2	A boat shall have a second set of navigation lights that comply with US Coast Guard or applicable government requirements and which can be connected to a different power source than the primary lights.
Safety Equipment: Fire Extinguishers	3.4	A boat shall carry fire extinguisher(s) that meets U.S. Coast Guard or applicable government requirements, when applicable.
Safety Equipment: Sound Producing Equipment	3.5	A boat shall carry sound-making devices that meets U.S. Coast Guard or applicable government requirements, when applicable.
Safety Equipment: Visual Distress Signals	3.6.5	A boat shall carry four SOLAS red hand flares not older than the expiration date.
Safety Equipment: Visual Distress Signals	3.6.5	Boat flares stored inside of life rafts may not be used to satisfy the flare requirement.
Safety Equipment: Man Overboard	3.7.1	A boat shall carry a Lifesling or equivalent man overboard rescue device equipped with a self igniting light stored on deck and ready for immediate use.
Safety Equipment: Man Overboard	3.7.2	A boat shall have a man overboard pole and flag, with a lifebuoy, a self-igniting light, a whistle, and a drogue attached. A self-inflating Man Overboard Module, Dan Buoy or similar device will satisfy this requirement. Self-inflating apparatus shall be tested and serviced in accordance with the manufacturer's specifications. These items shall be stored on deck, ready for immediate use, and affixed in a manner that allows for a "quick release".
Safety Equipment: Man Overboard	3.7.3	A boat shall have a throwing sock-type heaving line of 50' (15m) or greater of floating polypropylene line readily accessible to the cockpit.
Safety Equipment: Man Overboard	3.7.4	A boat shall carry a Coast Guard or applicable government approved "throwable device". If the device carried under 3.7.1 or 3.7.2 satisfies this requirement, then no additional device is needed.
Safety Equipment: Emergency Communications	3.8.4	A boat shall have an emergency VHF antenna with sufficient coax to reach the deck, and have a minimum antenna length of 15" (381mm).
Safety Equipment: Emergency Communications	3.14	A boat shall carry a GPS receiver.
Safety Equipment: Emergency Communications	3.15	A boat shall carry an electronic means to record the position of a man overboard within ten seconds. This may be the same instrument listed in 3.14.
Safety Equipment: Navigation	3.17	A boat shall have a knotmeter or alternatively a handheld GPS, in additional to the primary GPS referenced in 3.14
Safety Equipment: Navigation	3.18	A boat shall have a permanently installed depth sounder that can measure to depths of at least 200 ft. (61m).
Safety Equipment: Navigation	3.19.1	A boat shall have a permanently mounted magnetic compass independent of the boat's electrical system suitable for steering at sea.

