University of New Hampshire
School of Marine Science and Ocean Engineering

Small Boat
Program Manual

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SECTION 1.00

INTRODUCTION

1.10 PURPOSE

To establish minimum requirements for the safe operation and management of University of New Hampshire, School of Marine Science and Ocean Engineering (SMSOE) small boats. The Small Boat Program Manual (Manual) is designed to provide guidance, enhance safety, and familiarize participants with general operating standards and procedures for all small boats operated under the auspices of the SMSOE.

Specific examples of boat operations under SMSOE 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.

All SMSOE small boat operators, as well as other personnel involved in small boat operations, are required to adhere to the provisions of this Manual.

1.20 REFERENCES

The following documents related to small boat operations and safety were consulted in the preparation of this Manual:

485 DM, Chapter 22, Watercraft Safety, Department of Interior.

33 CFR, Navigation and Navigable Waters, Boating Safety, U.S. Coast Guard, Department of Homeland Security.

46 CFR, Shipping, U.S. Coast Guard, Department of Homeland Security.

The NOAA Small Boat Standards and Procedures Manual, 4th Edition.

Scientific Boating Safety Association Boating Safety Manual (rev. January 2023)

UNH Policies and Procedures for Management of Small Craft Used in Support of Research & Education (rev. August 1993)

1.30 DEFINITIONS

Motorboat. Any watercraft 65 feet or less in length, defined as a small boat by this Manual, that is not certified under the inspection laws or subject to regular inspections by the U.S. Coast Guard (uninspected vessels).

Motorboat Classifications:

Class A. Motorboat less than 16 feet in length.

Class 1. Motorboat 16 feet to less than 26 feet in length.

Class 2. Motorboat 26 feet to less than 40 feet in length.

Class 3. Motorboat 40 feet to less than 65 feet in length.

Watercraft. All vessels, including airboats, sailboats, and every description of motorized and non-motorized watercraft, except seaplanes, which are used, or capable of being used, as a means of transportation upon the water. For the purposes of this Manual, watercraft, motorboat, vessel, and small boat shall be used interchangeably.

Operator. The individual in physical control of the watercraft.

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

1.40 APPLICABILITY

The provisions of this manual apply whenever personnel are using small boats under SMSOE auspices, whether or not the boat is owned by the SMSOE.

Specific examples of boat operations under the auspices of the SMSOE include, but are not limited to: persons engaged in research; employees acting within the scope of their employment; and students engaged in any research or educational operation including those receiving operation instruction or involved in boat checkouts.

In order to be approved for use by SMSOE personnel, a small boat must be numbered in accordance with the regulations of the State of New Hampshire or in accordance with applicable Federal Law or with a federally approved numbering system of another State.

Small boats used under the auspices of the SMSOE fall into four categories:

1. Boats owned, supported, or administered by the SMSOE, regardless of ownership. This includes vessels owned by specific research groups that operate out of SMSOE facilities and/or using other SMSOE resources.

2. Privately owned boats used by the SMSOE for scientific or educational purposes.

3. Any other vessels used by the SMSOE for scientific or educational purposes.

4. In case of joint operations, the lead institution will ensure that all applicable safety standards are met.

Specifically excluded from the purview of this document are UNH craft used for athletic, recreational or other non-academic purposes.

SECTION 2.00

ROLES AND RESPONSIBILITIES

2.10 EXECUTIVE DIRECTOR, SMSOE

The SMSOE Executive Director ensures sufficient support and resources to effectively implement the SMSOE Small Boat Program and its related activities.

2.20 FACILITIES COMMITEE

The Facilities Committee (FC) has ultimate authority over the SMSOE Small Boat Program and for SMSOE vessels in general. The FC should consist of a majority of persons who are knowledgeable about boating operations. The FC is responsible for approving changes to this manual.

2.30 BOATING SAFETY OFFICER

The Boating Safety Officer (BSO) is responsible to the FC for the conduct of the SMSOE Small Boat Program. Operational authority for the SMSOE Small Boat Program, including certification of operators, approval of boat requests/float plan, maintenance of boats, and ensuring compliance with this Manual by all operators of SMSOE small boats rests with the BSO. The BSO will often be the Chair of the FC.

