

SECTION 3

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Small Boat Safety

I. General

Small boat safety covers a wide variety of boats. A small boat can range in size from a vessel of just less than 100 gross tons to a small open boat propelled by an outboard engine. Because of this variance, the safety regulations that apply to small boats also widely differ. To accurately determine what safety regulations apply to a specific boat, the vessel's size and/or its employment needs to be established. If the vessel is documented, its documentation papers will cite the employment (fishing, small passenger vessel, tanker, etc.) in which it is authorized to work. If it is not documented, then the regulations governing uninspected vessels will most likely apply.

II. Types of Small Boats

Motor Vessel. A vessel more than 65 feet in length that is equipped with propulsion machinery .

Motorboat. Motorboats are classified as: Class A -less than 16 ft.; Class 1 -16 to 26 ft.; Class 2 -26 to 40 ft.; and Class 3 -40 to 65 ft. Most undocumented boats, defined as small boats by this manual, will be this type of vessel.

Documented Vessel. A vessel greater than 5 net tons which is registered, enrolled or licensed as a vessel of the United States. This is a requirement for a vessel that will engage in trade or commerce. UNOLS research vessels are not engaged in trade or commerce but commercial vessels ordinarily are. Charter vessels, other than motor boats, would normally be a documented vessel.

Undocumented Vessel. Any vessel which is not required to, and does not have a marine document issued by the USCG.

Inspected Vessels. One inspected and certificated by the USCG. Motor vessels, tank vessels, passenger vessels and most vessels over 300 gross tons are required to be inspected.

Uninspected Vessel. A vessel not certified under the inspection laws or subjected to regular inspections by the USCG. Most motor boats, fishing boats and oceanographic research vessels under 300 gross tons will be this type vessel. Uninspected vessels, however, are still subject to the rules for safety cited in section III below that apply and, in some cases, the rules for licensed personnel.

Oceanographic Research Vessel. A vessel which the USCG determines is exclusively employed in instruction in oceanography or in oceanographic research.

Numbered Vessel. A vessel is numbered under the provisions of the Federal Boat Safety Act of 1971. Oceanographic research vessels not engaged in commerce are not required to be documented and may be a numbered vessel (except if owned by a State or the Federal Government). All undocumented motorboats are numbered unless owned by the State or Federal Government.

Public Vessel. A vessel which is owned, or chartered, and operated by the US Government and not engaged in commerce. (e.g. USCG & NOAA vessels)

III. Applicable Regulations

Based on the type of boat, its size and/or its employment, some or all of the below federal regulations will apply.

The Motor Boat Act of 1940. This law covers many aspects of safety for small crafts. This would include powered rafts and inflatables, small skiffs and other uninspected vessels 65 feet or less in length.

The Federal Boat Safety Act of 1971. This act sets forth certain safety and documentation requirements for small crafts. The regulations to carry out the intent of this Act and the Motor Boat Act, cited above, are found in 46CFR24 (Subchapter C -Uninspected Vessels). Most but not all motor boats will be governed by the provisions of this chapter.

Commercial Fishing Vessel Safety Act of 1988. This was enacted to stem the high accident and loss of life experienced aboard fishing vessels, and fishing support vessels. A vessel documented as a fishing vessel will be required to adhere to these regulations. The regulations to carry out this act are found in 46CFR188.

Passenger Carrying Vessel. A vessel whose documentation cites its employment as a passenger vessel will be required to adhere to the regulations contained in 46CFR175-187 (Subchapter T - Small Passenger Vessels Under 100 gross tons).

Research Vessel. A vessel whose documentation cites its employment as a research vessel will be required to adhere 46CFR188-196 (Subchapter U -Oceanographic Research Vessels).

IV. Safety Requirements

All boats used for research by UNOLS institutions will comply with the US Coast Guard Regulations that are applicable to the vessel's size and employment.

Small boats that will be used by UNOLS institutions will have either a current US Coast Guard safety inspection or be inspected by the institute ' s marine staff to insure that the vessel does meet the required safety regulations. A marine staff s inspection will not be accepted as a substitute for an "inspected vessel's" mandated US Coast Guard inspection.

Small boats that are chartered by UNOLS institutions will also meet the requirements of section 17 of the Research Vessel Safety Standards. Chartered boats will be either documented or numbered except for a chartered vessel that is classed as a public vessel.