Safety Equipment: Navigation	3.19.2	A boat shall have a second magnetic compass suitable for steering at sea which may be handheld.
Safety Equipment: Navigation	3.2	A boat shall have non-electronic charts that are appropriate for the race area.
Safety Equipment: Damage Control	3.21	A boat shall have the ability to display sail numbers and letters of the size carried on the mainsail by an alternative means when none of the numbered sails is set.
Safety Equipment: Damage Control	3.22	A boat shall carry soft plugs of an appropriate material, tapered and of the appropriate size, attached or stowed adjacent to every through-hull opening.
Gear: Anchoring	3.23	A boat shall carry one anchor, meeting the anchor manufacturer's recommendations based on the yacht's size, with a suitable combination of chain and line.
Gear: Lights	3.24.1	A boat shall carry a watertight, high-powered searchlight, suitable for searching for a person overboard at night or for collision avoidance.
Gear: Lights	3.24.2	A boat shall carry a watertight flashlight for each crewmember with spare batteries in addition to the above.
Gear: Medical Kits	3.25	A boat shall carry a first aid kit and first aid manual suitable for the likely conditions of the passage and the number of crew aboard.
Gear: Radar Reflectors	3.26	A boat shall carry an 11.5" (292mm) diameter or greater octahedral radar reflector or one of equivalent performance.
Gear: Buckets	3.27.1	A boat shall carry two sturdy buckets of at least two gallons (8 liters) capacity with lanyards attached.
Gear: Safety Diagram	3.28	A boat shall post a durable, waterproof diagram or chart locating the principal items of safety equipment and through hulls in the main accommodation area where it can be easily seen.
Gear: Emergency Steering	3.29.1	A boat must be able to be steered after the failure of any one component in the steering system.
Gear: Spare Parts	3.3	A boat shall carry tools and spare parts, including an effective means to quickly disconnect or sever the standing rigging from the hull.
Gear: Identification	3.31	All lifesaving equipment shall bear retro-reflective material and be marked with the yacht's or wearer's name. The exception would be for new equipment or rented equipment (e.g. life rafts) that would require the unpacking of sealed equipment in order to meet this requirement. The boat name shall be added during the first servicing of any new equipment.
Gear: Cockpit Knife	3.32	A boat shall carry at least one strong, sharp knife, sheathed and securely restrained on deck which is readily accessible from each trampoline in the event of inversion In addition, A boat shall carry a second knife meeting the requirements above which is accessible from the underside of the boat.
Gear: Cockpit Knife	3.32.1	A boat shall carry a strong, sharp knife, sheathed and securely restrained adjacent to each escape hatch.
Sails: Mainsail Reefing	3.33.1	A boat shall have a mainsail reefing capable of reducing the luff length by at least 50%.
Sails: Headsails	3.33.4	A boat shall carry a storm jib not exceeding 5% of the yacht's I dimension squared, an equipped with an alternative means of attachment to the headstay in the event of a failure of the head foil. Storm sails manufactured after 01/01/2014 shall be constructed from a highly visible material.
Sails: Mainsheet Release	3.33.5	The crew of a boat must be able to manually release sufficient mainsheet or traveler to cause the end of the boom to move at least 15 degrees in arc in under two (2) seconds from all steering or consistently manned trimming station while racing. Hydraulics manufacturer design specifications or video are acceptable compliance.
Search & Rescue Visibility	3.34	A boat must display a one square meter area of highly visible pink, orange or yellow showing if the boat is inverted.
Rigging: Halyards	3.35	A single roller-furling headsail of no larger than 125% LP may be lashed to the swivel at the top of the forestay, thus requiring a person to go aloft to hoist or drop this sail. No other sail, either headsail or mainsail, may be rigged so that someone has to go aloft to hoist or drop it.
Gear: Life Rafts	3.4	A boat shall have a grab bag with a lanyard and clip.. The grab bag shall have inherent flotation and be of a bright fluorescent color containing at least an EPIRB or PLB a watertight handheld VHF radio, a waterproof flashlight, and cutting tools if required per 2.1.1.2. The VHF radio and EPIRB or PLB need are in addition to the prior requirements and shall be properly registered to the boat in the case of the EPIRB, or to the owner with a notation that it is carried on the boat in the case of a PLB.
Skills: Emergency Steering	4.1.1	A boat's crew shall be aware of multiple methods of steering the boat with the rudder disabled, and shall have chosen and practiced one method of steering the boat with the rudder disabled and be prepared to demonstrate said method of steering both upwind and downwind.
Skills: Man Overboard	4.2	Annually, two-thirds of a boat's racing crew shall practice man-overboard procedures appropriate for the boat's size and speed. The practice shall consist of marking and returning to a position on the water, and demonstrating a method of hoisting a crewmember back on deck, or other consistent means of reboarding the crewmember.

