STORM TRYSAIL FOUNDATION
Junior Safety-at-Sea Program
In cooperation with US SAILING

Junior Safety-at-Sea is a one-day introduction to big boat sailing for teenage junior sailors who have sailing experience in small boats. The junior sailors hear presentations from experienced adult sailors and practice with coaches and instructors aboard cruising and racing boats in the 30-50 foot range borrowed from local owners.

GUIDANCE FOR ORGANIZERS

- Make the experience FUN and SAFE for juniors and all volunteers.
- Promote big boat sailing as a lifetime family sport and adventure.
- Use activities to teach when possible; keep lecturing to a minimum.
- Encourage. Direct toward better performance. Give positive reinforcement.
- Manage time. Respect the schedule.
- Cover basics, not great detail.
- Encourage pertinent questions.
- Feed the juniors!
- Provide gifts for boat owners; shirts for owners, speakers and coaches.

REQUIREMENTS FOR BOAT OWNER (REPRESENTATIVE)

- Vessel meets USCG requirements and regulations.
- Safety equipment is properly maintained and operational.
- Sails and running rigging are in good working order; spinnaker and gear aboard.
- Owner (or representative) is responsible for safe conduct of all aboard.
- An owner representative must be selected and approved by the owner.
- Owner (representative) has authority over all matters of safety.
- Organizers may provide a coach and/or instructors, but the owner (representative) has ultimate authority.
- Adults should encourage juniors to take the initiative.
- Owner (representative) should be familiar with local waters and check the chart.

ORIENTATION FOR PARENTS OR SAILING PROGRAM REPRESENTATIVE

- Submit waivers and paperwork in advance.
- Provide contact information for emergencies.
- Arrange transportation for juniors and their instructor to and from the seminar.
- Personal gear: juniors and their instructors must bring PFDs, sunhats and sunscreen, foul weather jacket, and boat shoes (no flip flops!)

SCHEDULE OF EVENTS

I. REGISTRATION OF JUNIORS (suggest 0800)

- Volunteers man a check-in table.
- Sign in all attendees, including instructors.
- Collect payments and waivers (preferably submitted in advance).
- Confirm all juniors have adequate personal gear.
- Handout schedules including classroom locations and group rotation.
- Distribute souvenir Safety-at-Sea shirts.

II. CHAIRMAN'S INTRODUCTION (0900)

- Introduce and thank host club Commodore, sponsors, and key helpers.
- Review schedule of the dayôs events.
- Housekeeping and ground rules.
- Know your audience
    - Ask juniors ñhow many have sailed big boats?ò
    - ñHow many have raced in an overnighter?ò
    - ñWho has done an ocean race?ò
- Provide overview of big boat sailing and fast exciting modern racing boats.
- Equate good seamanship and safety as an essential part of winning on big boats.
- Highlight differences and similarities between bigger keelboats and dinghies.
- All types of sailing are good, but big boat sailing is an adventure.
- Big boats require crew coordination, clear communication, and teamwork.
- Big boat sailors care for their boat and are courteous to other vessels.
- Thank all volunteer speakers, coaches, and owners who volunteer their boats.
- Make clear your expectation that juniors and their instructors will leave the borrowed boats in good order, and thank their owners.

When juniors head to their classes, Chairman holds brief meeting with owners (representatives) and coaches to review local navigational hazards and the on-board practice plan for the afternoon. Also a good time to determine which owners (representatives) may need coaches and which are OK with the junior instructors only. While classroom sessions are underway, the Chairman (or qualified committee member), based on the registration data and owner (representative) experience, can assign groups of juniors to specific boats, and allocate coaches.

III. MORNING CLASSROOM SESSIONS (0900-1200)

Storm Trysail and US SAILING recommend the following four mandatory class sessions in the morning, before heading out on the boats. If the attendees number more than 40, consider breaking them into sub-groups and rotating them through sessions. The order of these sessions is not important. Each session should be about 20 minutes. There should be time for a fifth session. See Section "E" for suggestions.

