

Suggested Recreational Vessel Safety Management System (RSMS)

1-Discharge of Oil, Garbage, and Response to Pollution

This procedure deals with the regulations as to the discharge of oil into the sea and the response actions to take when in the event of an accidental discharge to report the incident and attempt to lessen the pollution of the marine environment. A report is required when an incident involves a discharge of oil, or noxious liquid substances.

The report must be made without delay using the fastest telecommunications channels available to the nearest coastal State containing the following information:

- identity of vessel(s) involved
- time, type, and location of incident
- condition of the vessel (if necessary)
- quantity and type of harmful substance involved
- whether substance floated or sank
- whether loss is continuing
- cause of incident
- name, address, and phone number of the vessel's owner
- actions being taken with regard to the discharge and movement of the vessel
- assistance and salvage measures which have been requested or provided by others

2-Fire

Any vessel can fall victim to tragedy when proper prevention measures are not followed correctly and precisely. This procedure details the actions to take if a fire occurs on board the vessel.

Preventative Actions

In dealing with fire on your vessel, the single most important consideration is prevention. During vessel and equipment checks, all systems must be inspected including fuel, oil system, and wiring. Check for abrasions cracked wiring, or pinholes in oil and fuel lines. Any discrepancy must be corrected at the time it is discovered. The following are also good fire prevention measures to be practiced:

- Keep oil and grease out of bilges.
- Cleanup any spilled fuel or oil immediately and properly dispose of it ashore.
- Stow cleaning materials off the boat.
- Keep all areas free of waste material.
- Use proper containers for flammable liquids.
- Be alert for suspicious odors and fumes, and vent all spaces thoroughly before starting engine(s).
- Vessels should have smoke and CO detectors

Life comes before property!

Safety Rules

- Immediately upon discovering a fire, sound an alarm, and summon help.
- Attempt to account for all persons.
- Never pass a fire to get to an extinguisher.
- If you must enter a compartment to combat a fire, keep an escape path open. Never let a fire get between you and a door or hatch.
- If you enter a compartment and fail to extinguish a fire with a portable fire extinguisher, **get out**. Then close the door or hatch to confine the fire.
- Have a fire hatchet or ax aboard as well as fire buckets (2 and ½ gallon with 8' lanyard)

Fire Fighting Procedures

1. Shut off all engines, generators, and ventilation systems.
2. Recover and evacuate anyone injured.
3. Locate the fire and evaluate the extent of the fire.
4. Cut off air supply to fire; close items such as hatches, ports, doors, ventilators and louvers, and shut off the ventilation system.
5. Cut off electrical system supplying affected compartment if possible.
6. If safe, immediately use portable fire extinguishers at base of flames for flammable liquid or grease fires or water for fires in ordinary combustible materials. Do not use water on electrical fires.
7. If fire is in machinery spaces, shut off fuel supply and ventilation and activate fixed the extinguishing system if installed or discharge CO₂, through a "Fire Port", into a closed engine compartment.
8. Maneuver the vessel to minimize effect of wind on fire.
9. If unable to control fire, immediately notify the Coast Guard and other craft in the vicinity by VHF or VHF DSC.
10. Move guests away from fire, have them put on life jackets and if necessary, prepare to abandon the vessel.

3-Flooding and Flood Control

Vessels sometimes become damaged in groundings, collisions, or from striking submerged objects. These mishaps may result in a holed, cracked, or weakened hull. If the hull has been damaged to the extent that water is entering the interior of the boat, steps must be taken to ensure everyone's safety, identify the source of the leak, and keep the boat afloat. This procedure details the methods to control flooding of a vessel:

- (a) A vessel must be provided with a satisfactory arrangement for draining any watertight compartment, other than small collision/buoyancy compartments, under all practicable conditions.
- (b) A vessel may meet the requirements of ABYC Project H-22, "DC Electric Bilge Pumps Operating Under 50 Volts," provided that each watertight compartment, other than small buoyancy compartments and the compartment forward of the collision bulkhead, is provided with a means for dewatering.

Comply with requests from affected States for additional information.