Skills: Crew Training	4.4	As required in 1.2 above the person in charge shall ensure that all crew members know where all emergency equipment is located and how to operate the equipment. In addition, the person in charge and crew shall discuss how to handle various emergency situations including Crew Overboard, Grounding, Loss of steering, Flooding, Fire, Dismasting, and Abandon Ship.
Chicago Specific Requirement	5.1	Centerboard/Daggerboard Trunks, Canting Keel Pivots – Centerboard and daggerboard trunks, and the like, shall not open into the interior of a hull. A watertight inspection/ maintenance hatch is permitted if located entirely above the waterline of the boat when floating level in normal trim. Canting keel pivots shall be completely contained within a watertight enclosure. Watertight access point(s) for control or actuation are permitted if located entirely above the waterline of the boat when floating level in normal trim.
Chicago Specific Requirement	5.4	Red Parachute Flares - A boat shall carry two SOLAS red parachute flares not older than the expiration date.
Chicago Specific Requirement	5.5	Boat Batteries – When an electric starter is the only method for starting the engine, a boat shall carry a separate battery, the primary purpose of which is to start the engine.
Chicago Specific Requirement	5.6	Engine - A boat shall have a mechanical propulsion system that is capable of starting and capable of driving the boat for 10 hours at a minimum speed in knots equivalent to the square root of LWL in feet (approximately 75% of theoretical hull speed; 1.81 times the square root of the waterline in meters) and finish the race with fuel sufficient to continue motoring at that speed for 10 hours.
Chicago Specific Requirement	5.7	Reflective Sailboard - A boat shall carry a reflective sailboard, capable of being attached to the boat's lifelines, with its sail number mounted on a black background. Each digit of its sail number shall be at least ten (10) inches high and displayed in a commercially available typeface giving the same or better legibility than Helvetica, and be made out of white or silver, highly retro-reflective material suitable for a marine environment. The minimum Coefficient of Retroreflection must equal or exceed 100.
Chicago Specific Requirement	5.8	Cellular Phone - The Invited Competitor and the Person In Charge (if different from the Invited Competitor) shall (each) carry a working cellular phone corresponding to the cellular number on the Entry Profile for the Invited Competitor, and, the cellular number on the Crew Profile for the Person In Charge (if different from the Invited Competitor).
Chicago Specific Requirement	5.9	Personal Safety Knife – A straight blade knife, or a folding blade knife able to be opened with one hand, shall be attached to or carried on each crew member at all times. The Personal Safety Knife must be readily accessible at all times including while wearing foul weather gear and PFD/Harnesses.
Chicago Specific Requirement	5.11	Additional GPS - In addition to the GPS required in 3.14 above, a boat shall carry a second GPS which shall be battery powered independent of the boat's electrical system.
Chicago Specific Requirement	5.13	Crew Overboard Recovery Practice – At least two-thirds of a boat's crew shall practice, within six months prior to the Race, crew overboard recovery procedures appropriate for the boat's size and speed. At a minimum, the practice shall consist of marking and returning to a position on the water while under sail and while under power, and demonstrating a method of hoisting a crew member back on deck, or other consistent means of reboarding a crew member. A Crew Overboard Recovery Drill Certificate of such practice(s) shall be signed by participating crew members and kept aboard the boat. A copy of the completed certificate shall be turned in to race officials at Pre-Race Sign-In. The certificate shall be downloaded from the "Race Documents" section of the Mac website: https://www.cycracetomackinac.com/the-race/race-documents/
Chicago Specific Requirement	5.14	Handheld VHF Radio – A boat shall have a watertight handheld VHF radio or handheld VHF radio with waterproof cover. The radio shall have DSC/GPS capability and be programmed with a properly registered MMSI number.
Chicago Specific Requirement	5.17	Safety Harness and Tether - Each crewmember shall have a safety harness and compatible safety tether not more than 6'7" (2m) long with a minimum tensile strength of 4500 lb. (20kN). The tether shall have a snap hook at its far end and a quick release shackle at the harness end that is releasable under heavy load

