Safety Aboard Inland Seas

Keeping Ship Shape

Promote Good Housekeeping and keep things tidy! This not only increases the comfort level on board, but also makes it easy to access areas in a hurry. We also minimize other risks such as fire and trip hazards. Lack of tidiness can cause loose items to fall into the bilge and clog the pump intake aboard a flooding vessel. Everything should have an appropriate home where it will stay. Make sure whatever you are done using gets put away in it proper stowage area when finished.

Keep up on Maintenance! Maintenance doesn't just make us look professional, but, most importantly, ensures our equipment will be in good working order when needed in an emergency.

Emergency preparedness

Emergencies that we prepare for

- **Fire**
- **Damage Control**
- **Abandon Ship**
- **Man Overboard (MOB)**
- **Medical**

Drills are conducted regularly in order to maintain response efficiency

Fire!

Areas where fire is probable, but not exclusive to:
Engine Room:

- Source of heat, ignition and fuel

Electrical panels and wire runs

- Improper over current protection
- Electrical short from arcing circuits or broken wire insulation

Galley and cooking apparatus

- Presence of grease and other flammable foods
- Source of heat and ignition

Spontaneous combustion
(Different from the type that took the lives of the drummers for ‘Spinal Tap’)
Do not put oily or paint soaked rags in an area without adequate ventilation. Oily rags can heat up as the oil oxidizes which in turn causes more oxidation and more heat. Without being ventilated the vicious cycle will occur until the temperature of combustion. Lay the rags open to dry before stowing or putting them in the appropriate trash receptacle. This issue relates back to importance of tidiness.

Fire Prevention

Keep things tidy:

- Clean up any loose gear and refuse
- Remove refuse from vessel when able
- Make sure everything is stored properly in a designated area; keep combustibles away from sources of heat and ignition
- Wipe up grease, fuel and other combustible liquids

Keep up on proper maintenance

- Make sure wires are not becoming worn or chafed
- Fix any oil or fuel leaks

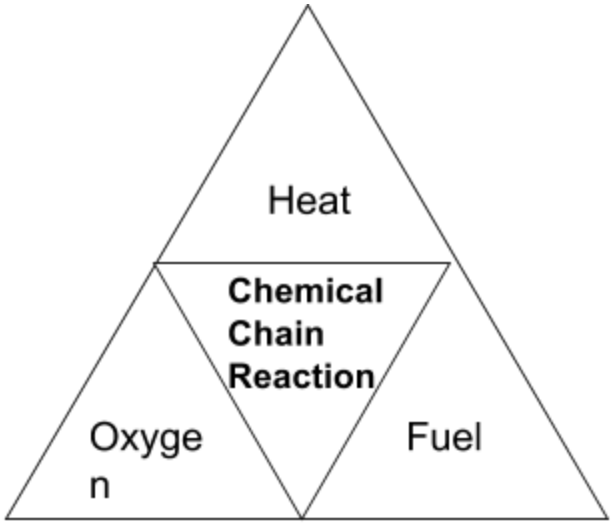
Use proper overcurrent protection on electrical circuits (inspect and repair)

How Fire Spreads

- Radiation – Heat radiates to adjacent objects/areas
- Convection – Air currents circulate heat/fire through openings to other areas
- Conduction – Metal rods/pipes transfer heat to other areas

Fire Tetrahedron

Remove any of the four elements (smaller triangles) and the fire will cease to exist