All personnel aboard open boats (boats with no cabins) or when working on deck with over the side equipment will wear personnel flotation devices, work vests, exposure suits or float coats. The type of flotation will be dictated by the work environment.

Personnel engaged in launching/retrieving over the side equipment or moving weights on deck by cranes, booms, winches, davits, etc. will wear hard hats.

All science parties using a boat will prepare a float or cruise plan. This plan will be prepared by the person in charge of the science party and disseminated prior to departure. The plan will consist of at least the following;

1. Names of all personnel embarked on the vessel.
2. A brief statement of the work being performed.
3. The location of the research area and a brief description of the tracks the vessel intends to follow to and from the research area.
4. The estimated time of the boat to;
 - depart the dock enroute the research area,
 - reach the research area,
 - depart the research area enroute back to the dock, and return to the dock.
5. The type of communications devices aboard and the frequencies monitored or cell phone number.
6. The float plan will be disseminated to the Institute's marine staff and to a person ashore who will be responsible for monitoring the cruise's progress and alerting the science parties home institution, the US Coast Guard, harbor master or other marine safety organizations if the boat is more than 2 hours overdue from its estimated return to the dock.

7. The person in charge of the science party will communicate to the above individual any major changes (more than 1 hour) in its estimated return time, major breakdowns in propulsion equipment, emergencies, or change to the planned research work area. They shall also notify this person when they return ashore.

Vessels operating north of 32 Degrees North or South latitude in the Atlantic or between 35 Degrees North or South latitude in other waters will have an immersion suit aboard for each person embarked on the vessel(33CFR192.41).

Unless required to carry immersion suits, all boats will carry a US Coast Guard approved personal flotation device (PFD) for each person aboard. The specific type of PFD will be determined by the regulations applicable to the vessel (See 46CFR28.105 for specific requirements).

All PFDs, life rings, inflatable rafts, and life floats will be marked with the vessel' s name (46CFR28.135).

Life ring, personal flotation devices, life rafts, and life floats carried aboard a vessel will have retro-reflective tape applied as specified in Navigation and Vessel Inspection Circular 1-87 (Published by US Coast Guard).

All vessels operating beyond the coastal waters (3 miles offshore), will carry an EPIRB (46CFR28.150, 46CFR25.26).

All inboard gasoline engines will be equipped with a flame arrestor (46CFR25).

Engines fueled with gasoline require extra precaution. Prior to fueling gasoline-powered boats which have built in fuel tanks, bilges should be first checked for the presence of gasoline fumes and then ventilation blowers run. When fueling portable gasoline tanks, insure the fueling nozzle is in contact with the tank's fill port prior to starting and during the pumping of fuel. This will prevent a static electricity charge from being generated during fueling.

Vessel operators must be qualified as competent to operate the vessel. This is best met by requiring the operator to hold a current US Coast Guard license for a deck officer and for such license to be of sufficient tonnage to meet or exceed the gross tonnage of the vessel being operated. Institutions, however, may certify an operator is qualified to operate a small boat if the institution is satisfied that the operator has demonstrated sufficient experience to safely operate the boat.

The operator of a vessel will not operate a vessel for more than 12 hours in anyone day. To exceed this limit, a second qualified operator is required to be aboard.

The manning of any vessel will be sufficient to insure safe, efficient operations for the size vessel being operated and the type work being performed. The institution should make this determination prior to any voyage. A US Coast Guard inspected vessel (inspected under Subchapter T) must comply with the manning requirements listed on its Certificate of Inspection.

Personnel aboard a vessel should not exceed its passenger carrying capacity. This can be difficult to determine. Most motorboats will have a plate attached to the hull by the manufacturer that states the maximum number of people that the vessel can safely carry. A passenger carrying vessel, that carries more than six passengers for hire, will be inspected by the US Coast Guard and the number of passengers it can carry will be listed on its Certificate of Inspection. Un-inspected vessels cannot legally carry more than six passengers. Under 46CFR188.05-33 (Subchapter U), members of a science party are considered as "persons" and not counted as crew or passengers. This ruling, however, applies only to a vessel whose employment is as an oceanographic research vessel. If a vessel's documents do not list its employment as an oceanographic vessel then the science party is viewed as passengers. This limits the number of people aboard any uninspected, non- research vessels to six people or less. A problem exists with a vessel that is uninspected, does not have a manufacture's plate that states the maximum number of people it can carry, and its employment is shown as oceanographic vessel. Because the science party is not considered as either crew or passengers, a definite limit for personnel aboard cannot be established. Under such a situation, the limit must be logically established. The capacity of the vessel's life rafts, the number of personal flotation devices, the number of built in berths, and the carrying capacity of similar size vessels should all be considered to determine the vessel's carrying capacity .