A. CREW ORGANIZATION: How to Crew on a Big Boat

Plan Ahead

- Be familiar with the area - charts, rocks and hazards, ship channels
- Maintain and use safety gear
- Anticipate trouble - on board and from other boats or weather. ñWhat Ifôs?ò
- Keep a lookout - leeward (under the jib), forward and aft
- Situational Awareness

Teamwork

- Crew organization and responsibility
- Clear communication
- Smooth coordination
- Use your eyes and ears
- Do your own job, but be prepared to assist others

Anticipation

- Situational awareness**-** deal with problems before they get dangerous
- Weather ï increasing wind velocity, squalls, fog
- Commercial traffic
- Navigation hazards
- Easier to solve small problems before they grow

Plan and Practice for Emergencies

- COB (crew overboard)
- Violent squall
- Fire
- Flooding
- Broken mast
- Injured crew

Personal Preparation

- Wallets and phones stowed below
- PFD, harness, tether, whistle, knife

- Proper clothing- foul weather gear (top and bottom), boots, hat, towel, gloves
- Walk the deck to locate running rigging, safety gear (including fire extinguishers) & safe places to stand and sit
- Listen to assignments, ask timely questions, look and listen

B. DOCKSIDE DEMONSTRATION

Bring a well-equipped big boat to the dock, complete with rigged jacklines and a mainsail ready to reef.

Proper Use of Safety Gear

- PFD- inflatable harness type ï strobe and whistle
- Tether and jackline
- Securing tether before exiting companionway
- LifeSlingÊ , horseshoe, drogue, light, pole, (boat equipped with MOM?)
- Throwing line

Safety Habits

- How to stay aboard and prevent injury
- Moving along deck- stay low, hold on, use high side
- Donôt sit or stand on lifelines
- Kneel, donôt stand when pee; heavy weather in a bottle!.
- Standing or sitting safely to avoid boom, sheets, and COB hazards

Deck Orientation

- Deck layout- from bow to stern
- Winches- proper use of handle and lines
- Releasing clutches and halyards under load
- Standing rigging ï backstay control, runners, mast bend
- Running rigging ï sheets and halyards, reef lines, vang, hydraulics
- Bilge pump and handle
- Engine start and stop- check first for sheets hanging overboard

Reef Mainsail

1. Difficult to reef if running; usually must reach or close reach
2. Reef lines must be lead ahead of times (messenger line helps)
3. Ease vang to let boom rise; ease mainsheet
4. Lower main halyard enough to attach reeftack at gooseneck
5. Tension halyard
6. Tension reef outhaul line until leech cringle is near boom and foot is tight
7. Close reef line clutch and ease line off winch; backup cleat a good idea
8. Trim in mainsheet and set vang
9. Tie in safety strap around boom and through leech cringle to relief pressure on reef line
10. For neatness use elastic bongies thru the reef points to secure loose mainsail cloth

Unreef Mainsail

1. Remove all bongies before releasing reef! Donôt rip the sail!
2. Reverse the above steps

3. For mainsail with boltrope (no luff slides), feed luff carefully into mainsail track to prevent tearing the cloth

(If rigged with a roller-furling jib, demonstrate method of securing if hit by a squall: taking 5 extra rolls and cleating both jib sheets.)

C. STORMY WEATHER and EMERGENCY RESPONSE

Boat and crew preparation for a squall or heavy weather

- Monitor weather channel and weather websites; listen to the vhf radio
- Watch the weather- darkening sky, lightning, squall lines, white water (you're too late!)
- Everyone wear foul weather gear, PFD and harness/tether (jacklines)
- Close all portholes and lock foredeck hatch
- Put in at least one companionway slide.
- Close head seacocks, test engine, and charge batteries
- Clear loose gear and extra sails from deck
- Stow and secure gear below, especially heavy items like toolbox
- Prepare to reduce sail area; rig reef lines
- Check navigation-can you get to a safe harbor? Get out of shipping channels. Stay in deep water. Avoid hazards in the area, like a lee shore or rocks. Put your position on the chart (in case lightning knocks out your gps). Turn on running lights.
- Reduce sail early! Anticipate the wind. Drop the spinnaker, reef the main, change to a small jib. If need to roll your jib, do it early, and take 5 extra turns and cleat both jib sheets.
- Put small children and beginners below
- Prepare for a wind shift that might include a jibe (better to jibe early)

De-powering - temporary reduction of power

- Gusty conditions cause excessive heel, overpowered helm, and stress on rig
- Temporary measures (close hauled or reaching) - ease the traveler, vang, and mainsheet to carry a bubble at the luff and reduce the working area of the main
- Better to reef the mainsail than damage it by flogging
- Partially or fully roller furl jib