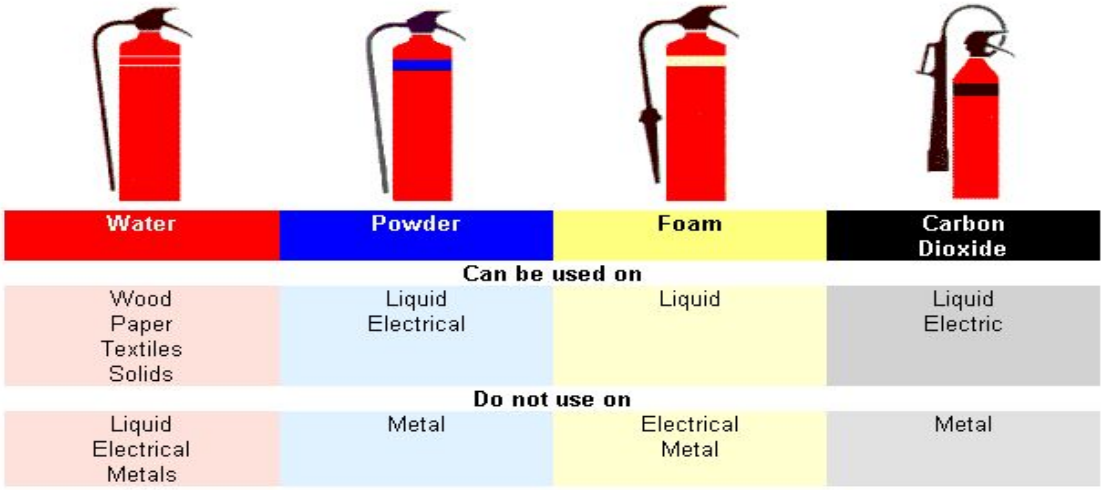
Types of Fire

Class A: Common combustible materials such as wood, cloth, paper and rubber. Combustible solids in general.

Class B: Flammable liquids such as fuel, grease and oil.

Class C: Energized electrical equipment, conductors and appliances

Class D: Combustible metals such as sodium, magnesium, potassium and Titanium. On most vessels flares are the primary source of this class of fire



Water	Powder	Foam	Carbon Dioxide
Can be used on			
Wood Paper Textiles Solids	Liquid Electrical	Liquid	Liquid Electric
Do not use on			
Liquid Electrical Metals	Metal	Electrical Metal	Metal

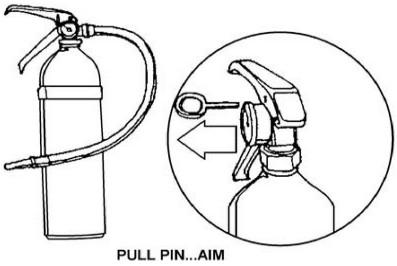
P-A-S-S

Know the acronym for proper use of fire extinguisher:

Pull pin

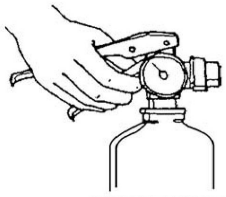
Aim at base of fire

Squeeze



PULL PIN...AIM

Sweep



SQUEEZE TRIGGER

Inland Seas Fixed Extinguishing System is located in the engine room, but the extinguisher pull is located on the portside of the Pilot House. Our Fixed system is FE241, a HALON substitute

Response to a Fire Onboard

1. Sound the alarm if fire is SUSPECTED!
    a. Use your voice, “FIRE IN THE (location of fire)”
    b. The sooner the rest of the crew can help, the better the chances. If it turns out to be a false alarm, mark it up as a good drill exercise.
2. Attack the fire! Keep it from growing
    a. Use an extinguisher.
    b. Smother the fire with a fire blanket, lid, etc.
    c. If possible without high risk, jettison the burning fuel source.
3. Isolate the fire!
    a. Close hatches, vents and other paths of convection
    b. Boundary cool with water, minimize conduction and heat radiation
    c. Clear away potential fuel source
4. Reflash watch!
    a. Once the fire is under control, stand by with an extinguisher to prevent reflash

b. Look for hidden embers or smoldering remnants; perform demolition if necessary (overhaul the fire area)

Damage Control

Damage Control is the action in an emergency intended to prevent the loss of a vessel
Situations that can threaten the loss of the vessel are:

- Fire (already covered)
- Collision with another vessel or object
- Flooding

Collision

Collision threatens the watertight integrity of a vessel. It can occur with another vessel or something less obvious such as a partially submerged object.

Items handy for damage control

- Tarpaulin
- Hose Pieces
- Hose clamps
- Hammer
- Saw
- Pry Bar
- Wood Plugs
- Leather or rubber gasket material
- Wedges
- Anything else you think may come in handy for plugging a hole in the bottom of the boat.

You can always improvise; sails, mattresses, cushions, rags, clothing, can all be used to plug a leak. The fix doesn't have to be pretty it just has to get you to shore (or at least shallow water)

Flooding

Flooding can be caused by damage to a vessel, an open or faulty valve, or from water entering from above due to the effect of wind and waves. It can also result from water used for firefighting. In all cases it can threaten the vessels stability

and buoyancy. It's good to have multiple ways to dewater your vessel. Inland Seas has multiple pumps that are electrically, mechanically, and hand powered.

