



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, 1st Edition.

Scientific Boating Safety Association Boating Safety Manual (rev. December 2016)

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 SMSOE 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.
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 COMMITTEE

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 suspend boating operations considered to be unsafe or unwise. He/she 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.
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.

SECTION 3.00

ADMINISTRATIVE PROCEDURES AND TRAINING REQUIREMENT

3.10 AUTHORIZATION OF SMALL BOAT OPERATORS

To become an authorized boat operator, he/she should:

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). Appropriate level of first aid training.

The BSO 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.

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.

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), EPIRBS 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.

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 insure that the vessel does meet the required safety regulations.

4.12 Stability

1. All boats 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.
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 small boats used by SMSOE personnel 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. All PFDs shall be marked with the vessel's name.
2. On Class A or Class 1 watercraft, all persons must wear an approved PFD at all times while on board. On Class 2 or Class 3 small boats, all persons must wear an approved PFD at all times when the small boat deck is not

configured with exterior rails or bulwarks, when working on deck with over-the-side equipment, and at the discretion of the vessel operator at other locations on the vessel.

3. 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.
4. 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. He/she 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 MOC 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 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.

3. The boat operator has the ultimate responsibility for the boat and crew safety. He/She has the authority to modify or cancel dive operations based on his/her interpretation of weather and sea conditions.

4.30 SAFETY CHECKS

Prior to Departure the boat operator shall:

1. Perform a pre-departure risk assessment. Risk assessment considerations are outlined in Appendix B.
2. Inform all passengers of emergency procedures – man overboard, fire, and abandonment and methods for seeking assistance.
3. Inform all passengers of the location of emergency equipment.
4. 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 check in with shore contact person.
2. Note any problems with the small boat or equipment that occurred and inform the responsible department 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.

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 - smoke flare(s) and > 3 day/night signaling devices.
- Fire extinguisher(s) which meet or exceed those required by law
- Fog horn, whistle, 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
- Navigational items – compass, GPS
- Spare parts including prop, nut, etc.
- Suitable tool kit
- 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 dead-man switch

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?
- 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 a multi-unit operation or dependent on other agencies?
- 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 (like towing divers or going into the surf)?

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 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 Small Boat Supervisor or the designee as soon as possible
4. Complete the Watercraft Accident Report as required.

APPENDIX E

MINIMUM COVID-19 PROJECT APPROVAL AND EXPOSURE CONTROL GUIDELINES FOR UNH ESSENTIAL RESEARCH SMALL BOAT ACTIVITY

This document describes the project approval process and exposure control guidelines for essential small boat operations during the COVID-19 research space limited access period. The following are considered minimum requirements for UNH small boat operations. Modifications of these guidelines may be required by the UNH Facilities Committee (UNHFC) based upon specific characteristics of the research vessel, planned operations, environmental conditions, current community public health situation, or further guidance from UNH or the State of NH.

SMALL BOAT PROJECT APPROVAL PROCESS

- Copy of the Office of Environmental Health and Safety approval letter must be submitted to UNH's Chair of the Facilities Committee (CFC) along with a copy of the COVID-19 specific project SOP.
- Access to the small boats must be approved by the CFC (or designated person), any associated committee's (e.g. Diving Control Board, or designated sub-committee), and support services (e.g. UNH pier manager, JEL manager)
- Boat Captain must confirm prior to each underway day:
 - Launch ramps or hoists are open and available.
 - Another UNH vessel is available to assist in case of emergency.
 - Local hospitals are not limited by COVID-19 cases.

GENERAL GUIDELINES

Approved essential activities should make every effort to mitigate transmission as outlined by the current [CDC](#), [NH-State](#), and [DAN](#) recommendations plus the guidelines noted below:

- All boating operations shall be conducted with the consideration that any member of the operations is potentially asymptomatic, infected and contagious.
- Each team member should be asymptomatic for at least 2 weeks prior to field day and will not participate should they feel ill or has reasonable cause to believe they have been exposed to COVID-19.
- Boat personnel must be kept to a minimum and must be approved by the PI (e.g., vessels less than 20', 2 people OB; vessels 20' – 26', 3 people OB).
- Before each field day the PI will review with the team: the plan, proper PPE use, the current CDC recommendations and any general concern for safety associated with the field operation.
- During all aspects of the operation, adequate interpersonal distancing of 6ft or greater must be maintained unless appropriate PPE is employed. Minimum interpersonal distances of 6ft or greater can be difficult to effectively maintain while working on UNH's small boats, so PPE is required to be worn while on the boat.
- Minimum PPE will comply with the current [CDC recommendations](#) for non-critical workers.