Longer term - reduce sail area while keeping sail balance

- As jib gets smaller, mainsail must get smaller: maintain a balanced helm (center of effort)
- Change to a smaller jib, and reef main
- Leave details for reefing for the dockside demonstration

"Heaving To" - to slow the boat in heavy weather

- Can only heave to with a non-overlapping jib, sailing close hauled/close reaching
- Trim the jib to windward, or, tack without releasing the jib sheet, leaving (by not releasing the old sheet) the jib sheeted to windward
- Boat will slow down
- Push tiller to leeward (to compensate for backed jib), or if a wheel, turn to windward.
- Find the balance where the boat will slowly sail between 45-60° off the true wind

- Secure the helm in that position; the boat should self-tend if the sail balance between main and jib is correct
- To sail again, release the helm and ease the jib to the leeward side
- Useful maneuver in good weather to rest, eat lunch, or have a crew meeting

Emergency Response Priorities

- Based on practice and seamanship, crew use common sense and initiative
- Crew informs captain of critical information; final decision is the captainõs
- Crew safety is most important- wear PFDs
- Slow the crisis to gain time and assess options
    - Stuff a pillow in a leak to slow inflow and start pumps
- Assess problem or emergency; utilize the best skills of crew
- Consider outside assistance
    - VHF 16 ñPan Panò or ñMaydayò?
    - Flares?
- Prepare to abandon ship if emergency is overwhelming
- Gather needed tools and equipment to handle problem
- Make a temporary repair or jury rig
- Proceed to safe harbor; update anyone you contacted on VHF

Fire at Sea

- Slow boat to reduce apparent wind velocity to the fire
- If small fire
    - all hands on deck except firefighters
    - use fire extinguisher and/or water (if not electrical or fuel)
- If large fire
    - cannot fight fire if unsafe access
    - prepare to abandon ship- raft and portable VHF 16 ñMaydayò

Radio Emergency Communications

- Use VHF channel 16
- Broadcast ñMaydayò for situation that would be an imminent threat to life or vessel
- Broadcast ñPan Panò for a situation that is urgent and help may be needed
- Give
    - Vessel name
    - GPS position or range and bearing from a landmark or navigational aid
    - Nature of the emergency or problem
    - What help is needed
    - Number of people aboard
    - Means of identifying the vessel (boat type, hull color, rig, sail number)
- Listen for reply, follow US Coast Guard instructions, and answer further questions

D. QUICKSTOP CREW OVERBOARD (COB): Return, Retrieval, Aftercare

Prevent COB by practicing safe habits. All crew must always wear PFDs for flotation and visibility just in case! If a COB, do not put other crew at risk by jumping in the water!

Key Steps in an Upwind COB Recovery

1. Shout ñMan overboard!òloud enough for your crew (on deck and below) and other boats to hear. Throw flotation. A spotter sights the COB by pointing and yelling direction and distance. Navigator hits the MOB button on the GPS and helps navigate the boat back to the COB. Navigator calls for assistance on channel 16 from any boats in the area. All hands on deck to help (always wearing footwear and PFD!)

2. Helmsman shouts ñLuffing up!òï All crew hold on while boat turns!

3. If overlapping jib, jib trimmer eases the sheet just a few feet, then cleats sheet, so spreader doesnôt poke thru the sail. If non-overlapping jib, leave the sheet cleated. As boat tacks and bears off downwind, foredeck crew drops jib and ties it down. Crew in cockpit, pull all lines out of water and start the engine.

4. Helmsman steers boat dead downwind until abeam of the COB, then shouts: ñPrepare to jibe!òto warn crew to hold on and get low. Then helmsman waits until just past abeam and jibes the boat and luffs up in the direction of the COB. Usually the main trimmer should have the mainsail completely luffing to slow down.

5. The spotter, tactician and crew at the engine controls help guide the helmsman alongside the COB, preferably 5-10 feet to windward of the COB to prevent running down the COB, and with speed of maximum 2 knots. Boat to windward of COB makes it easier to drift down on the COB, throw a line, and pull the COB aboard on the leeward (lower) side. Engine helps control the boat speed. Crew having throwing lines ready to heave.

6. When contact has been made with the COB, turn engine off to protect the COB from the propeller. Secure the COB to the boat with a line or tether while arranging retrieval. Crew leaning over the side (under the lower lifeline) to reach the COB must be held by other crew on deck.