- (a) A portable hand bilge pump must be:
 - (1) Capable of pumping water, but not necessarily simultaneously, from all watertight compartments; and
 - (2) Provided with suitable suction and discharge hoses capable of reaching the bilges of each watertight compartment.
- (b) Each fixed power bilge pump must be self-priming. It may be driven off the main engine or other source of power. It must be permanently connected to the bilge manifold and may also be connected to the fire main. If of sufficient capacity, a power bilge pump may also serve as a fire pump.
- (c) Where two fixed power bilge pumps are installed, they must be driven by different sources of power. If one pump is driven off the main engine in a single propulsion engine installation, the other must be independently driven. In a twin propulsion engine installation, each pump may be driven off a different propulsion engine.
- (d) A submersible electric bilge pump may be used as a power bilge pump provided that:
 - (1) The pump is listed by Underwriters' Laboratories Inc. or another independent laboratory;
 - (2) The pump is used to dewater not more than one watertight compartment;
 - (3) The pump is permanently mounted;
 - (4) The pump is equipped with a strainer that can be readily inspected and cleaned without removal;
 - (5) The pump discharge line is suitably supported;
 - (6) The opening in the hull for the pump discharge is placed as high above the waterline as possible;
 - (7) The capacity of the electrical system, including wiring, and size and number of batteries, is designed to allow all bilge pumps to be operated simultaneously.
- (e) A flexible tube or hose may be used instead of fixed pipe for the discharge line of a submersible electric bilge pump provided the hose or tube does not penetrate any required watertight bulkheads and is:
 - (1) Of good quality and of substantial construction, suitable for the intended use; and
 - (2) Highly resistant to salt water, petroleum oil, heat, and vibration.

- (f) If a fixed hand pump is used it must be permanently connected to the bilge system.
- (j) A catamaran vessel must be equipped with bilge pumps for each hull, as if each hull is a separate vessel, except where:
 - (1) One dedicated pump is located in each hull;
 - (2) Each dedicated pump is driven by an independent source of power; and
 - (3) The bilge system is permanently cross connected between hulls.

Bilge high level alarms.

- (a) On a vessel visual and audible alarm should be provided at the operating station to indicate a high-water level in any space(s) that:
 - (1) A space with a through-hull fitting below the deepest load waterline, such as a lazarette;
 - (2) A machinery space bilge, bilge well, or other spaces subject to flooding from sea water piping within the space; and
 - (3) A space with a non-watertight closure, such as a space with a non-watertight hatch on the main deck.
- (b) Vessels constructed of wood must, in addition to paragraph (a), provide bilge level alarms in all watertight compartments except small buoyancy chambers.
- (c) A visual indicator should be provided at the operating station to indicate when any automatic bilge pump is operating.

4-Grounding Procedure

At the first suspicion of damage that might cause serious leaking, switch on all electric bilge pumps before investigating. If inspection shows your suspicions to be groundless, switch them off again. They will not be damaged by a brief run while dry.

1. Close any watertight and weathertight doors, hatches, and airports to prevent taking water aboard or further flooding in the vessel.
2. Keep bilges as dry as possible to prevent loss of stability due to water in bilges. Use power driven bilge pump, hand pump, and buckets to dewater.
3. Align any fire pumps to use as bilge pump, if possible.
4. Check all intake and discharge lines, which penetrate the hull, for leakage.
5. Guests must remain seated and evenly distributed.
6. Guests must don life jackets if conditions worsen, the vessel is about to cross a hazardous bar. or when otherwise instructed by the captain.
7. Never abandon the vessel unless actually forced to do so.
8. If assistance is needed, follow the procedures on the emergency broadcast placard posted by the VHF radiotelephone.
9. Prepare any survival craft (lifefloats, inflatable rafts, inflatable buoyant apparatus, and boats) for launching.

Emergency Pumping using the engine

If conditions warrant, follow these procedures:

1. Close the engine water intake seacock.
2. Disconnect the water intake line, making sure there is enough water in the bilge to cover the intake well.
3. Start the engine and check to be sure it is discharging water through the wet exhaust or other discharge line.
4. Assign someone to frequently check the intake screen and be sure it is not obstructed.
5. Vary the engine speed as required.

There must be enough water already in the bilge and flowing in to meet the engine's needs for cooling.

Take precautions to keep bilge dirt and trash from being sucked into the engine's intake.