Her pumps are:

- 1 Engine driven bilge pump (plumbed into bilge manifold)
- 4 electric bilge pumps (for each compartment)
- 1 Portable electric pump
- 2 portable, manual diaphragm pump
- 1 fixed diaphragm pump (plumbed into bilge manifold)
- Multiple 5 gallon buckets

Abandon Ship

(more accurately: Prepare to Abandon Ship)

Preparing to Abandon Ship

- Preceded by other dangerous situation
    - Fire
    - Collision (including an Iceberg)
    - Heavy Weather
    - Flooding

By preparing, personnel are putting on PFD (personal flotation device, sending distress calls, preparing life rafts and gathering gear: water, food, blankets, etc. They are not jumping over the side or leaving the vessel

Preparations Under Captain's Orders

- Send initial distress signals
- Properly don PFD (watch accompanying video on life vests)
- Do NOT wear the PFD below deck. If the compartment floods you can get pinned to the overhead
- Grab an exposure suit if available
- Grab a Handheld VHF Radio
- Gather anything that could of use in a life raft such as:
    - Water
    - Food
    - Blankets

Life raft

Stay With the Ship

- Even though sinking seems imminent, stay with the vessel as long as she's afloat
- She provides a larger target for Search and Rescue
- She'll provide some degree of shelter from the elements
- If you have to leave the vessel for safety purposes while she's still afloat, keep the life raft attached until she sinks

Distress Call

Via VHF Radio

Instructional placard is posted next to BOTH fixed VHF radios

DISTRESS COMMUNICATIONS FORM

1. Make sure radiotelephone is on.

2. Select channel 16.

3. Press microphone button and speak calmly – clearly – slowly, say:
   "MAYDAY - MAYDAY – MAYDAY" for situations involving immediate danger to life or the ship;
   "PAN – PAN – PAN" for situations not involving immediate danger to life or the ship.