Chicago Specific Requirement	5.18	Life Jackets - Life jackets shall be equipped with a whistle, a waterproof light, be fitted with marine-grade retro-reflective material, and be clearly marked with the boat's or wearer's name, and be compatible with the wearer's safety harness. If the life jacket is inflatable, it shall be regularly checked for air retention and shall be equipped with leg or crotch straps.
Chicago Specific Requirement	5.22	VHF Radio and Antenna - A boat shall have a permanently installed 25-watt VHF radio connected to a suitable masthead antenna by a co-axial feeder cable with no more than a 40% power loss. Such radio shall have DSC capability, be connected to or have an internal GPS, and have the assigned MMSI number (unique to the boat) programed into the VHF radio.
Chicago Specific Requirement	5.23	Emergency Antenna - A boat shall have an emergency VHF antenna that is capable of being connected to and operational with the boat's permanently installed VHF radio by a sufficient length of co-axial feeder cable to permit the antenna to be secured in an operable position above the deck.
Chicago Specific Requirement	5.24	Crew eligibility – Minimum Crew for a multihull is three. At least 50% of the crew must have completed two prior races or two documented non-stop passages under sail, on a multihull of a minimum of one hundred (100) nautical miles and twenty- four (24) hour minimum duration
Chicago Specific Requirement	5.25	Boat Eligibility - Multihulls shall meet each of the following conditions: 1) Be a minimum of 24 feet LOA; 2) have a LOA to BOC ratio (LOA/BOC) of 2.30 or less for catamarans aor 3.30 or less for trimirans. Boats failing to meet condition (2) may apply for entry conditioned on (a) having a proven self-righting system allowing the crew to right the boat when capsized, withoutside assistance. Any such system must be demonstrated to successfully function in at least 25 knots of wind; or (b) having a luff to BOC ration (Luff/BOC) of 3.2 or less for catamarans or 4.0 or less for trimirans. Notwithstanding these exceptions (A and B above), all entries are subject to review and acceptance or rejection by the organizing authority. Boat Eligibilty Definitions: LOA - length overall of the longest hull, excluding equipment (bowsprit, outboard engine, etc). BOC - Beam on Centerline: 1) for a catamaran, the perpendicular distance from the centerliune of one hull to the centerline of the other hull, measured at deck level. 2) for a trimiran, the perpendicular distance between the centrline of the main hull and the centerline of either ama, measured at deck level. The centerline for (1) and (2) abvoe shall be established at the mid-point between the sides of the hull, excluding flares or extensions. Luff - the luff of the mainsail measured as distance between the two points along a line parallel to the sail luff from which lines drawn at 90 degrees intersect the highest point on the head and the lowest point on the foot respectively.

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2019 Chicago Mackinac Safety Requirements - Monohulls

Appendix A - Recommendations

The following items are strongly recommended, but are not required for this running of the Race. These are NOT requirements and no competitor is subject to protest on these matters. The Mac Committee is considering imposing these as requirements in subsequent races so boat owners would be advised to take them into account in equipping their boat and/or training their crew.

Section Name	US Sailing SER # Reference	Recommendation
Skills: Safety at Sea Training	N/A - Will be 5.xx	At least (2) members of the crew shall have completed First Aid and CPR training courses offered by the American Red Cross or the National Safety Council meeting the standards set by 46 CFR 11.201(i) for a U.S. Coast Guard original officer endorsement. For a list of recognized courses see: https://www.nsc.org/Portals/0/Documents/FirstAidDocuments/IRC/State-Approvals/National-coast-guard.pdf
Skills: Safety at Sea Training	4.3.1	At least 30% of those aboard the boat, but not fewer than two members of the crew (unless racing single-handed) including the person in charge, shall have attended a US Sailing International Offshore Safety at Sea Course with Hands-on Training within the last 5 years, or an equivalent course of another national authority.
Gear: Life Rafts	3.39	A boat shall carry adequate inflatable life raft(s) designed for saving life at sea with designed capacity for containing the entire crew. The raft shall be SOLAS, ISAF, ISO 9650-1 or ORC approved. The raft shall be stored in such a way that it is capable of being launched within 15 seconds. Boats built after 01/06/2001 shall have the life raft stowed in a deck mounted rigid container or stowed in watertight or self-draining purpose built rigid compartment(s) opening adjacent to the cockpit or the working deck. *Boats built prior to 01/06/2001 may alternatively stow the life raft in a valise not weighing over 88 lbs. securely below deck and adjacent to the companionway.* The life raft(s) shall hold current certificate(s) of inspection.
Safety Equipment: Emergency Communications	3.9	Effective January 1, 2021, a boat shall have an AIS Transponder, sharing a masthead VHF antenna via a low loss AIS antenna splitter. An acceptable alternative is a dedicated AIS antenna that is a minimum of 0.9 meters long, mounted with its base at least 3 meters above the water, and fed with coaxial cable that has a maximum 40% power loss.
Safety Equipment: Emergency Communications	3.10.1	Effective January 1, 2021, each crew member shall have a dedicated AIS personal crew overboard beacon. This shall be on the crew member's person at all times while on deck.
End	N/A	Competitors are reminded to carry appropriate spares sufficient to maintain safety standards and seaworthiness, including but not limited to spare rearming kits for life jackets.