Emergency Repairs:

Plugging Holes

The simplest method for stopping a small hole in wooden, or metal hulls is to insert a plug or plugs. Plugs are usually made of a soft wood such as pine or fir. Use plugs individually. If they fit the hole or use them in combination with other materials to make a better fit. Wrapping cloth around each plug before inserting them in the hole will help to keep the plug in place.

Large holes are generally too difficult to plug. Use a patch to reduce the flow of water through a large hole, if an attempt is made.

Fiberglass may be the most difficult of all hull materials to plug. Wooden conical plugs driven into the hole may do nothing more than cause further splitting and cracking and add to an already difficult situation. The best method of plugging a hole in fiberglass is to shove some pliable type of material into it such as a rag, shirt, or piece of canvas. A PFD (Personal Flotation Device) or a blanket may also work well.

Patching Holes

Patching holes below the waterline is usually a difficult task because of the pressure exerted by the water and the inaccessibility to the holed area. Patch small holes from the inside. Place some type of material over the hole and hold it in place with another object.

If the boat were holed in the bottom, place the PFD or seat cushion over the hole and hold it in place with a gas can, cooler, or tool box.

Large holes below the waterline are extremely difficult to patch. The pressure of the water flowing through the hole will not usually allow a patch to be installed from the inside. If a collision mat (a large piece of canvas or vinyl) is available, use it to patch a large hole.

1. Tie four lines to the corners of the patch.
2. Position the patch by draping the patch over the bow.
3. Have someone walk down each side of the boat, two of the lines for each person.
4. Slide the patch along the bottom of the boat.
5. Secure the four lines topside once the patch covers the hole. The pressure of the water against the patch will also help to hold it in place.

Holes above the waterline may be more dangerous than they appear. As the boat rolls, they admit water into the boat above the center of gravity. This water reduces the stability of the boat. Use plugs or patches on the inside or outside of the hull to cover these types of holes. If available, a pillow or cushion that has a small hole punched in the center may be used.

1. Place the cushion over the holed area from the outside and back it with a board of the same approximate size. The board should also have a small hole through the center.
2. Pass a line through the board and cushion and knot the end of the line outside the board.
3. Secure the entire patch by attaching the other end of the line to something firm inside the boat.

Patching Cracks

To patch a crack in the hull, use the following procedure:

1. Stuff the crack with something pliable, such as a rag or line.
2. Place a piece of canvas or rubber over the crack to serve as a gasket.
3. Back the patch with a solid object such as a piece of plywood, panel door or similar material.
4. Use wedges to hold the patch in place.

To prevent the crack from traveling, especially in fiberglass, drill holes at each end of the crack. These holes will relieve the pressure at the ends of the crack, permitting the hull to flex without extending the crack.

6-Abandon Ship and Man Overboard Drills

Conducting abandon ship and man overboard drills and training on a regular schedule is necessary for the continued safety of the guests and crew. Abandon ship and man overboard drills and training ensure that crew members are familiar with their duties to enable them to perform effectively in an actual emergency.

The captain should conduct sufficient drills and giving sufficient instructions to make sure that each crew member is familiar with his or her duties during emergencies that necessitate abandoning ship or the recovery of persons who have fallen overboard. An abandon ship and man overboard drill should be conducted often.

1. During the abandon ship/man overboard drill:
 - summon the crew to report to assigned stations and prepare for assigned duties;
 - summon guests to muster stations or embarkation stations and ensure that they are made aware of how the order to abandon ship will be given;
 - check that life jackets are correctly donned;
 - operate any davits used for launching liferafts; and
 - give instructions on the automatic and manual deployment of survival craft.
2. Conduct each abandon ship drill, as far as practicable, as if there were an actual emergency.
3. Launch each rescue boat with its assigned crew aboard and maneuver in the water as if during an actual man overboard situation:
 - onboard training in the use of davit launched liferafts should take place often on a vessel with a davit launched liferaft.
4. At the end of the drill, hold a critique to discuss what was done right, what was done wrong, and how the procedures could be done better.

Man Overboard

Even the best of swimmers can become disoriented when unexpectedly falling into the water. Immediate action is of primary importance when a person falls overboard. Every second counts, particularly in heavy or cold weather. This procedure addresses man overboard recovery procedures, as well as water survival skills. Lives depend on every crew member performing these procedures competently and effectively.