7. Get the COB below and assess for injury or hypothermia. Dry off and get under a blanket. Navigator on VHF notifies all boats (and the Coast Guard) that the crew is rescued and either needs medical assistance or is OK.

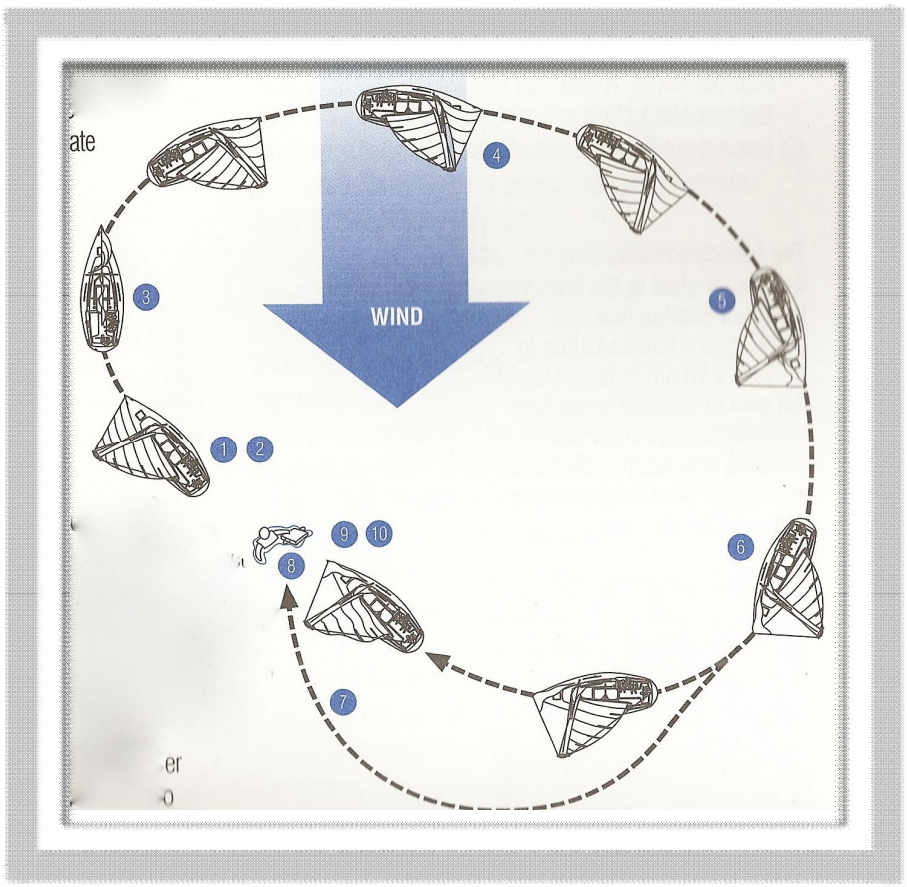


*Illustration from *Basic Keelboat*; used with permission from US SAILING.

1. ñMan overboard!ò
2. ñLuffing upò
3. Tack with jib backed
4. Steer briefly beam reach, then to dead downwind
5. Drop or furl jib
6. Jibe when COB is abaft abeam
7. Approach - close reach and luffing
8. Stop alongside

Key Steps in a Downwind COB Recovery (Symmetric Spinnaker)

(Blue indicates different than upwind recovery)

1.Shout **"**Man overboard!òloud enough for your crew (on deck and below) and other boats to hear. Throw flotation. A spotter sights the COB by pointing and yelling direction and distance. Navigator hits the MOB button on the GPS and helps navigate the boat back to the COB. Navigator calls for assistance on channel 16 from any boats in the area, giving boat name and GPS position. All hands on deck to help (always wearing footwear and PFD!)

2. Helmsman shouts **"**Luffing up!òï All crew hold on while boat turns! Trimmer in cockpit eases spinnaker pole to headstay and cleats the guy. Foreguy pulled in tight. Do not lower pole lift! Goal: lock the pole into a position in the air pointing forward. It should stay there during the entire COB maneuver.

3. Helmsman holds boat on a pinched close-hauled course. Spin trimmer pulls spinnaker sheet tight so foot of spinnaker is stretched from the end of the pole. Easy for crew to grab the foot and pull the spinnaker rapidly aboard as the halyard is rapidly lowered. When the spinnaker is on the foredeck, the guy and sheet can be eased and the sail shoved down the hatch. **Engine is started but not put in gear** until all sheets are pulled out of the water.