4. Say “THIS IS INLAND SEAS, INLAND SEAS, INLAND SEAS, WCJ-6214.”

5. Release the microphone button briefly and listen for reply. If no answer, repeat steps 3 & 4.

6. Respond by saying “MAYDAY (or PAN) THIS IS INLAND SEAS.”

7. DESCRIBE YOUR POSITION USING LATITUDE AND LONGITUDE OR RANGE AND BEARING FROM KNOWN POINT.

8. STATE NATURE OF YOUR DISTRESS.

9. GIVE NUMBER OF PERSONS ABOARD AND NATURE OF ANY INJURIES.

10. ESTIMATE THE PRESENT SEAWORTHINESS OF YOUR VESSEL.

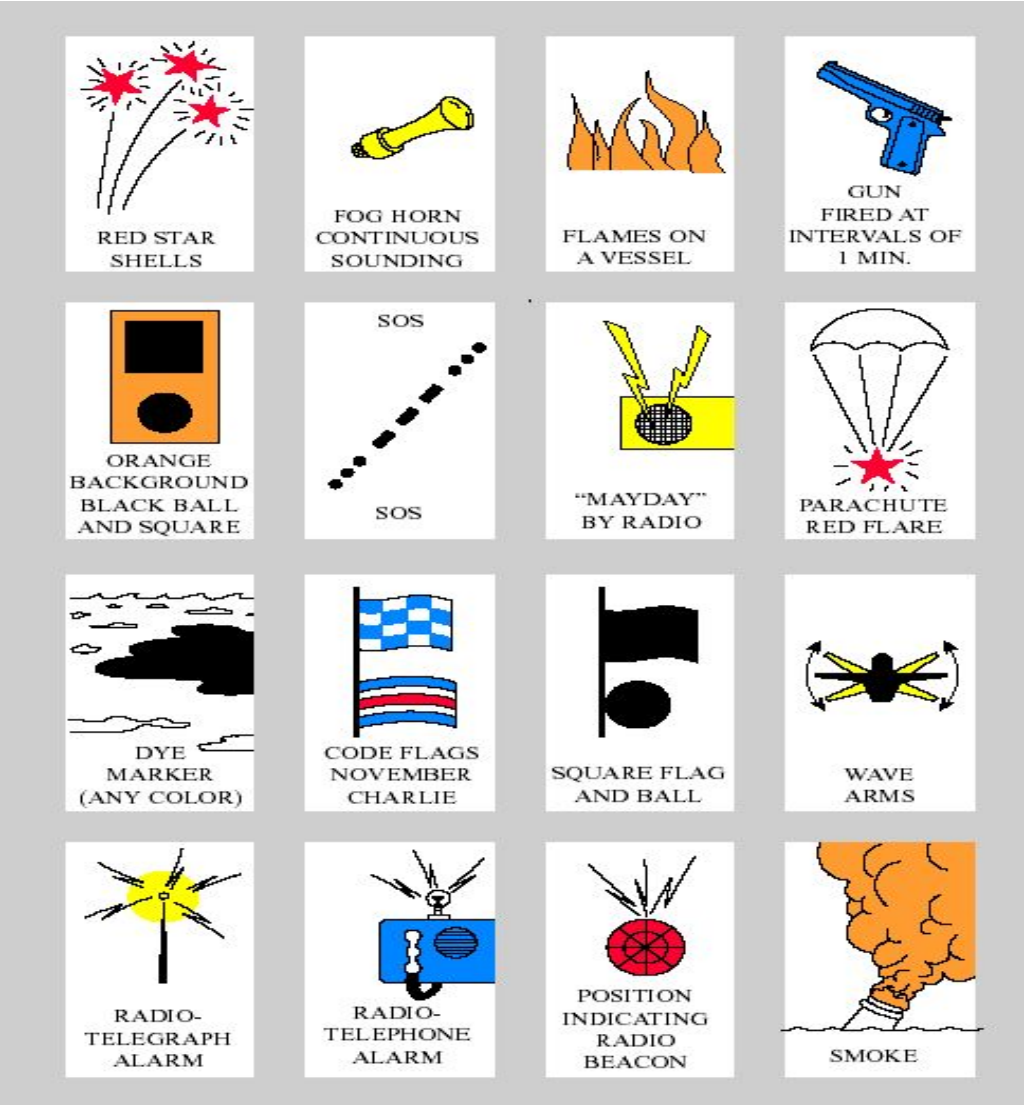
11. Describe vessel as: 62 FOOT STEEL PASSENGER SCHOONER, GREEN HULL WITH WHITE CABINS AND TAN DECKS. “INLAND SEAS” IS PAINTED ON ROOF OF PILOT HOUSE. RIG IS TWO-MASTED SCHOONER WITH RED SAILS. ENGINE IS 130 HP DIESEL. OFFICIAL NUMBER: 1021129. BEAM: 17 FEET, DRAFT: 7 FEET. Owner: INLAND SEAS EDUCATION ASSOCIATION

12. SAY: “INLAND SEAS STANDING BY ON CHANNEL 16.”

13. If situation permits, stand by radio and await further communications from the Coast Guard or another vessel. If no answer, repeat above, then try channel 22a or 09.

Based on 46CFR184.516
Ship2006/distress comm form is.doc 07-04-06

Other Methods of Signaling Distress



EPIRB

Emergency
Position
Indicating
Radio
Beacon

When triggered, it will send a signature distress signal assigned to the particular vessel with which it is registered as well as the vessels position

It can be triggered manually or automatically. It’s a good idea to keep this with you if you’re abandoning ship

MOB! (Man Overboard)

Since I couldn’t write it any better myself, the following are excerpts from the U.S. Coast Guard’s BOAT CREW Seamanship Manual COMDTINST M16114.5C

“MAN OVERBOARD!” is one of the worst alarms to hear while underway. Decisive action is of primary importance when a person falls overboard. Even the best swimmers can become disoriented when unexpectedly falling into the water. Prolonged exposure to rough seas or cold weather can quickly weaken a swimmer. Lives depend on every crewmember performing their procedures competently and effectively.

- All crewmembers must be prepared when someone falls overboard. Rehearsing how to react is vital to a successful and safe recovery of the individual. When someone falls overboard, crew members should always assume the worst has happened. The person could be suffering from shock, may be unconscious, and possibly injured. Rapid recovery of the person is a must.
- Actual situations will vary and all details pertaining to each are beyond the scope of this lesson. A professional understands and rehearses each possibility remembering that the key to a successful rescue is preparation, practice, and alertness.