The BSO shall have the ability to suspend boating operations considered to be unsafe or unwise and will ensure that all boats are in full compliance with USCG requirements with respect to equipment and safety procedures.

2.40 PRINCIPAL INVESTIGATORS

1. Principal Investigators should 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. Principal Investigators are responsible for assuring that all boat operations that are part of a program under their direction are conducted in accordance with these guidelines.

2.50 BOAT OPERATOR

1. Only authorized SMSOE boat operators may operate small boats under SMSOE auspices, whether or not the boat is owned by the SMSOE. Exceptions may be granted by the BSO for vessels run by non- SMSOE owner/operators subject to the proper legal agreements and insurance requirements.

2. 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 members know the location and how to operate safety/survival equipment.

   f) Report all accidents, incidents, boardings, citations, safety concerns, and issues to the BSO.

3. Failure to comply with provisions of the Manual may be cause for the revocation or restriction of the operator's authorization. However, any operator may deviate from the requirements of the boating safety policy 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.

4. 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. Note that SMSOE operators are not required nor permitted to offer non-emergency towing services to vessels not deemed to be in danger.

SECTION 3.00

ADMINISTRATIVE PROCEDURES AND TRAINING REQUIREMENT

3.10 AUTHORIZATION OF SMALL BOAT OPERATORS

To become an authorized boat operator, an individual must:

1. Complete boating safety course(s) and licensing requirements listed below in Section 3.20 from a BSO 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 to the BSO or designee

3.20 TRAINING AND OPERATOR LICENSING

The following training and licensing are required as a minimum for vessel operators:

Class A & 1 (<26') - Successful completion of a state specific NASBLA approved course plus underway hands-on training including vessel and local conditions/environment familiarization.

Class 2 & 3 (26'- <65') - Above plus some form of USCG licensing or designation as appropriate for the local mission, geography & conditions, operations, crew requirements, possibility of non-crew on board.

All Operators – Skills/knowledge check-off sheets (to be kept in operators permanent file).

Dive Operations- note that for dive operations and operations involving personnel in the water, the BSO has the authority to require additional operator training and/or experience to maintain safe operations. In addition, when

conducting dive operations, the operator is required to have current Basic First Aid and DAN Emergency Oxygen Administration training.

The BSO (or designee) has the authority to give limited authorizations to SMSOE personnel that restrict operators to use of certain boats and/or in certain waters.

Departments and boat owners may set additional requirements for the use of their vessels, but the SMSOE requirements laid out here should be regarded as the minimum.

3.30 TRAILERING

To become authorized to tow a boat and trailer, the operator or designated driver must demonstrate to the BSO (or designee) the proper procedures for towing the boat and trailer over the road, as well as launching and retrieving the boat to and from the water. Where applicable based on the GCWR of the truck/trailer, operators are required to have a valid DOT Medical Examiner's Certificate (MEC) Form MCSA-5876.

3.40 RECORD KEEPING AND ACCIDENT REPORTING

3.41 Float Plan – See APPENDIX D

The use of float plans and a contact list in case of an overdue vessel is required. For trips in remote sites and/or multiple days a communication schedule shall be established before departure.

The use of personal locator beacons (PLBs), and/or similar communication devices is strongly recommended. See Appendix A

3.42 Routine Records

The BSO or a designee (i.e. departments owning boats, individual owners of boats, etc.) shall keep a file of usage for all boats, including a log of scheduled and unscheduled maintenance for each boat, boat trailer and outboard engine.

3.43 Accident and Incident Reporting

1. All accidents should be reported to the Boating Safety Officer and other SMSOE responsible personnel within 24 hours of the incident.

2. Incidents and near accidents, breakdowns or other unsafe events whether on land or at sea should be reported to the Boating Safety Officer within 24 hours.

3. Any accident causing loss of the vessel, damage over $2,000, requiring medical treatment beyond first aid, or loss of life shall be reported to the U.S. Coast Guard and state authorities as prescribed by the Code of Federal

Regulations, 33CFR, 173, sub part C.

