

**SCIENTIFIC BOATING  
SAFETY ASSOCIATION**

**Boating Safety  
Manual**

Approved: January 22, 2006

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**SCIENTIFIC BOATING SAFETY ASSOCIATION  
BOATING SAFETY MANUAL**

**SECTION 1.00  
OVERVIEW**

**1.10 PURPOSE**

The purpose of these boating standards is to ensure that all boating is conducted in a manner that will maximize safety and to set forth standards for training and certification that will allow a working reciprocity between organizational members.

**1.20 CONTENTS**

The Scientific Boating Safety Association (SBSA) Boating Manual establishes minimum guidelines for the operation of all non-UNOLS boats by Organization Members (OM).

The Organizational Members' SBSA Boat Manual shall include:

- 1 Policy that pertains to all vessels operating under the auspices of the OM.
- 2 Guidelines for obtaining and maintaining boat operator authorization.
- 3 Administrative procedures.
- 4 Equipment standards.

**1.30 APPLICABILITY**

The provisions of this manual apply whenever OM personnel are using a boat under OM auspices, regardless of ownership of the boat.

Specific examples of boat operations under OM auspices include: persons engaged in research, earning academic credit, employees acting within the scope of their employment; students engaged in any research operation including those receiving or providing boat operation instruction or involved in boat checkouts.

Boats used under OM auspices include:

- 1 Boats owned, supported, or administered by the OM, regardless of ownership.
- 2 Privately owned boats used by the OM for scientific or educational purposes.
- 3 Any other vessels used by the OM for scientific or educational purposes.
- 4 In case of joint operations, the lead institution will ensure that all applicable safety standards are being met.

**SECTION 2.00  
RESPONSIBILITY**

**2.10 BOATING SAFETY COMMITTEE MEMBERSHIP**

Boat Safety Committee membership should consist of:

1. Chief Administrative Officer  
The CAO has the ultimate responsibility for the boat program and its related activities
2. Other Members  
Should consist of a majority of persons who are knowledgeable about boating operations
3. Boat Safety Officer (BSO), [or OM equivalent]

**2.20 BOATING SAFETY COMMITTEE RESPONSIBILITY**

- 1 Has autonomous and absolute authority over the boating program's operation.
- 2 Shall review and revise the boating safety manual.
- 3 Shall assure compliance with the boating safety manual.
- 4 Shall take disciplinary action for unsafe practices, and act as a board of appeal.
- 5 Shall recommend the issue, reissue, or the revocation of boating authorizations.
- 6 Shall establish and/or approve training programs through which the applicant can satisfy the requirements of the organizational member's boating safety manual.
- 7 Shall suspend boating operations that are considered to be unsafe or unwise.
- 8 Shall periodically review the Boating Safety Officer's performance and program.
- 9 Shall sit as a board of investigation to inquire into the nature and cause of boating accidents or violations of the organizational member's boating safety manual.
- 10 May grant exceptions to this manual.

**2.30 BOATING SAFETY OFFICER (BSO)**

The Boating Safety Officer (BSO) serves as a member of the Boating Safety Committee (BSC). This person should have broad experience in boating.

Duties and Responsibilities

- 1 Shall be responsible, through the BSC, to the responsible administrative officer or designee, for the conduct of the boating program of the membership organization. The routine operational authority for this program, including the conduct of training and authorization, and ensuring compliance with this standard and all relevant regulations of the membership organization, rests with the Boating Safety Officer.
- 2 May permit portions of this program to be carried out by a qualified delegate(s), although the Boating Safety Officer may not delegate responsibility for the safe conduct of the OM boating program.
- 3 Shall suspend boating operations considered to be unsafe or unwise.

## **2.40 PRINCIPAL INVESTIGATORS AND ADMINISTRATIVE OFFICERS**

- 1 Principal Investigators and Administrative Officers are responsible for assuring that all boat operations that are part of a program under their direction are conducted in accordance with this manual.
- 2 Principal Investigators and Administrative Officers must determine that all individuals assigned to boat operations related to their projects are properly authorized as described in section 3.10 of this manual.