4. Tack the boat (the engine helps since boat is very slow and has no jib). Helmsman steers boat dead downwind until abeam of the COB, then shouts **"**Prepare to Jibe!òto warn crew to get low. Then helmsman waits until just past abeam and jibes the boat and luffs up in the direction of the COB. Usually the mainsail trimmer should have the mainsail completely luffing to slow down.

5. The spotter, tactician and crew at the engine controls help guide the helmsman alongside the COB, preferably 5-10 feet to windward of the COB to prevent running down the COB, and with speed of maximum 2 knots. Boat to windward of COB makes it easier to drift down on the COB, and pull the COB aboard on the leeward (lower) side. Engine helps control the boat speed. Crew has throwing lines ready to heave.

6. When contact has been made with the COB, turn engine off to protect the COB from the propeller. Secure the COB to the boat with a line or tether while arranging retrieval. Crew leaning over the side (under the lower lifeline) to reach the COB must be held by other Crew on deck.

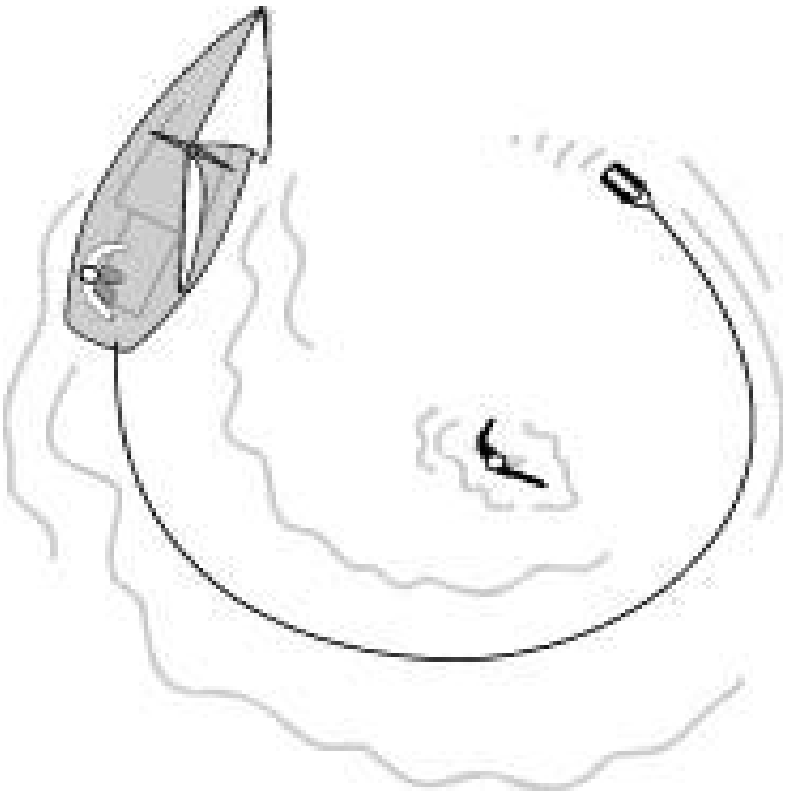
7. Get the rescued crew below and assess for injury or hypothermia. Make them dry off and get under a blanket. Navigator on VHF notifies all boats (and the Coast Guard) that the crew is rescued and either needs medical assistance or is OK.

Sprit Boat Asymmetric Spinnaker Takedown

The big difference is no spinnaker pole- much simpler. But with no spinnaker pole in the air, the tack of the assym spinnaker is very close to falling in the water and going under the bow. After the boat luffs up, the spinnaker sheet is pulled tight so the crew can grab the foot of the spinnaker. The bowman has one responsibility- do not let the tack of the spinnaker go in the

water! When the spinnaker is almost down, and it is under control, the Bowman yells for the tackline to be released from the cockpit. The Bowman pulls the tack aboard.