The captain and crew of a vessel will be familiar with the content of and have mounted at the operating station, emergency instructions containing the actions to be taken in the event of fire, flooding, heavy weather, or man overboard conditions

In the case of a man overboard enact the following procedures.

1. Throw a ring buoy overboard, as close to the person overboard as possible.
2. Post a lookout to keep the person overboard in sight.
3. Maneuver the vessel to pick up the person overboard.
4. Have a crew member put on a lifejacket, attach a safety line, and stand by to jump into the water to assist the person overboard if ABSOLUTELY necessary.
5. Notify the Coast Guard and other vessels in vicinity by VHF radiotelephone if the person is not immediately located.
6. Continue the search until released by Coast Guard.

7-Water Survival Skills

If a crew member enters or ends up in the water due to an emergency, survival procedures should be pre-planned. Preplanning increases the chances for a successful rescue are increased. Never forget that a PFD is the best insurance for survival.

The length of time a person can stay alive in cold water depends on the temperature of the water, the physical condition of the survivor, and the action taken by the survivor. The following figure shows the relationship between an uninjured

victim's activity, water temperature, and estimated survival time. Swimming typically reduces a person's chance of survival due to more rapid loss of body heat.

Survival Times vs. Water Temperatures

| <u>Water Temperature</u> | <u>Exhaustion or Unconscious</u> | <u>Expected time of survival</u> |
|--------------------------|----------------------------------|----------------------------------|
| 32.5 | Under 15n minutes | Under 15 to 45 minutes |
| 32.5 – 40 | 15 to 30 minutes | 30 to 90 minutes |
| 40 – 50 | 30 to 60 minutes | 1 to 3 hours |
| 50 – 60 | 1 to 2 hours | 1 to 6 hours |
| 60 – 70 | 2 to 7 hours | 2 to 40 hours |
| 70 – 80 | 2 to 12 hours | 3 hours to indefinite |
| Over 80 | indefinite | indefinite |

In cold water you must act promptly to recover the victim.

There are water survival skills that should be utilized to increase the chances for surviving cold water immersion including:

1. Immediately upon entering the water, become oriented to the surrounding area. Try to locate your sinking boat, floating objects, and other survivors.
2. Try to board a lifeboat, raft, or other floating platform as soon as possible to shorten the immersion time. Body heat is lost many times faster in the water than in the air. Since the effectiveness of the insulation worn is seriously reduced by being water soaked, it is important to be shielded from wind to avoid a wind-chill effect. If able to climb aboard a survival craft, use a canvas cover or tarpaulin as a shield from cold. Huddling close to the other occupants in the craft will also conserve body heat.
3. 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 rapid heat loss.

4. The body position assumed in the water is very important in conserving heat. Float as still as possible with legs together, elbows close to your side and arms folded across the front of your PFD. This is called the HELP (Heat Escape Lessening Position) and minimizes exposure of the body surface to the cold water.

Another heat conserving position is to huddle closely to others in the water making as much body contact as possible.

5. Keep a positive attitude about your survival and rescue. This will extend your survival time until rescue comes. A will to live does make a difference.

8-First Aid

This procedure provides basic first aid and transporting information for injuries encountered in the marine environment. First aid is considered doing what must be done before expert help is available. Proper knowledge and skill in first aid are essential. Effective and professional response to an emergency situation may be the difference between life and death or temporary injury and disability of the victim.

The captain should be able to care for minor injuries and illnesses of the crew and guests. The vessel should have the required first aid supplies and equipment, plus a manual of instructions for their use. The captain should have had basic first aid instruction and CPR training.

Assessing the Situation

1. Stop and assess the overall condition of the victim.
2. Determine whether or not assisting the patient with the resources at hand is possible or if further help is required.

No one who is not educated and properly qualified to practice medicine should attempt to act as a doctor.

3. When more qualified care is required for serious injury, seek assistance immediately. Call for help and activate the local Emergency Medical Services (EMS) system such as 911, or local fire/rescue squad.

4.

Emergency Contact Numbers

| | |
|-------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

Note the following information during the initial assessment:

- Number of patients.
- General condition of patient(s).
- Type of injury.
- Level of consciousness of patient(s).
- Monitoring for causes or symptoms of shock.