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2019 Chicago Mackinac Safety Requirements - Monohulls
Appendix B - Seamanship and Safety Skills Checklist

Thank you for your interest in the Chicago Yacht Club Race to Mackinac. The safety of all competitors is a primary concern of the Mackinac Committee, and the primary responsibility of each skipper. The checklist below is based on the requirements of the US Sailing Offshore Sailing course for the type of boats and offshore conditions of this race. It is the expectation of the Selections Sub-Committee that the Invited Competitor, Person-In-Charge, and appropriate crew members will be competent in these areas of seamanship and safety. We ask that you use this checklist to satisfy yourself of your competency and that of your navigator, watch captains, and other crew members prior to submitting a Request for Invitation. - **CYCMC Selections Sub-Committee**

The following items are strongly recommended, but are not required for an invitation

PREPARATION TO SAIL:

Able to:

1. Recognize and forecast basic local weather conditions.
2. Describe personal preparation such as physical fitness, clothing and sun protection.
3. Check auxiliary power systems: location and operation of engine controls, fuel filters, alternator, engine mechanical and fluids check, transmission controls, shut off valves, ventilation system, and engine cooling system.
4. Check the electrical system: main battery switch, electrical control panel, battery fluids and terminals.
5. Locate the bilge pump system for manual and electrical pumps, intake maintenance, and bilge pump alarms and fuses.
6. Check and locate the anchoring system: rodes, shackles, and chains.
7. Check the sail inventory and understand the proper selection of sails for differing weather conditions.
8. Check the security and operation of all hatches, ports and companionways.
9. Check the inventory and location of all on board tools and spare parts.
10. Determine the motoring range under power and the vessel's fuel capacity.
11. Locate all required documentation for the crew and vessel.

CREW OPERATION AND SKILLS:

Able to:

1. Describe the proper wearing of life jackets and the use of throwable floatation and rescue devices.
2. Demonstrate tying and the use of: stopper knot, bowline, cleat hitch and clove hitch.
3. Describe winch types, proper operation, and the procedure for clearing a fouled winch.
4. Properly heave a line for towing or docking.
5. Describe crew responsibilities and operational communications.
6. Demonstrate proper sail trimming and shaping techniques.
7. Describe proper VHF radio procedure, operation of controls, channel usage, weather receiving, and emergency procedures.
8. Describe minimum US Coast Guard safety requirements for auxiliary powered vessels.
9. Explain the purpose and proper use of a radar reflector.
10. Describe how to safely go aloft.
11. Describe proper rafting techniques at docks and anchorages and with other vessels.
12. Operate the stove and its controls and shut off valves.
13. Properly operate the head, and its controls and valves.

NAVIGATION:

1. Ability to use for navigation; a plotter, parallel rules, dividers, a clock, a hand bearing compass, a ship's compass, a depth sounder, a knotlog and binoculars.
2. Is familiar with the International and Inland Navigation Rules 1 through 19, and rules 20 through 31 regarding the identification of dayshapes, and rules 32 through 38 regarding sound signals.