## **2.50 BOAT OPERATOR**

- 1 Only authorized OM boat operators may operate small boats under OM auspices, whether or not the boat is owned by the OM. Exceptions may be granted by the BSO for vessels run by non-OM owner/operators.
- 2 In US waters non-OM owner/operators must comply with USCG, state, and local regulations covering chartered vessels. In foreign waters, the responsible OM person shall ensure the vessel meets the equipment requirements of this manual.
- 3 The designated boat operator is responsible for all aspects of boating operations, regardless of any senior personnel present in the boat. These responsibilities include, but are not limited to:
  - a) Safety of the vessel and all persons on board.
  - b) Operation of the vessel in compliance with federal, state, and local regulations and this manual.
  - c) Safe transport of the vessel to and from the launch site, if applicable
  - d) The safe operation of all equipment.
  - e) Ensuring that all required operational and safety equipment is on board and that crew and passengers know the location and how to operate safety/survival equipment.
  - f) Report all accidents, incidents, boardings, citations, safety concerns, and issues to the BSO.
- 4 Failure to comply with provisions of the Boating Safety Manual may be cause for the revocation or restriction of the operator's authorization. However, any operator may deviate from the requirements of this manual to the extent necessary to prevent or minimize a situation that is likely to cause death, serious physical harm, damage to the vessel, or major environmental damage.
- 5 The operator or person in charge of a vessel is obligated by law to provide emergency assistance that can be safely provided to any individual in danger at sea. The operator or person in charge is subject to a fine and/or imprisonment for failure to do so.

**SECTION 3.00**  
**ADMINISTRATIVE PROCEDURES AND TRAINING REQUIREMENTS**

**3.10 AUTHORIZATION OF BOAT OPERATORS**

**Boat Operator Authorization**

To become an authorized boat operator submit the OM's application form and:

1. Complete a boating safety course from a BSC approved provider.
2. Provide documentation of, and/or acquire, practical experience in operating a boat.
3. Demonstrate proficiency in the safe operation of the proposed type of boat in local conditions.
4. Demonstrate proficiency in the operation of any specialty equipment and procedures specific to the boat.

**3.20 MAINTAINING AUTHORIZATION**

OM's shall set standards for maintaining authorization. At a minimum operators shall be re-authorized every five years.

**3.30 REVOCATION OF AUTHORIZATION**

A boat operators' authorization may be revoked for any action deemed unsafe or unlawful or for not meeting the procedural requirements of the OM.

**3.40 RE-AUTHORIZATION**

If a boat operator's authorization is revoked, they may be re-qualified after the operator complies with such conditions as the Boating Safety Officer may impose. The operator shall be given the opportunity to present his/her case to the BSC before conditions for re-authorization are stipulated.

**3.50 TRAILERING**

To become qualified to tow a boat and trailer, the operator or designated driver must demonstrate to the Boating Safety Officer or his/her designee the proper procedures for towing the boat and trailer over the road, as well as launching and retrieving the boat from the trailer to the water. See Appendix # for guidelines.

**3.60 LAUNCHING AND RETRIEVING**

OM's shall set forth guidelines for launching and retrieving as applicable.

**SECTION 4**  
**ADMINISTRATIVE PROCEDURES AND RECORD KEEPING**

**4.10 FLOAT PLAN – SEE APPENDIX 2**

All boat operators conducting boat operations under the auspices of the OM should file a float plan with a responsible party prior to departure.

**4.20 MAINTENANCE OF RECORDS**

- 1 A file of usage for all boats, including a log of scheduled and unscheduled maintenance for each boat and boat trailer shall be maintained.
- 2 Records shall be maintained for a period deemed appropriate by the OM.

**4.30 ACCIDENT AND INCIDENT REPORTING**

- 1 All accidents must be reported to the Boating Safety Officer within 24 hours of the incident.
- 2 Incidents and near accidents, breakdowns or other unsafe events whether on land or at sea must be reported to the Boating Safety Officer within a time period specified by the OM.
- 3 Any accident causing loss of the vessel, damage over \$2,000, requiring medical treatment beyond first aid, or loss of life must be reported to the U.S. Coast Guard.
- 4 The Boating Safety Committee shall investigate and document the accident as described in 3 above and related personal injury and/or property damage and prepare a report.
- 5 Accident reports shall be held for five years.

**SECTION 5.00  
OPERATIONAL PROCEDURES**

- All boats and equipment used by OM authorized operators in US waters, regardless of ownership, will, at a minimum, conform to U.S. Coast Guard, state, and local requirements and to the standards set forth in this manual.
- All boats operated outside of U.S. Coast Guard jurisdiction shall at a minimum comply with U.S. Coast Guard regulations in addition to any applicable local requirements and to the standards set forth in this manual.

**5.10 STABILITY**

No person may operate a vessel loaded in a manner that will jeopardize the safety of the operator or crew.

**5.20 EQUIPMENT**

- 1 The operator shall be familiar with the operation of the equipment and shall inspect all emergency equipment prior to departure.
- 2 The operator and/or crewmember shall notify the responsible person of any malfunctioning equipment.
- 3 The nature of specific operations may require vessels and boating equipment to meet higher standards as determined by the Boating Safety Officer or the Boating Safety Committee.

