

These safety equipment rules establish minimum equipment standards for designated races in the Thunder Bay Yacht Club (TBYC) racing program. These rules supplement the requirements of applicable local or national authorities for boating, the Racing Rules of Sailing, and any applicable rating rules.

## GENERAL

1. 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.
2. 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.
3. 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.
4. A boat shall carry tools and spare parts, including an effective means to quickly disconnect or sever the standing rigging from the hull.
5. A boat's heavy items such as batteries, stoves, toolboxes, anchors, chain and internal ballast shall be secured.

## BOAT

1. 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 requirements of these rules. A boat's shrouds and at least one forestay shall remain attached at all times.
2. 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.
3. A boat's centerboard and dagger board trunks shall not open into the interior of a hull except via a watertight inspection/maintenance hatch of which the opening shall be entirely above the waterline of the boat when floating level in normal trim.
4. 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.
5. A boat shall have at least two (2) exits. At least one exit shall be located forward of the foremost mast except where structural features prevent its installation in this location.
6. A boat's companionway(s) shall be capable of being blocked off to deck level. The method of blocking shall be solid and rigidly secured if it is not permanent.

7. A boat's hatch board(s) shall be capable of being secured to the boat (e.g., by a lanyard) while racing to prevent it from being lost overboard.
8. Movable ballast systems shall be fitted with a manual control and secondary actuation system, which shall be capable of controlling the full sailing load of the keel in the event of a failure of the primary system. Such failures may include electrical, hydraulic, or mechanical failure of the components and/or the structure to which it mounts. The system must be capable of being operated quickly, and at any angle of heel.

#### DECK ENCLOSURE SYSTEM (Lifelines, etc.)

1. A boat's deck including the headstay shall be surrounded by a suitably strong enclosure, typically consisting of lifelines and pulpits.
2. A boat's stanchion and pulpit bases shall be within the working deck. Stanchions used with HMPE shall have rounded openings to reduce chafe.
3. Bow pulpits may be open, but the opening between the vertical portion of stanchion pulpit and any part of the boat shall not exceed 360mm (14.2").
4. Lifelines may be either uncoated stainless steel wire or high molecular weight polyethylene (HMPE) line with spliced terminations or terminals specifically intended for the purpose. A multipart-lashing segment not to exceed 4" per end termination for the purpose of attaching lifelines to pulpits is allowed. Lifelines shall be taut. When HMPE is used, the load-bearing portion (core) shall meet or exceed minimum diameter requirements.
5. Lifeline deflection shall not exceed the following: a) When a deflecting force of 9 lbs (40N) is applied to a lifeline midway between supports of an upper or single lifeline, the lifeline shall not deflect more than 2" (50mm). This measurement shall be taken at the widest span between supports that are aft of the mast. b) When a deflecting force of 9 lbs (40N) is applied midway between supports of an intermediate lifeline of all spans that are aft of the mast, deflection shall not exceed 5" (120mm) from a straight line between the stanchions.
6. The maximum spacing between lifeline supports (e.g. stanchions and pulpits) shall be 87" (2.2m).
7. Boats under 30' (9.14m) shall have at least one lifeline with 18" (457mm) minimum height above deck, and a maximum vertical gap of 18" (457mm). Taller heights will require a second lifeline. The minimum diameter shall be 1/8" (3mm); or each crew member shall wear a safety harness and tether at all times while not below deck, and the tether shall be attached to a strong point on the boat, unless the person-in-charge directs that it may be put aside.
8. Boats 30' and over (9.14m) shall have at least two lifelines with 24" (762mm) minimum height above deck, and a maximum vertical gap of 15" (381mm). The minimum diameter will be 5/32" (4mm) for boats to 43' (13.1m) and 3/16" (5mm) for boats over 43' (13.1m).
9. Toe rails shall be fitted around the foredeck from the base of the mast with a minimum height of 3/4" (18mm) for boats under 30' (9.14m) and 1" (25mm) for boats over 30'. An additional installed lifeline that is 1-2" (25-51mm) above the deck will satisfy this requirement for boats without toerails.

## RIGGING AND SAILS

1. A boat over 30' LOA (9.14 m) shall have a means to prevent the boom from dropping if support from the mainsail or halyard fails.
2. A mast shall have not less than two (2) halyards, each capable of hoisting a sail.
3. Recommended: a boat shall carry a storm jib or strongly built headsail with maximum luff length of 65% of her I dimension and equipped with a means of attachment to the headstay that is not dependant on a luff groove device.
4. A boat shall carry a main sail and reefing gear capable of reducing the luff length by no less than 25%, or a trysail which can be set independently of the main boom, with an area less than 17.5 % of E x P.
5. Storm sails manufactured after 01/01/2014 shall be constructed from a highly visible material.

## ACCOMODATIONS

1. A boat shall have bunks sufficient to accommodate the off watch crew.
2. A boat shall have a stove with a fuel shutoff.
3. A boat shall have adequate hand holds below decks.
4. A boat shall have a permanently installed marine toilet, or a properly secured portable toilet.

## STEERING

A boat shall have an emergency tiller, capable of being fitted to the rudder stock. Boats using an unbreakable metal tiller are exempt from this requirement.