3. Is familiar with basic chart reading and identification of chart symbols and landmarks.
4. Can describe aids to navigation: channel markers, daymarkers, regulatory markers, and other markers specific to Lake Michigan waters.
5. Can describe the two different designs for diver's flags.
6. Ability to perform basic dead reckoning, plotting, calculating speed/distance/time, and taking bearings and fixes.
7. Is familiar with the magnetic and electrical influences that may disrupt accurate compass readings.
8. Can define true and magnetic compass readings, and the application of variation and deviation.
9. Is familiar with considerations, responsibilities and special techniques for restricted visibility navigation.
10. Can use electronic navigation devices such as GPS for positioning and determining a course to steer.
11. Can demonstrate the data entry use of a navigation log.
12. Can describe the use and operation of electronic navigation instruments such as Knot meters, Depth Sounders, Wind Speed/Direction Indicators, Global Positioning Systems, VHF Radio, (and if your vessel is so equipped, Radar, Weather fax, SatNav, or Personal Computers).
13. Is familiar with sources for information and use of appropriate publications such as: NOAA Chart #1, Coast Pilots, Light Lists, Navigation Rules, Local Notice to mariners, Federal Requirements for recreational Boaters, and local rules and regulations.
14. Can determine position on a chart based on casual observations, then confirmed by traditional piloting techniques.
15. Has an understanding of current, set and drift and its effects. Can determine current from known set and drift, then plot an estimated position.
16. Can plot a fix using two or more bearings on different objects and a fix using at least one range (transit) as a Line of Position.
17. Can plot a running fix.
18. Is familiar with bow and beam bearings, doubling the angle on the bow, and the limitations and dangers of using these methods.

SAFETY AND EMERGENCY PROCEDURES

1. Can locate first aid kit and identify its contents and use.
2. Knows treatment for victims of overheating, hypothermia and seasickness.
3. Can determine the location, use and regulations for safety flares.
4. Knows at least eight different distress and emergency signals.
5. Knows the US Coast Guard and IRC requirements for safety equipment.
6. Can describe the common recovery methods after going aground.
7. Is familiar with fire extinguishers on board: regulations, types, location and operation.
8. Knows the location and operation of the emergency steering system and boat control during a failure of the steering system.
9. Is familiar with proper towing techniques: maneuvering onto a tow, handling and securing a towline, chafe protection, boat speed, dropping off a tow, and communications.
10. Can demonstrate proper deck safety and the use of life jackets, safety harnesses and jack lines during heavy weather conditions.
11. Can explain proper fueling techniques and potential hazards.
12. Can describe emergency procedures and equipment in the event that you have struck an obstruction and holed your vessel in deep water.
13. Can describe a plan of action in the event of a dismasting in heavy wind and sea conditions.
14. Can describe a plan of action and deployment procedure if your vessel was in danger of sinking, and you have a life raft aboard. Can describe how you were prepared for this unlikely event.

15. Can describe weather warning light and flag displays for small craft, gales, storms, and hurricane level winds.

OVERBOARD RECOVERY METHODS:

1. Can demonstrate Quickstop and the Reach-Tack-Reach methods of returning to a fix position; communications, recovery plan, sequence of maneuvers, boat handling, course sailed, pickup approach, bringing boat alongside crew member in the water, reboarding overboard crew member.
2. Can describe when overboard recovery should be done under power.
3. Can demonstrate use of Lifesling and throw rope as recovery methods to re-establish contact with crew member in the water.
4. Can describe deployment of MOM-8 or similar device and MAYDAY radio procedures involved when a crew member goes overboard.
5. Can demonstrate use of the VHR handheld radio, GPS or other equipment to mark crew overboard position and how to navigate back to that fix.

BOAT CONTROL IN OPEN WATER:

1. Knows how to control steering with weight and sails only.
2. Can describe sailing “by the lee” and explain the inherent dangers involved.
3. Can describe a plan of action if your vessel has fouled its propeller while under power near a dangerous lee shore in strong winds with sails stowed.
4. Can describe a plan of action having run solidly aground in moderate conditions on a rocky shore.

HEAVY WEATHER SAILING:

1. Has practiced the proper reefing techniques: determining when to reef, changing or roller furling headsails, reefing the mainsail, dropping sails, shaking out a reef and re-hoisting underway.
2. Has experienced proper helming and boat control while sailing under shortened sail.
3. Knows how to shorten sail to de-power and can explain effect on balance of boat.
4. Can describe the sky and water indications of an approaching squall and plan of action to remain safe aboard the boat when it would or would not be appropriate to seek a port of refuge.
5. Understands the use of a boom preventer and can explain overcoming its inherent dangers.
6. Can explain and perform heaving-to in heavy weather conditions and explain the considerations for crew safety.