**5.30 COMMUNICATIONS**

OM shall set minimum communication guidelines.

**5.40 WEATHER**

OM shall establish weather guidelines for boating operations.

**5.50 SPECIAL OPERATIONS**

OM shall establish guidelines for special operations such as; foreign waters, SCUBA diving, trawls, live boating, night operations, equipment deployment, etc.

**5.60 SAFETY CHECKS**

Prior to Departure Boat Operator Shall:

1. Perform a functional inspection of the boat and equipment, including communications.
2. Assess all environmental conditions – weather, water conditions, etc.
3. Give a briefing to all on board including, at a minimum, emergency procedures, location of PFDs, fire extinguishers, man overboard, and methods of seeking assistance.

After Returning

- 1 Upon return the operator will close the float plan as agreed upon before departure.
- 2 Notify within 24 hours, the responsible person, of any problems with the boat or equipment that occurred during the cruise.



## APPENDIX 1

### Safety Equipment

Motorboats operating in coastal waters shall carry at least the following equipment:

- One VHF radio or cell phone, whichever is more appropriate to the environment.
- Class I, II, III or V PFD for each person on board, plus one 'throwable' device.
- Signal flares - smoke flare(s) and  $\geq 3$  day/night signaling devices.
- Fire extinguisher(s) will meet or exceed those required by law, and a fire extinguishing system on all motorboats with open spaces under decking.
- Fog horn, or other audible signaling device.
- Proper registration and documentation for the vessel.
- Each vessel shall meet federal, state, and local numbering requirements.

Suggested equipment as appropriate for vessel & operations:

- Alternate method of communication
- Anchor and anchor line
- Oars or paddles
- Emergency repair kit and tools
- First aid kit and, if diving, an oxygen unit, rescue blanket, etc.
- Drinking water
- Spare fuel and oil, if needed
- Sea anchor
- Dock lines
- Bailer
- Boat hook
- Spare parts including prop, nut, etc.
- Suitable tool kit
- Navigational items – compass, GPS
- Back-up communications – slate, hand-held radio, cell phone
- Extra lines and tow harness
- Extra food rations
- Flags – dive and alpha
- Running and RAM lights as needed.
- Bilge pumps manual and electric if feasible
- EPIRB
- Spare key and deadman

**APPENDIX 2**  
**Float Plan**

All vessels operating under the auspices of the OM must, at the minimum, be in compliance with local, state and USCG regulations

Date: \_\_\_\_\_ Departure time: \_\_\_\_\_ Estimated return: \_\_\_\_\_

Name & description of vessel: \_\_\_\_\_

\_\_\_\_\_ # of people on board \_\_\_\_\_

Names: \_\_\_\_\_ Contact # \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Area of operations. (be specific): \_\_\_\_\_

Type of activity: \_\_\_\_\_

Point of departure: \_\_\_\_\_

Description of tow vehicle if applicable \_\_\_\_\_

If overdue, contact: \_\_\_\_\_ Contact # \_\_\_\_\_

Emergency plan, including activation time: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Local information & emergency numbers		
Emergency USCG	911	Monitors VHF 16

**APPENDIX 3**

**Request for Scientific Boating Project Approval or Renewal**

- 1. Name of project: \_\_\_\_\_
- 2. Name of Principal Investigator or Administrative Officer: \_\_\_\_\_
- 3. Department: \_\_\_\_\_
- 4. New or an ongoing project? \_\_\_\_\_
- 5. Research project description and goals. Use a separate sheet if necessary: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- 6. Vessel name & description: \_\_\_\_\_
- 7. Vessel owner & Operator(s): \_\_\_\_\_
- 8. Names & affiliation of those on board: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- 9. Location of project: \_\_\_\_\_  
\_\_\_\_\_
- 10. Dates of start and end of operations: \_\_\_\_\_
- 11. Special conditions or logistical considerations: \_\_\_\_\_  
\_\_\_\_\_
- 12. Emergency procedures (EMS activation, nearest medical aid, etc.): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Other universities, institutions or groups involved with the project \_\_\_\_\_

<b><u>FOR OFFICIAL USE</u></b>	
Project # : _____	Renew on: _____
_____	_____
<i>Signature, Chair BSC</i>	<i>Date</i>

## **APPENDIX 4 BOATING EMERGENCY MANAGEMENT PROCEDURES**

### **Introduction**

Most boating incidents take place through the culmination of several factors leading up to a single point when unsafe situations combine and pass a critical point resulting in an emergency situation. Identifying these factors and correcting them immediately is the best course of action.