- Proper PPE procedures and sanitizing must also be practiced during use of any shared equipment: VHF radio, GPS, handrails, sampling equipment, etc.
- The Principal Investigator of the project is to ensure all team members have the appropriate PPE with appropriate training and they are being used correctly.
- Vehicle sizing also must be planned to allow adequate social distancing and personnel driving in separate vehicles may be required.
- Additional protective measures may be required anytime the current social distancing and PPE recommendations, including face masks, are difficult to maintain.

COVID-19 SPECIFIC FLOAT PLAN

A COVID specific float plan will be developed to address virus transmission concerns. This float plan will be specific to the nature of the proposed work but should address at a minimum:

- Identification of Captain and Crew
- Launching/Retrieval Location and Procedures, if applicable
- PPE being used
- Small Boat/Equipment Disinfection Protocols (see APPENDIX F)

APPENDIX F
UNH GUIDELINES FOR SMALL BOAT AND BOAT SPECIFIC EQUIPMENT
COVID-19 RELATED CLEANING/DISINFECTION

Before the commencement of daily operations, all personnel should be reminded of general PPE requirements. The following are minimum standards that must be followed when cleaning/disinfecting UNH owned/operated vessels and vessel specific equipment. Users are encouraged to exceed these standards while following all applicable health, safety and environmental laws.

All boat surfaces and boating related equipment that is touched by the operator or crew will be cleaned/disinfected at the end of the operating day. It is the PI and captain's responsibility to insure the following three-part strategy (in this order) is completed in its entirety:

- 1) Rinsed or wiped down with clean water
- 2) Disinfected with an environmentally safe, EPA approved disinfectant
- 3) Allowed to dry before re-use.

The following is a minimum list of surfaces and equipment that may require cleaning/disinfection after use:

- Electronic Equipment: GPS, Radar, VHF, Tachometer, Trim Tab Switches, Key
- Boat Specific Surfaces: Handrails, Dive Ladder, Gunnels, Anchor/Chain, Dash, Helm, Engine Cover, Boat Box
- Trailer: Jack, Trailer Dolly, Chains, Hitch and Wire Harness
- Safety Kits/Equipment (only if used): Oxygen Kit, First Aid Kit, Emergency Signaling Equipment, Dive Flag

The following guidelines must be followed when cleaning/disinfecting UNH small boats and boat specific equipment:

- All personnel will wear the appropriate PPE while cleaning/disinfecting boats and boat specific equipment (e.g., gloves, eye protection, face masks)
- When there is a significant chance of chemical runoff into the environment, only non-toxic, biodegradable EPA approved chemicals shall to be used when cleaning vessels and equipment.
- All cleaning/disinfection supplies will be provided by the PI, will be checked for expiration and will be used per manufacturer instructions.
- Disinfectants will be allowed to dry before the next boat user.
- Electronics, steering wheel, throttle, safety kits and communal handrails will be wiped down with clean/potable water then disinfected with 60-70% Isopropyl alcohol wipes/spray, or equivalent, and left to dry.
- Communal surfaces such as anchors, anchor chain, gunnels, etc. should be rinsed with high pressure clean water before being sprayed with an environmentally friendly EPA approved disinfectant and left to dry.

- Equipment made from a suitable material that can be safely removed from the vessel and cleaned/disinfected in a laboratory sink or similar can be disinfected with a diluted bleach solution prepared by mixing 5 tablespoons (1/3rd cup) bleach per gallon of water or 4 teaspoons bleach per quart of water. Bleach solutions should not be used where follow up rinsing poses a threat to the environment.

Note: These cleaning guidelines only apply to boat surfaces/equipment that are contacted by the users and pose a risk of surface contact virus transmission. These guidelines do not apply to the hull, engine, windows, trailer body etc. These surfaces should be hosed down per normal boat cleaning procedures.