## PROPULSION

1. Boat Batteries – When an electric starter is the only method for starting the engine, boats shall carry a separate battery, the primary purpose of which is to start the engine.
2. A boat shall have a mechanical propulsion system and sufficient fuel, capable of driving the boat at hull speed for ten (10) hours.
3. Fuel tanks must be provided with shutoff valves or in the case of a portable fuel tank, a quick disconnect of the fuel line.

## DEWATERING

1. A boat shall have a permanently installed manual bilge pump which is operable from the deck with the cabin closed and 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 near the pump. 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.

2. A boat shall carry two sturdy buckets of at least two gallons (8 liters) capacity with lanyards attached.

#### PERSONAL SAFETY EQUIPMENT

1. Each crewmember shall have a personal flotation device (PFD) intended to be worn over the shoulders as required by U.S. Coast Guard or Transport Canada regulations, according to her country of registration. If inflatable, the PFD shall have been inspected and tested for air retention within the last 12 months.
2. A PFD shall be equipped with a whistle, a waterproof light, marine-grade retro-reflective material, clearly marked with the boat's or wearer's name, and be compatible with the wearer's safety harness.
3. Recommended: a PFD shall be equipped with crotch or leg straps.
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. (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.
5. A boat shall carry jack lines with a breaking strength of at least 20kN (4500 lb.) which allow the crew to reach all points on deck, connected to similarly strong attachment points, in place while racing.
6. Each crewmember shall wear a PFD at all times while racing unless the person-in-charge directs that it may be put aside.
7. A knife, straight blade, or if folding, able to be opened with one hand, shall be attached to or carried by each crew member at all times. The knife must be readily accessible at all times, including while wearing foul weather gear and PFD and/or harness.

#### NAVIGATION

1. A boat shall carry navigation lights as required by U. S. Coast Guard or Transport Canada regulations, according to her country of registration, mounted so that they will not be obscured by the sails.
2. A boat shall carry spare bulbs for navigation lights; however, spares are not required for navigation lights using LEDs.
3. A boat shall display navigation lights at all times between sunset and sunrise.
4. A boat shall carry a GPS receiver capable of marking the position of a man overboard.
5. A boat shall have a permanently installed depth sounder that can measure to depths of at least 200 ft. (61m).
6. A boat shall have a permanently mounted magnetic compass independent of the boat's electrical system suitable for steering at sea.
7. A boat shall carry an 11.5" (292mm) diameter or greater octahedral radar reflector or one of equivalent performance.
8. A boat shall have non-electronic charts that are appropriate for the race area.

## PORTABLE SAFETY EQUIPMENT

1. All lifesaving equipment shall bear retro-reflective material and be marked with the yacht's or wearer's name, except for new equipment or rented equipment that would require unpacking sealed equipment (e.g., life raft) in order to meet this requirement.
2. A boat shall carry fire extinguisher(s) as required by U.S. Coast Guard or Transport Canada regulations, according to her country of registration.
3. A boat shall carry sound-signalling device(s) as required by U.S. Coast Guard or Transport Canada regulations, according to her country of registration.
4. A boat shall carry the number and type of signal flares appropriate to her size as required by U.S. Coast Guard or Transport Canada regulations, according to her country of registration. Signal flares shall not be older than the expiration date. Flares stored inside a life raft shall not be used to satisfy the flare requirements of U.S. Coast Guard or Transport Canada.
5. A boat shall carry a strong, sharp knife, sheathed and securely restrained which is readily accessible from the deck and/or cockpit.
6. 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.
7. A boat shall carry at least one anchor, meeting the anchor manufacturer's recommendations based on the yacht's size, with a suitable combination of chain and line.
8. A boat shall carry a watertight, high-powered searchlight, suitable for searching for a person overboard at night or for collision avoidance.
9. A boat shall carry at least two watertight flashlights with spare batteries and bulbs (except for LED flashlights) in addition to the searchlight.
10. 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.

## MAN OVERBOARD EQUIPMENT

1. A boat shall carry a throwable flotation device as required by U.S. Coast Guard or Transport Canada regulations, according to her country of registration, on deck and ready for immediate use.
2. A boat shall have a man overboard pole and flag, with a lifebuoy or life ring, self-igniting light, 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 carried on deck, ready for immediate use.
3. Recommended: a boat shall have a Lifesling™ or similar man overboard recovery device.
4. A boat shall have a throwing sock-type heaving line of 50' (15m) or greater of floating polypropylene line readily accessible to the cockpit.

## COMMUNICATION

1. A boat shall have a permanently installed 25-watt VHF radio connected to a masthead antenna by a co-axial feeder cable with no more than a 40% power loss.
2. A boat shall have a handheld VHR radio watertight or stored in a waterproof container.
3. Boats shall carry a working cell phone and provide the cell number to the race committee no later than the skippers' meeting.

## SINGLE AND DOUBLE-HANDED

1. A boat must carry an autopilot or tiller pilot installed and ready for immediate use, which may be used while racing. This changes RRS 52.
2. Single-handed entries shall meet all requirements of the Great Lakes Singlehanded Society Solo Challenge 2017 Required Equipment List at <http://docs.solosailors.org/pdfs/TransSup-GLSSRequiredEquipment.pdf>.