### **General Procedures (Personnel Injury)**

The nature and severity of personnel injury shall be the determining factor for the mode and method of patient transport.

Make contact with victim, if safe, rescue as required.

1. Establish ABC's. (Airway, Breathing, Circulation) Then apply first aid as required.
2. Determine severity and select the mode of transport. (Self transport, USCG, or EMS)
3. As applicable, contact the pre-designated land base, USCG channel 16 VHF, or EMS 911. Or local equivalent
4. Coordinate with EMS for patient transfer site and ETA.
5. Notify the Boating Safety Officer or the designated Assistant.
6. Complete the Accident Forms as required.

### **General Procedures (Non-urgent Disabled or Damaged Vessel)**

For non-emergency related damage or disabling situations it is the responsibility of the operator to suspend the mission and assess all conditions then take appropriate action. The operator must communicate the situation to the designated mother-ship or land-based point of contact. A communication schedule shall be established to monitor the situation until safe moorage is obtained.

1. Apply measures to minimize or correct the situation and contact land base or mother ship.
  - Location
  - Nature of problem
  - Type of assistance needed
  - Number of persons on board
  - Establish a communication schedule based on severity.
2. Arrange USCG assistance if another assistance provider (such as Vessel Assist) is not available. Hail USCG on VHF Channel 16 and follow their directions.
  - Same as #1 above.
  - Request notification of the land base that is holding your float plan.
2. Notify the Boating Safety Officer or the designated Assistant.
3. Complete the Accident Form if required.

### **Emergency Procedures (Collision, Fire, Flooding, Grounding, Crew overboard)**

Severe situations that can lead to the loss of life and property are collision, fire, flooding, grounding and crew over board. Each of these situations requires the operator to immediately initiate measures to correct the situation. Additionally, the USCG and/or another designated agency shall be notified to facilitate rescue and/or assistance.

1. Initiate control measures to prevent/minimize loss of life and the vessel.
2. Contact USCG Channel 16 VHF
  - MAYDAY, MAYDAY, MAYDAY!
  - Location (Speak slowly and repeat position)
  - Nature of distress
  - Vessel name, ID number & description
  - Number of people on board
3. Request notification of the Boating Safety Officer or the designated Assistant as soon as possible.

**APPENDIX 5  
BOATING ACCIDENT REPORT FORM**

**In California see**

**<http://dbw.ca.gov/PDF/AccidentForms/BAR.pdf>**

**APPENDIX 6  
INDIVIDUAL UNDERWAY HOURS LOG**

<b>Individual Underway Hours Log</b>						
<b>Name:</b> _____				<b>Department:</b> _____		
<b>Month/Year:</b> _____			<b>Signature:</b> _____		<b>Date</b> _____	
Date Day / Night	General Description of Mission Type of Operations and Comments	Area or Location (Inland/Offshore)	Vessel Size	Vessel Propulsion Type and Number	Vessel Launch Method	Total Time Underway
Day / Night						
Day / Night						
Day / Night						
Day / Night						
Day / Night						
Day / Night						
Day / Night						
Day / Night						
Day / Night						
Day / Night						
Day / Night						
Day / Night						
Day / Night						
Day / Night						
Day / Night						
Day / Night						

## APPENDIX 7

### GLOSSARY

From CA Department of Boating & Waterways Boating Course  
<http://www.dbw.ca.gov/PDF/DBWBoatCourse.pdf>

#### A

- Abaft**            Toward the rear of the boat or vessel
- Aboard On**, in or into a boat.
- Abreast**           Side by side; by the side of.
- Aft**                Describing the after section of a vessel, or things to the rear of amidships and near the stern.
- Ahead**            In a forward direction.
- Aid to Navigation (ATON)** - Any device external to a vessel specifically intended to assist navigators in determining their positions or safe courses, or to warn them of dangers or obstructions.
- All-Round**        A light which shows all the way Light around; 360 degrees.
- Amidships**        Midway between the bow and the stern on a boat.
- Anchor**            A forging or casting shaped to grip the sea bottom and, by means of a cable or rope, hold a boat in a desired position.
- Anchorage**        A suitable place for anchoring in relation to the wind, seas and bottom.
- Anchor Line**     A line used to hold a vessel fast to the anchor.
- Arrhythmia**       An irregularity in the rhythm of the heart's beating.
- Asphyxiation**    To cause a loss of consciousness as a result of too little oxygen and too much carbon dioxide in the blood; suffocation. Astern Behind or towards the rear of a vessel.
- Athwart**           Across.
- Auxiliary Engine**    A "stand by" source of power.