ANCHORING TECHNIQUES:

1. Is familiar with anchoring for emergency situations such as loss of boat control, sudden storms, and prevention from going aground or endangered crew situations.
2. Can select an anchorage and properly anchor with single anchor under power.
3. Can explain different types of anchors and various bottom conditions suited for each type.
4. Knows the proper anchor rode scope for heavy weather, and how to calculate actual scope.
5. Knows the proper etiquette when anchoring in the vicinity of other boats.
6. Knows how to properly retrieve an anchor and depart under power.
7. Can describe the different procedures and reasons for anchoring with two anchors under sail and under power.
8. Can describe the procedures for un-fouling crossed anchors, recovering an anchor from under another boat, and recovery procedures for dragging while at anchor.
9. Has experienced anchoring the vessel under sail in difficult conditions such as darkness, fog or heavy weather both as skipper and crew.

End

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2019 Chicago Mackinac Safety Requirements - Monohulls
Appendix C - Resources

The following is list of resources for competitors. This is NOT an official race document and may not be the basis of prote competitor. This tab may be updated from time to time. If you have suggestions for information that should appear unde please email regattamanager@chicagoyachtclub.org

The Race to Mackinac strives to be an environmentally friendly regatta. Below are some of your statutory obligations und

No Discharge regulation:

(625 ILCS 45/4-9) (from Ch. 95 1/2, par. 314-9)

Sec. 4-9. Sealing of marine heads. No marine head (toilet) on any watercraft used upon waters of this State may be so constructed and opera the discharge of any sewage into the waters directly or indirectly.

(Source: P.A. 88-524.)

http://www.ilga.gov/legislation/ilcs/ilcs4.asp?DocName=062500450HArt%2E+IV&ActID=1826&ChapterID=0&SeqStart=7600000&SeqEnd=8900000

(415 ILCS 105/) Litter Control Act.

(415 ILCS 105/3) (from Ch. 38, par. 86-3)

Sec. 3. As used in this Act, unless the context otherwise requires:

(a) "Litter" means any discarded, used or unconsumed substance or waste. "Litter" may include, but is not limited to, any garbage, trash, refu debris, rubbish, grass clippings or other lawn or garden waste, newspaper, magazines, glass, metal, plastic or paper containers or other packagi material, abandoned vehicle (as defined in the Illinois Vehicle Code), motor vehicle parts, furniture, oil, carcass of a dead animal, any nauseous matter of any kind, any object likely to injure any person or create a traffic hazard, potentially infectious medical waste as defined in Section 3.3 Environmental Protection Act, or anything else of an unsightly or unsanitary nature, which has been discarded, abandoned or otherwise dispose

(415 ILCS 105/4) (from Ch. 38, par. 86-4)

Sec. 4. No person shall dump, deposit, drop, throw, discard, leave, cause or permit the dumping, depositing, dropping, throwing, discarding or upon any public or private property in this State, or upon or into any river, lake, pond, or other stream or body of water in this State, unless:

(a) the property has been designated by the State or any of its agencies, political subdivisions, units of local government or school districts fo litter, and the litter is disposed of on that property in accordance with the applicable rules and regulations of the Pollution Control Board;

(b) the litter is placed into a receptacle or other container intended by the owner or tenant in lawful possession of that property for the deposit

(c) the person is the owner or tenant in lawful possession of the property or has first obtained the consent of the owner or tenant in lawful po unless the act is done under the personal direction of the owner or tenant and does not create a public health or safety hazard, a public nuisance hazard;

(d) the person is acting under the direction of proper public officials during special cleanup days; or

(e) the person is lawfully acting in or reacting to an emergency situation where health and safety is threatened, and removes and properly di litter, including, but not limited to, potentially infectious medical waste as defined in Section 3.360 of the Environmental Protection Act, when th situation no longer exists.