Prevention

The first thing every crew member needs to learn about recovering a person-in-the-water is how to prevent it in the first place. It is every crew member's responsibility to protect themselves and their fellow crew members from falling overboard. Some things to pay particular attention to are:

- Ensure lifelines are up and in good condition.
- Keep decks clear of trip/slip hazards.
- Repair/replace cracked or damaged stanchions.
- Ensure two persons are used when conducting an evolution that might result in falling overboard (anchoring, towing, etc.).
- Ensure safety harnesses are worn during inclement weather.

MOB Response

1. Spread the alarm in a loud voice by repeatedly calling out, “MAN OVERBOARD!” It is also very important to shout out the location where the person fell overboard (port/starboard side, the bow, the stern) For example, if the person fell over the port side, the alarm should be, “MAN OVERBOARD, PORT SIDE!”
2. Throw a ring buoy with strobe light (or anything that floats) over the side as quickly as possible. It does not necessarily have to be thrown towards the PIW (Person in the Water), just get it in the water as soon as possible.
3. Maintain sight of, and continuously point (open handed) to, the individual in the water while carefully moving to a position in sight of the captain or crew members. Give clear, loud verbal directions as well as the condition of the PIW (conscious/unconscious, injured, etc.).
4. Meanwhile, the Mate and Deckhand don work vests, grab a VHF radio, an extra vest for the victim, and then launch the small boat off the stern.
5. The Mate and Deckhand head to the victim receiving directions from the spotters via visual communication as well as VHF
6. The Mate and Deckhand bring the victim aboard the small boat then return to the schooner
7. If launching the small boat is impractical such as in the event of heavy weather, then the use of the Lifesling located back aft on the starboard life line will be employed to retrieve the victim with the schooner.
8. Treat the victim upon recovery for hypothermia and administer any other necessary medical attention

It is important to mark the position where the victim went over. This can be done electronically with the MOB button on the GPS or by throwing a marker, (i.e. ring buoy, life vest, MOB pole) into the water

Other vessels in the area can be called to assist
Alerting by vessels horn

- 3 long (4 seconds or more) blasts. Other vessels may not know the signal, but it will get their attention

Alerting by VHF Radio on channel 16

- The call signal “Pan-Pan” should be transmitted three times. This should be followed with the boat’s identification, position, and a brief description of the situation. “Mayday” shall not be used. A boat

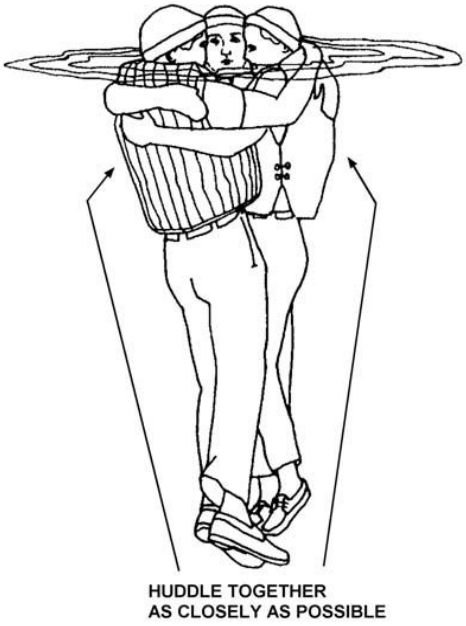
uses a mayday call only when threatened by grave and imminent danger.

If YOU are the victim

- Immediately upon entering the water, become oriented to the surrounding area. Try to locate floating objects.
- While afloat in the water, do not attempt to swim unless it is necessary to reach a fellow survivor or a floating object which can be grasped or climbed onto. Unnecessary swimming will pump out any warm water between the body and the layers of clothing and will increase the rate of body-heat loss. Also, unnecessary movements of arms and legs send warm blood from the inner core to the outer layer of the body resulting in a rapid heat loss.