#### B

- Bail**                To remove water from a boat by pump or bailer.
- Bass Boat**        A modified skiff or jon boat. Usually has a covered forward deck and a powerful motor to get to fishing places quickly. Used on lakes and rivers.
- Bathers**            Swimmers.
- Beam**                Imaginary line amidships at right angles to keel of vessel. Also vessel's width amidships.
- Bearing**            The direction of an object from an observer.
- Berth**                A bed or boat slip.
- Bight**                The part of the rope or line, between the end and the standing part, on which a knot is formed.
- Bilge**                The lower internal part of a boat's hull.
- Bilge Pump**        A submersible pump that is used to pump water out of the bilge.

Blind Bend	An area in which another vessel may be obscured from view.
Boat	A waterborne craft smaller than a ship.
Bollard	A fitting usually on a dock, pier or wharf to which mooring lines can be attached.
Bow	The forward part or front of the boat.
Bowline	The name of a commonly used knot.
Bow Line	A docking line leading forward from a vessel's bow.
Buoy	A floating aid to navigation.
<b>C</b>	
Cabin	A compartment for passengers or crew.
Can Buoy	A green cylindrical buoy bearing an odd number and marking the port side of a channel from seaward.
Canoe	A lightweight, long, narrow boat propelled by a paddle or sail.
Capacity	Gives maximum weight of Plate passengers and gear and permitted horse-power of the motor. Must be in full view of the operator's station.
Capsize	To turn over.
Carburetor Backfire Flame Arrestor	Required equipment on all motorboats except outboards and diesels. Reduces chance of fire caused by sparks in internal combustion engines.
Cast Off	To release all mooring lines.
Catamaran	Boat with two hulls connected by a deck.
Centerboard	A pivoting board or metal plate, housed in a slotted trunk, which can be raised or lowered. When lowered it reduces a sailboat's leeway (tendency to sideslip).
Chafing Gear	Cloth, tape, or material attached around a line or rigging to prevent wear or chafing.
Channel	The part of a body of water deep enough for navigation through an area otherwise not suitable; usually marked by ATONS or range markers.
Chart	A map of a body of water that contains piloting information.
Chine	The intersection of the sides and bottom of a boat.
Cleat	A piece of wood or metal with projecting ends to which lines are made fast.
Clew	The lower, aft corner of a sail.
Clove Hitch	A hitch temporarily fastening a line to a spar, piling, or another line.
Closure	The act of closing the distance between two vessels.
Compass	The instrument which shows the heading of a vessel.
Coupler	A device on the tongue of a trailer; attaches the trailer to the ball of the towing vehicle.
Course	The average heading and the horizontal direction in which a vessel is intended to be steered.
Cowl	Hooded opening that provides ventilation.
Crossing	The situation in which one vessel Situation moves across the path of another.
Cruiser	A seaworthy craft that usually has some sort of living quarters.



Cuddy Cabin A small shelter cabin.

Current The movement of the water in a horizontal direction.

## D

Danforth A patented lightweight anchor Anchor characterized by long, narrow twin flukes, pivoted at one end of the relatively long shank.

Danger A series of five or more short blasts Signal on a vessel's whistle, air horn, or other signaling device.

Danger Zone The area of a vessel from dead ahead to 22.5 degrees abaft its starboard and port beams.

Daybeacon An ATON consisting of one or more daymarks and the piling to which they are attached.

Daymark A signboard shaped like a diamond, square, triangle or octagon.

Deck Any permanent covering over a compartment.

Dinghy A small rowboat.

Distress Signal: See Visual Distress Signal. 1. Mayday, Mayday, Mayday. Also 2. Any of a number of devices for showing a vessel needs help.

Diuretic Drug or substance that increases the output of urine causing dehydration. Caffeine in coffee or soft drinks is an example.

Diving Flag The white-and-blue, swallow-tail, Alpha signal flag, or a red flag with a white diagonal stripe used to indicate a diver in the area.

Dock A place to moor a vessel; the act of mooring a vessel to a pier or wharf.

Documented Vessel A vessel registered with the U.S. Coast Guard.

Draft The depth of a vessel's keel and propeller below the waterline.

Dry The material in some Class B fire Chemical extinguishers; baking soda.

## E

Eddy A current that moves in the opposite direction of the main current.

EPIRB (Emergency Position Indicating Radio Beacon) An automatic radio transmitter that should be carried on any boat that is operating off shore. When activated, it sends a signal that there is an emergency and guides searchers to the position.

Exposed water Is defined as that subject to severe winds and waves. It includes marine, coastal, estuarine, and lake environments where severe winds and waves are probable.

Eskimo Roll The primary self-rescue technique for kayakers to right themselves after capsizing. The paddler remains sealed in the kayak while performing a series of steps that brings them upright.