4. The BSO and FC shall conduct a debrief session annually to discuss incidents and close calls and determine lessons learned.

SECTION 4.00

OPERATIONAL PROCEDURES

4.10 SMALL BOATS AND EQUIPMENT

4.11 Inspection

1. All boats used by SMSOE personnel will comply with the US Coast Guard Regulations that are applicable to the vessel's size and employment.

2. Small boats that will be used by SMSOE personnel will have either a current US Coast Guard Auxiliary safety inspection or be inspected by the BSO or his/her designee to ensure that the vessel does meet the required safety regulations.

4.12 Stability

1. All boats under 20ft used by SMSOE personnel should have an installed data plate that designates the number of people and weight capacity according to the manufacturer's specifications. All boats over 20ft under SMSOE auspices will have cargo and personnel limits set by the BSO and FC.

2. It is the responsibility of the boat operator to stay within the designated limits and to have all weight evenly distributed so that the boat will be trimmed properly.

3. If the manufacturer's specifications have been altered or if a platform was designed and constructed for specific research, the trim and stability modifications may be comprised. It is the responsibility of the Principal Investigator to verify the stability of any modification with the BSO

4.13 Personal Floatation Device (PFD)

1. All personnel aboard uninspected vessels operating under SMSOE auspices are required to wear a USCG-approved PFD at all times when aboard the vessel.

2. PFDs are not required to be worn by divers when dressed in either (or a combination of) a neoprene wetsuit, a dry suit, or a buoyancy compensator.

3. Cold water protection equipment, such as float coats, exposure suits and/or immersion suits should be worn where cold water conditions pose a hazard during small boat operations. All personnel on board will be trained in the use of this equipment

4.14 Communication

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, etc. as long as the device's range will communicate from the maximum offshore distance that the vessel will reach.

4.15 Safety Equipment

All small boats under the auspices of the SMSOE shall have on board the required safety equipment as outlined in Appendix A. The small boat operator shall be familiar with the operation of all onboard safety equipment and shall inspect all safety equipment prior to departure. The operator shall notify the BSO (or designee) of any malfunctioning equipment used during their operation.

It is the responsibility of the operator and/or Principal Investigator(s) to replace or renew any equipment lost or damaged as a result of negligence or misuse by the operator. In the event of a disagreement as to responsibility for lost or damaged equipment, the BSO/FC will review the case and assign responsibility for replacing it.

4.20 SCUBA Diving

1. All personnel SCUBA diving from a SMSOE small boat are required to observe the provisions of the UNH/AAUS Diving Manual.

2. Whenever diving is conducted from a SMSOE small boat, the UNH Diving Safety Officer must approve the dive plan prior to the dive. The vessel operator and the Diving Safety Officer should discuss the plan prior to departure and adjust if necessary.

3. The designated lead diver will be in charge of all diving operations. A SMSOE certified small boat operator must remain aboard at all times during diving operations. An appropriate “diver down” flag shall be flown at all times divers are in the water.

4. The boat operator has the ultimate responsibility for the boat and crew safety, including the authority to modify or cancel dive operations based on interpretation of weather and sea conditions.

4.30 Safety Checks

Prior to Departure the boat operator shall:

1. Fill out the appropriate float plan and perform the required pre-departure checks as outlined for each vessel. For weekend or holiday use, arrangements should be made ahead of time establishing a shore contact person who can be notified of departure and return times.

2. Perform a pre-departure risk assessment. Risk assessment considerations are outlined in Appendix B.

3. Ensure that the crew composition is appropriate to the mission. Minimum crew for all operations under SMSOE auspices is two persons. Exceptions allowing for solo operation may be granted by the BSO or designee on a case-by-case basis.

4. Inform all passengers of emergency procedures – man overboard, fire, and abandonment and methods for seeking assistance.

5. Inform all passengers of the location of emergency equipment.

6. Inform all passengers of additional hazards and appropriate precautions for the particular environment, weather and objectives of the operation.