HELP

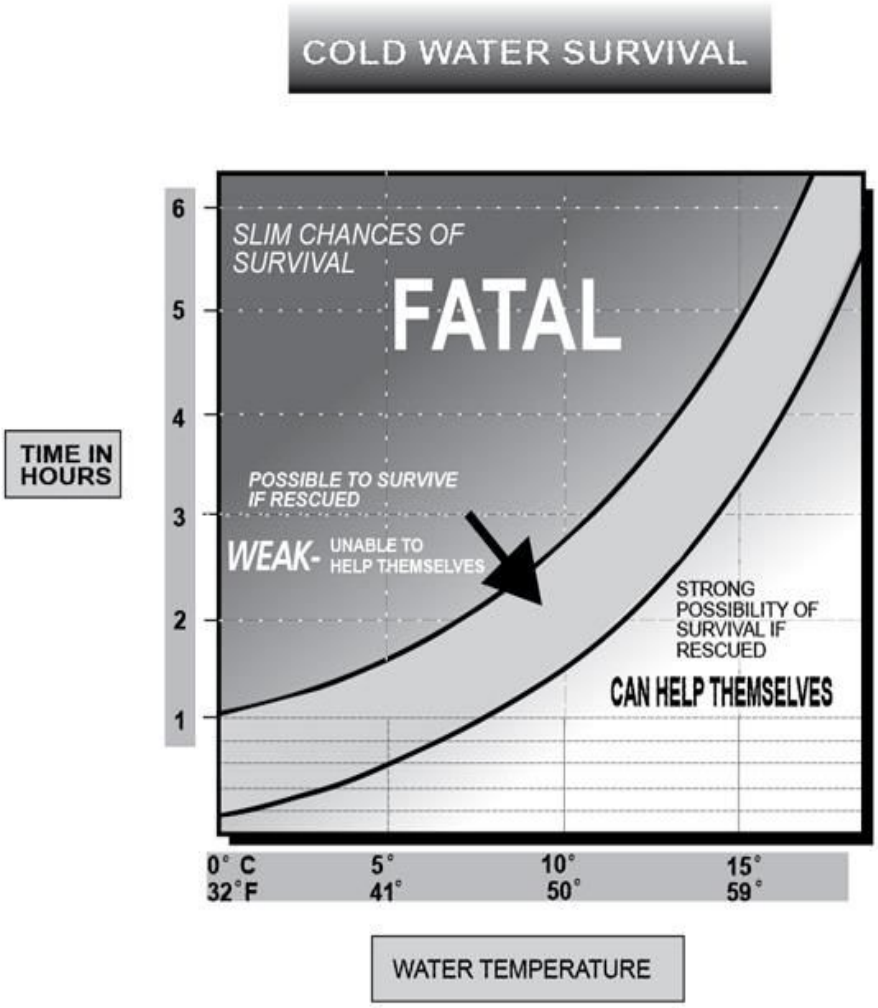
Heat
Escape
Lessening
Position



Effects of Hypothermia

Water Temperature °F (°C)	Exhaustion or Unconsciousness	Expected Time of Survival
Less than 32.5 (0.3)	Under 15 min.	Under 15 to 45 min.
32.5 to 40 (0.3 to 4.4)	15 to 30 min.	30 to 90 min.
40 to 50 (4.4 to 10)	30 to 60 min.	1 to 3 hrs.
50 to 60 (10 to 15.6)	1 to 2 hrs.	1 to 6 hrs.
60 to 70 (15.6 to 21)	2 to 7 hrs.	2 to 40 hrs.
70 to 80 (21 to 26.7)	2 to 12 hrs.	3 hrs. to indefinite

Over 80 (26.7)	Indefinite	Indefinite



Medical Emergency

Medical Emergency

- Immediately call for help (i.e. “Pan Pan” via VHF channel 16 or 911 via cell phone)
- Administer appropriate treatment (First Aid, CPR, First Responder) as issued until advanced medical help arrives

Getting First Aid/CPR training is the minimum medical training anyone working on a vessel should have.

Heavy Weather

Heavy Weather is a relative term dependant upon the capabilities of a vessel and her crew. 35 knot winds and 20 foot waves may be life threatening on a small yacht whereas on a large ship you may only need to be concerned as to where to set your coffee mug.

Heavy Weather Preparations

- Additional stowage, lashings and other precautions
- Check Watertight Integrity
- Make sure safety equipment is in good working order
- Run jack lines and have crew in harnesses if working on deck
- Reef Sail (if applicable)
- Personal preparations
  - Hydrate
  - Nourish
  - Rest
  - Ready Gear (foulies, warm clothes, snacks, etc.)

Every time you go out, be prepared for the possibility of adverse weather. Keep your vessel well maintained and keep you and your crew current on training. ALWAYS practice good seamanship. Sometimes bad weather can sneak up quick which is when good habits come in handy.