## **F**

- Fairway** A navigable part of a river or bay through which vessels enter or depart; a part of a harbor or channel that is kept open and unobstructed.
- Federally Navigable Waters** The seas and waters which provide a “road” for transportation between two or more states or to the sea.
- Fenders** Objects placed along the side of the boat to protect the hull from damage.
- Ferry** When referring to river travel, a method used to navigate across a river current with little or no downstream travel.
- Figure Eight Knot** A knot in the form of a figure eight placed in the end of a line to prevent the line from passing through a grommet or a block.
- Fishtail** The side-to-side motion of a trailer when it does not have sufficient weight on its tongue.
- Flame Arrestor** A safety device on an inboard or stern drive engine which prevents an explosion from an exhaust backfire.
- Flare** 1. The outward spread of the boat’s sides from the waterline to the rail at the bow. 2. A visual distress signaling device.
- Float Plan** A document that describes the route(s) and estimated time of arrival of a particular voyage. It usually includes a description of the vessel, its equipment, and its passengers.
- Forward** Toward the bow.
- Fouled** Any piece of equipment that is jammed or entangled, or dirtied.
- Four-Pole Connector** An electrical connector commonly Electrical used to connect a tow vehicle and a trailer. Comes in two different and incompatible shapes, flat and round.
- Freeboard** The vertical distance measured on a boat’s side from the waterline to the gunwale.

## **G**

- Gear** A general term for ropes, blocks, tackle and other equipment.
- Give-Way Vessel** Required to take early and obvious action to avoid a collision when nearing another vessel. Does not have the right-of-way.
- Grab Rails** Hand-hold fittings mounted on cabin tops and sides for personal safety when moving around the boat.
- GPS** Short for Global Positioning System. This is a satellite system used for highly accurate navigation and pin-pointing of location.
- Grapple** A straight-shank anchor with four or five curved claw-like arms and no stock.
- Gunwale** The upper edge of a boat’s side. (Pronounced gun-nel.)

## **H**

- Hailing Port** A port to which a boat is documented with the U.S. Coast Guard.
- Hard-Chined** Hull shaped with flat panels joined at an angle.
- Hatch** An opening in a boat’s deck for persons or cargo to go below.
- Head** A marine toilet.

Head-On	The situation which exists when two boats approach each other and each sees both the red and green sidelights of the other.
Helm	The tiller, wheel or steering gear of a vessel.
Highside	In rafting when a team of paddlers puts their weight on the downstream end of the raft to prevent a “wrap.”
Hitch	1. A knot used to secure a rope to another object or to another rope, or to form a loop or a noose in a rope. 2. A trailer hitch which is an attachment on the tow vehicle where the trailer is directly attached.
Holes	In river terminology a hole is a place where water flows over a submerged object, creating a reverse current that can hold a buoyant object.
Horsepower	The equivalent of a lift of 550 pounds one foot in one second.
Hull	The body of a boat.
Hull ID	A number that includes the Number manufacturer’s ID code, hull serial number, date of certification, and model year, and is permanently affixed to a vessel’s hull.
Hydrology	In river terminology, denotes the science dealing with the properties of flowing water.
Hyperthermia	A physical condition where the body gains heat faster than its ability to cool itself.
Hypothermia	A physical condition where the body loses heat faster than it can produce it.
Hyperventilation-	Extremely rapid or deep breathing that may cause dizziness, fainting, etc.

## I

Inboard	An engine often mounted amidships; Engine connects to the propeller by a propeller shaft.
Inflatable	A vessel which is inflated by air or carbon dioxide; can be collapsed for trans-orting.

## J

Jet Drive	A special form of a stern drive engine; pumps large amounts of water which is “jetted” out to propel the craft.
Jon Boat	A flat-bottomed boat with square ends used on rivers and lakes; often used by people fishing or hunting.

Kayak	An Eskimo canoe. A water-tight boat; if it turns over, water does not enter; easily righted.
Keel	The permanently positioned, fore-and-aft backbone member of a boat’s hull.
Knot	A bend in a line. Also, a unit of speed equal to one nautical mile (6,076.10 feet) an hour or 1.2 statute (land) miles an hour.

## L

Lanyard	1. A short piece of rope or cord used for fastening something or securing rigging.
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2. For PWC, a cord with a clip attached that acts as a key permitting the engine to be turned on.

**Large swift water** Is defined as subcritical gravity-driven flow with typical velocities of 2-10 ft/s, maximum depths >6' and a water-body width of >300'. The defining attribute is that high channel width complicates self-rescue.