After Returning

1. Upon return the operator will close out the float plan and check in with the shore contact person if applicable.

2. Note any problems with the vessel or equipment that occurred and inform the responsible personnel within 24-hours.

3. The small boat shall be washed down with fresh water and left in a state in which it could be immediately used if necessary. For winter operations when fresh water may not be available, the vessel shall be rinsed as well as possible via buckets of saltwater. All gear brought aboard should be removed from the vessel.

APPENDIX A
MINIMUM SMALL BOAT 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 – 3 handheld red flares
- Fire extinguisher(s) which meet or exceed those required by law
- Fog horn, whistle, or other audible signaling device
- Oars or paddles
- 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
- 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
- Dock lines
- Bailer
- Boat hook
- Navigational items – compass, GPS
- Spare parts including prop, nut, etc.
- Suitable tool kit
- Extra lines
- Extra food rations
- Dive flag and dive ladder as needed
- Running and RAM lights as needed
- Bilge pumps manual and electric if feasible
- Spare kill switch and lanyard

APPENDIX B
RISK ASSESSMENT CONSIDERATIONS

Introduction

- Accept risk when benefits outweigh costs.
- Risk is inherent in boat operations.
- Risk is also related to gain; normally, greater potential gain requires greater risk.
- The goal of risk management is not to eliminate risk, but to manage it so that missions can be fulfilled with the minimum amount of exposure to potential harm or loss.
- Only take risks which are necessary to accomplish a mission.
- Taking unnecessary risks not related to successful mission completion is equivalent to gambling. Gambling is an imprudent activity that does not belong in risk management.
- Anticipate and manage risk through proper planning. Risks are more easily controlled when they are identified early.

The following are risk assessment factors that need to be considered:

RESOURCES: Boat and Equipment, Supervision, Communications, and Support.

- Is the boat adequate for the mission?
- Is it properly equipped with operational and safety equipment? Are the boat and equipment functional and up-to-date?
- Is there adequate oversight and supervision for this kind of boat, mission, and mission equipment?
- Is there sufficient administrative and practical support (like fuel and food) for the mission?
- Is a communications plan in place?
- Is back-up or rescue available?

ENVIRONMENT:

- Is the mission environment inherently hazardous (i.e., a surf zone, ice, rocks, uncharted or shallow water, etc.)?
- Is it remote or inaccessible to the USCG or EMS?
- Is it a new environment for this kind of mission, or for the crew?
- Will boat traffic, debris, or current impact operations?

TEAM SELECTION: Experience, Training, and Familiarity.

- Have the crew and mission personnel performed this kind of operation before with this kind of boat and equipment, and with each other?
- Have they operated in this environment before?
- Is the mission or mission equipment new or un-tested?
- Is everyone properly trained for this mission?

FITNESS: Physical and Mental.

- Is the team well rested and ready to work?
- Does everyone understand the mission and are they capable of performing it?.....
- Will weather, stress, or living conditions pose mission, safety, or crew exposure/fatigue problems?

WEATHER:

- Are current and expected weather conditions acceptable? Has the team checked multiple sources of weather forecasts for the most up to date information?
- What are the likely effects of the expected weather on the mission and safety?
- Does it pose a problem to the gear that will be used?
- Is there a plan to mitigate hazards or mission failure, or safely cancel, if the weather is worse than expected?

MISSION COMPLEXITY:

- Is the mission or mission equipment complicated, difficult, new or experimental?
- Is it high profile, stressful, or time sensitive?
- Will mission equipment restrict the boat's maneuverability, affect stability, or pose a hazard to other traffic?
- Does the operation carry inherent risks?

APPENDIX C
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, EMS 911, or local equivalent.
4. Coordinate with EMS for patient transfer site and ETA.
5. Notify the Small Boat Supervisor or the designee.
6. Complete the Watercraft Accident Report if 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 Sea Tow) 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.
3. Notify the Small Boat Supervisor or the designee.

4. Complete the Watercraft Accident Report 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 overboard. 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
    i. MAYDAY, MAYDAY, MAYDAY!
    ii. Location (Speak slowly and repeat position)
    iii. Nature of distress
    iv. Vessel name, ID number & description
    v. Number of people on board
3. Request notification of the Small Boat Supervisor or the designee as soon as possible
4. Complete the Watercraft Accident Report as required.