(Source: P.A. 92-574, eff. 6-26-02.)

WATERPROOF - IPX7, IPX8; or JIS7, JIS8 (a short tutorial):

Ratings for the degree of protection provided by mechanical casings and electrical enclosures against water intrusion are two regulatory schemes: the International Electrotechnical Commissions which publishes the IP Code and the Japan Indu Standards which publishes the JIS Rating. These provide a number (from 0 to 8, or 9) that signifies how well the casing w water from entering the device and thus possibly rendering it inoperable.

The IP Code (IEC Standard 60529) classifies both the degree of protection against access to hazardous parts and ingres foreign objects (like hands, fingers, screwdrivers, all the way down to dust particles) and the degree of protection against i liquids. The basic code consists of the letters "IP" followed by (usually) 2 digits. The first digit runs from 0 to 6 and signifie protection against physical intrusion with 0 for none and 6 for "dust tight." (There might be an X in lieu of a digit for physi intrusion--which signifies there was no separate rating established for it.) The second number runs from 0 to 9 and signifie protection there is against liquid (water) intrusion. Again, 0 means no protection. The lowest level affording any protectio which protects against dripping water. A 3 will provide protection against splashing water; 6 protects against powerful wat 7 permits immersion of the device up to 1 meter in depth and 8 is immersion of 1 meter or more.

The JIS Rating classifies water intrusion on a similar scale as the IP Code, with 0 signifying no protection against liquids a permitting temporary immersion in water, while an 8 stands for "usable for continuous submersion."

So when shopping for a handheld GPS, VHF radio or a plastic case for a cell phone or tablet, terms such as waterproof a submersible can be verified by checking for the IP Code or JIS rating of the product. A piece of equipment claiming to be should be certified with a rating of at least IPx7 or JIS7. You should be able to find this stamped somewhere on the outs on the label. If it is marketed as submersible, the rating should be at least IPx8 or JIS8. (The x in these IP ratings is a pla the physical intrusion rating, which may instead be a digit ranging from 0-6, although a piece of equipment that is waterpr also have a fairly high "dustproof" rating--if it has been separately tested and rated for physical intrusion.)

Bottom line: You want your handheld radio and other electronics on your boat rated at least IPX7 or JIS7. If you and yo yourself in the water, it is better to have equipment in your ditch bag rated as IPX7 or JIS7 (waterproof) or, better yet, IPX (submersible) rather than simply IPX3 (splash proof).

Co-axial Cable and the 40% Power Loss Limitation:

Thanks to Stan Honey (honeynav.com) and CYC's Tom Falck, the table below shows the maximum length (in feet) that va VHF coaxial cable (Coax) can extend without experiencing more than a 40% power loss. Many boats have an antenna th signal to partially compensate for the loss, but the SER rule is concerned only with the power loss via the coaxial cable. It confirm if you have the proper cable - the Coax type is printed every few feet on the outside of the cable. When evaluatin of coax cable is appropriate for your boat, consider not only the height of your mast but also the distance the cable snake cabin before hooking up with your VHF radio. The table below provides a quick check on whether you need to take a clos setup. For a more detailed analysis, use the VHF Coax Loss Calculator in the next tab.

COAX TYPE	Max Length In Feet
RG-58	38.53
RG-8X	47.73
LMR-LW200	54.52
LMR-LW240	71.92
RG-213	88.98
RG-8	88.98
RG-8/U	88.98
LMR-LW400	141.06

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VHF Coax Loss Calculator

COAX TYPE	Max Length In Feet	Enter Length of Coax Segment in Decimal Feet	Segment Loss in dB
RG-58	38.53		
RG-8X	47.73		
LMR-LW200	54.52		
LMR-LW240	71.92		
RG-213	88.98		
RG-8	88.98		
RG-8/U	88.98		
LMR-LW400	141.06		

Max Loss Allowed 2.2185 dB (40%)	**Total Loss (dB):**	**0.00**

VHF Coax Loss Calculator - ver 2019.01

Derived from http://honeynav.com/vhf-coax-loss-calculator/