**Latitude** The distance North or South of the equator, measured in degrees.

**Line** Rope and cordage used aboard a vessel.

**Longitude** The distance in degrees east or west of the meridian at Greenwich, England.

## **M**

**Marine Sanitation Device (MSD)** A device fitted to a marine toilet to prevent the dumping of raw sewage into the water.

**Marlinespike** A tool for opening the strands of a rope while splicing.

**Mast** A spar set upright to support rigging and sails.

**Masthead Light** A light at the top of a mast; in a small vessel may be on a staff or post. Usually shines forward; covers an arc of 225 degrees.

**Mooring** Commonly, the anchor, chain, buoy, pennant, etc., by which a boat is permanently anchored in one location.

**Mooring Line** A line for making a vessel fast to a pier, dock or mooring buoy.

**Motorboat** Any watercraft 65' or less in length propelled by machinery, whether or not such machinery is the principal source of propulsion.

**Mushroom Anchor** A stockless anchor with a metal bowl at the end of its shank. Large ones are used for anchoring mooring buoys.

## **N**

**Nautical Mile** One minute of latitude; approximately 6076 feet or 1.2 statute (land) miles.

**Navigation** The art of conducting a ship using compasses, charts and other navigational equipment in order to get from point to point.

**Navigation Rules** The regulations governing the movement of vessels in relation to each other, generally called steering and sailing rules.

**Nun Buoy** A conical, red buoy bearing an even number and marking the starboard side of a channel from seaward.

## **O**

**Oar** A long, wooden instrument with a flat blade at one end, used for propelling boats.

**Outboard Motor** A detachable motor mounted on a boat's transom.

**Outdrive** A type of propulsion system for boats. The inboard motor operates the exterior drive, also called an inboard/outboard.

**Overboard** Over the side.

**Overtaking** A vessel coming up on another; at night the overtaking vessel sees the stern light of the other vessel.

## **P**

**Paddle** A means for propelling a canoe, raft or kayak.

**Paddle Craft** Any boat whose primary propulsion is a paddle. Usually refers to canoes, rafts and kayaks.

**Pay Out Line** To release line in a slow and controlled manner.

**Personal Watercraft (PWC)** Watercraft usually driven by jet pumps instead of propellers; often intended for a solitary rider.

**PFD** Personal Flotation Device. (Life-jacket)

**Pier** A loading or mooring platform.

**Planing** A boat is said to be planing when it is essentially moving over the surface of the water rather than through the water.

**Planing Hull** Type of hull that is shaped to lift out of the water at high speed and ride on the surface.

**Port** The left side of a boat when you are (inside) facing the bow; also a destination or harbor.

**Powerboat** A vessel propelled by mechanical means.

**Prolonged** A whistle signal four to six seconds Blast long.

**Propeller** Wheel or screw mechanism that pushes water aft to propel the boat.

## **R**

**Rail** A protective edge on the deck of a boat.

**Regulatory Marker** A white and orange marker used in the USWMS to indicate danger, restricted operations, or an excluded area.

**Restricted** Any condition in which visibility is Visibility restricted by fog, mist, falling snow, heavy rainstorms, sandstorms, smoke, or other causes.

**Rigging** The general term for all the lines (ropes) of a vessel.

**Right-of-Way** The right and duty to maintain course and speed.

**Rode** An anchor line and/or chain.

**Rope** In general, cordage as it is purchased at the store. When it comes aboard a vessel and is put to use it is referred to as a "line."

**Rowboat** A small, flat-bottom, pointed boat propelled by oars.

**Rowing Shell** Long, narrow and relatively unstable craft powered by oars. Used for recreation and racing.

**Rudder** The control surface, usually aft by which a boat is steered.

**Rules of the Road** The nautical traffic rules for preventing collisions on the water.

**Running Lights** Lights required to be shown on boats underway between sundown and sunup, and during periods of reduced visibility.

## **S**

**Sailboard** Also known as a windsurfer. A board similar to a surfboard that is propelled by wind and sails.

**Sailboat** A boat powered by wind and sails. May or may not have an auxiliary engine.

**Shallow calm water** Is defined as that whose depth is 0-6', flow velocity is <2 ft/s, and where there are no severe winds, waves, and/or currents capable of swamping or overturning a boat. It includes all forms of boatable wetlands, mudflats, shallow embayments, lagoons, lakes, and calm areas of flooded floodplains.

**Ship** A larger vessel usually thought of as being used for ocean travel. A vessel able to carry a "boat" on board.

**Short Blast** A one-second sound signal given by a vessel's whistle.

**Sidelights** The red and green lights marking the port and starboard sides of a vessel.

**Small swift water** Is defined as subcritical gravity-driven flow with typical velocities of 2-10 ft/s, widespread depths of 0-6', and a water-body width of 0-300'. This definition includes waters under the American Whitewater Association's "Class I (Easy)" category, which is defined as "Fast moving flow with riffles and small waves; Few obstructions, easily avoided; Low risk; Easy self-rescue."