LIFESLING RESCUE – most useful for short-handed crew or cruising couples



1. Crew deploys the LifeSlingÊ and pays out the line. Be sure line is tied to the boat
2. Turn boat in a circle around the COB under power or sail
3. Make a sharper turn at ñbottom of the circle to draw the line toward the COB
4. COB grabs line and waits for the float
5. Crew stops the boat - no need to be right alongside the COB
6. COB clips floating horseshoe around his or her chest
7. Crew pulls COB to the boat, and prepares to retrieve

<u>Retrieval Means</u>

Å Strong crew lifts COB over rail and under life line
Å Stern ladder: beware of propeller and pitching stern that could cause injury
Å Halyard attached to harness of LifeSlingÊ
Å Block and tackle set high enough (on halyard or boom) to hoist person over rail or lifeline
Å Bight of strong line hung over the side, one end cleated and other end on a winch. Person stands on bight underwater and line is winched up

E. ALTERNATIVE CLASSROOM SESSIONS or DEMONSTRATIONS

There is usually time for a fifth morning activity. Since juniors often attend seminars several years in a row, it is best to vary the fifth session from year to year. Listed below are useful sessions that the juniors seem to enjoy.

Life Raft Demonstration

Life raft manufacturers, service companies, maritime colleges, and generous individuals often provide 8-12 man inflatable, canopied life rafts. For this demonstration, it is best to gather all the juniors on the waterfront (or swimming pool) at one time after the classroom sessions are over. A qualified speaker will discuss ñabandon shipò procedures, the ñGo bag (abandon ship bag), and inflate the life raft. Volunteer juniors wearing PFDs jump in the water and practice entering the life raft, and righting it after capsize. If inflatable PFDs are available, this is a useful addition.

Fire Fighting Demonstration

With the cooperation of the local fire department, various types of fires can be started in steel tubs. Juniors will be taught about the different types of fires, and the proper type of fire extinguisher to put it out. When to use (or not use) water is an important lesson. The fire department and local hardware stores are helpful providing as many fire extinguishers as possible to enable the juniors to approach and extinguish a fire, under supervision and wearing protective gloves and goggles. This session is not only important for sailing, but has direct safety benefits at home.

AED/CPR Demonstration

There is not enough time to certify juniors, but a local EMT (Emergency Medical Technician) or Red Cross Instructor can discuss basic emergency response and demonstrate the use of an AED and CPR. Juniors should be encouraged to get full training at the local Red Cross.

Ocean Racing Navigation

An experienced navigator using Power PointÊ and computer projections of Internet sites can illustrate modern ocean racing navigation and tactics. Accessing weather and ocean current information, and demonstrating routing programs such as Expedition,Ê will expand the juniorôs horizons and connect with their technology skills.

Local Heroes

Your club or community may have a local sailing ñheroò with good photographs and a good story to tell about an ocean race, long voyage, or sailing adventure.

IV. AFTERNOON SCHEDULE

Suggest lunch 1200-1230 followed by boat assignments and boarding at 1245 with cases of bottled water for each boat. For efficiency, each crew assembles and then boards launches. Return to club at1630-1700. Cleanup boat and meet ashore for pizza.

ON BOARD PRACTICE PLAN (for Coach, Instructor and Owner)

On-Board Briefing (15 minutes)

- Deck layout and safety equipment
- Below-deck layout- safety equipment, fire extinguishers, thru hulls, electrical panel, fuel cutoff, tools, first aid kit, flares, personal gear storage, head use
- VHF use: weather, communications, differences from cell phone
- Boat rules: respect for boat and fellow crew, no shouting

Sailing Practice

- Keep a lookout- leeward (under jib), forward, aft
- Identify and concentrate on 3 or 4 primary helmsmen
- Rotate juniors through positions
- Upwind sailing and tacking with occasional COB drills
- Downwind sailing, spinnaker set, and jibes; spinnaker douse as part of COB drill

COB Drills

- Minimum of 5 upwind and 5 downwind (hopefully more)
- Use cushion, life jacket, life ring, or buoy; pickup with boat hook
- Quickstop upwind- drop jib on run
- Quickstop downwind- douse spinnaker

Heavy Weather Skills

- Reefing and unreefing (once is enough)
- Heaving to - useful to settle things down while discussing maneuvers
- Rigging and unrigging preventer

Junior Sailor Outcomes

- Appreciation of on-board leadership and teamwork
- Understanding of crew positions and coordination
- Situational Awareness- recognition of potentially dangerous or challenging situations
- Anticipation ï situational awareness allows timely and appropriate action
- Understanding of forces and hazards found on big boats
- Proper and safe use of essential equipment
- Respect for the power of wind and water
- Gratitude for volunteers and borrowed boat
- Delight in opportunities of big boat sailing