All small boats are required to carry the below types of USCG approved distress signals (pyrotechnics). The expiration date stamped on the pyrotechnics will not be exceeded during the voyage.

(46CFR28.145)

<u>Area Q.f Operations</u>	<u>Signals Required</u>
More than 50 miles offshore	Parachute Flares -3 ea. Hand Flares -6 ea. Smoke Signals -3 ea.
Between 3 and 50 miles offshore	Parachute Flares -3 ea. Hand Flares -3 ea. Smoke Signals -3 ea.
Inside of 3 miles from shore	Electric distress light or 3 flares Distress Flag or 3 smoke signals

Vessels will carry at least the below fire extinguishing equipment (46CFR25.30);

Vessel Length

No. of BI Type Fire Extinguishers

Uninspected Vessel

Under 16 feet

One

16 feet but less than 26 feet

One

26 feet but less than 40 feet

Two but only 1 if fixed system in engine room.

40 feet to 65 feet

Three but only 2 if fixed system in engine room.

Over 65 feet

See Subchapter T and 46CFR25.30.

Inspected Vessel

Listed on Certificate of Inspection

All vessels 26 feet or more in length are required to post an oil pollution and garbage placard. A vessel 40 or more feet that is deployed on an ocean voyage (12 miles offshore) must have a written solid waste disposal plan (33CFR151.155).

All installed marine toilet facilities must be a US Coast Guard approved Marine Sanitation Device (MSD) (33CFR159).

If a vessel has Coast Guard licensed personnel aboard, the Master must notify the US Coast Guard if any casualty listed in 46CFR4.05 occurs. This includes groundings which cause a hazard to navigation, the environment or vessel safety, loss of maneuvering capability, injury rendering a person unfit for duty, or an occurrence resulting in property damage in excess of \$25,000. If a vessel is involved in a serious marine incident, it must be reported to the US Coast Guard whether licensed personnel are aboard or not. A serious marine incident consists of death, injury requiring professional medical treatment, property damage in excess of \$100,000, an oil discharge into the water of 10,000 gallons or more, or the discharge of a hazardous substance into the water. All personnel involved in a serious marine incident are subject to drug testing.

The regulations that require a vessel to carry a survival raft (life raft or boat) varies widely with the area of operation, type of employment, type of environment, and the number of people aboard. See 46CFR28.120 for the correct requirements.

At least one throwable flotation device is required aboard all vessels 16 feet and longer. See 46CFR28.115 for the correct requirements for a specific vessel.

Vessels operating outside the boundary line, as defined in 46CFR Part 7, that is to seaward of the coastline or entrances to small bays, inlets or rivers, must meet the following additional requirements;

A documented fishing boat or one with 16 or more people aboard, that has ammonia refrigerant, must carry a fireman's outfit and two self contained breathing apparatuses (46CFR28.200).

All vessels will carry charts, a first aid kit, navigational publications and charts for their operating area, an anchor, a radar reflector, a compass, a general alarm system, a high water alarm, and a bilge pumping system (46CFR28.210-255).

Vessels over 79 feet or having their keel laid after September 15, 1991 or undergoing major structural changes since September 15, 1991, should possess either a load line certificate or a current US Coast Guard Stability letter.

All boats will be equipped with a communications device that is of sufficient power to permit it to communicate ashore from the maximum distance offshore where the boat will operate. This can be satisfied by cell phone, portable VHF, SSB radio, etc. as long as the device's range will communicate from the maximum offshore distance that the vessel will reach. Vessels operating outside the boundary line will also comply with the communications regulations governing its type of vessel (46CFR28.245, 28.375; 33CFR26.03; 47CFR80).

All vessels 79 feet or longer must be equipped with an electronic positioning device (i.e. SATNAV, GPS, LORAN, OMEGA or RDF) (48CFR28.260). All vessels operating outside the boundary line will be so equipped.

A vessel less than 12 meters in length must carry an efficient sound signal. If more than 12 meters in length, a bell and whistle are required. All vessel will also have aboard the proper navigational lights and shapes required for the type of boat (33CFR81).