**Spar** Any pole, as a mast, yard, boom or gaff, supporting or extending a sail of a ship.

**Spar Buoy** A channel marker that looks like a tall, slender pole.

**Special Purpose Buoy** A buoy having no lateral significance used to indicate an anchorage area, fish net area, spoil grounds, military exercise zone, etc.

**SPF** Short for sun protection factor. This is a rating indicator of how effective a sunscreen is in blocking the harmful effects of the sun.

**Spring Line** Fore and aft lines used in mooring to prevent a boat from moving forward or astern while fast to a pier.

**Square Knot** A knot used to join two lines of similar size. Also called a reef knot.

**Stand-On Vessel** The vessel required to first hold course and speed when nearing another vessel; the vessel which has the right-of-way. However, the stand-on vessel is also required to take any action necessary to avoid a collision if the give-way vessel does not take early and significant action.

**Starboard** The right side of a boat when you are (inside) facing the bow.

**Steal Your Wind** When any vessel or object blocks a sailboat's wind.

**Steering Nozzle** A device for directing a stream of water from left or right in a jet-propelled engine, thereby affecting the vessel's heading or course.

**Stern** The aft end or back of a boat.

**Stern Drive** A vessel with an engine mounted Engine inside the hull near its stern and with its propelling mechanism attached to the transom.

**Stern Line** A line leading aft from the stern of a boat to a pier.

**Strainer** On a river, any obstacle that the current flows through. Willows, fallen trees or brushy plants are common examples.

Stow To store items neatly and securely.  
Swamp To fill with water, but not sink, a boat or vessel.  
Swimmer's Position In a river, floating on your back, keeping your toes up and your feet pointed downstream.

## T

Throttle A device for regulating the amount of fuel delivered to the engine to control speed  
Throw bag A nylon bag filled with foam and climbing grade rope that is thrown to rescue paddlers swimming in whitewater.  
Tide The alternate rise and fall of waters caused by the gravitational attraction of moon and sun.  
Tiller A bar or handle for turning a boat's rudder or an outboard motor.  
Tongue The front area of a trailer; contains the coupler or hitch that attaches to the towing vehicle.  
Towing Pulling a vessel through the water; an assistance or rescue maneuver.  
Transom The transverse planking which forms the aft end of a small, square-ended boat. (Outboard motors are usually attached to a transom.)  
Trimaran Boat with three hulls, the center one the largest.

## U

Underway In motion, said of a vessel when not moored, at anchor or aground.  
Uniform State Waterway Marking System (USWMS) A system of marks used on state waters to warn boaters of dangers and to provide general information and direction.  
Unscheduled Swim An unexpected fall into the water from a paddle craft. The person overboard should assume swimmer's position.  
Utility Boat A small boat used for transportation, fishing, hunting, and other purposes; includes dinghies and prams.

## V

V Bottom A hull with the bottom section in (Vee) the shape of a "V."  
Vessel Every kind of watercraft, other than a seaplane on the water, capable of being used as a means of transportation on water.  
VHF-FM The frequency band of "ship-to-shore" radios used on small vessels.  
Visual Signal A signal to show that you need help Distress and to guide rescuers to a search- and-rescue mission.

## W

Wake Moving waves, created by vessel motion. Track or path that a boat leaves behind it, when moving across the water.  
Waterline The line where the surface of the water hits the boat's hull. Can vary on an individual boat depending on the weight of the load.  
Weighing Raising the anchor when preparing Anchor to get underway.

**Weight Carrying Hitch** A trailer hitch which fastens to the towing vehicle's frame and bumper.

**Whipping** Twine wound around a line to prevent fraying or abrasion.

**Whitewater** Foaming white-tipped water marked by whitecaps, rapids, etc. Also, a gravity-driven flow that includes supercritical and subcritical flow conditions forming standing waves and/or hydraulic jumps (aka "holes"), often organized into sequences of rapids. Whitewater is further subdivided according to the American Whitewater Association's classification system, which exists to provide a uniform rating system so that paddlers are aware of the dangers that are present in rivers. The rating system goes from Class I to Class VI, with I being the easiest and safest.

**Windsurfer** Also known as a sailboard. A board similar to a surfboard that is propelled by wind and sails.

**Wrap** In rafting, canoeing or kayaking when a raft is pushed against a rock or other obstacle and held there by a strong current.