

UAF CFOS Department of Fisheries

***Small Boat
Safety
Manual***

*May 2023
Version 3.2*

TABLE OF CONTENTS

Section	Page
1. OVERVIEW	2
1.1. PURPOSE	2
1.2. CONTENTS	2
1.3. APPLICABILITY	2
2. RESPONSIBILITY	2
2.1. MANAGER DEPARTMENT OF FISHERIES DIVISION	2
2.2. COMMITTEE	2
2.3. BOATING SAFETY OFFICER	2
2.4. PRINCIPAL INVESTIGATORS, ACADEMIC ADVISORS, & SUPERVISORS	2
2.5. BOAT OPERATOR	3
2.6. PASSENGERS	3
3. ADMINISTRATIVE PROCEDURES	3
3.1. GENERAL	3
3.2. OPERATION AREAS	3
3.3. BOAT OPERATOR TRAINING	3
3.4. BOATS AND EQUIPMENT	4
3.5. FLOAT PLAN	5
3.6. COMMUNICATIONS	5
3.7. ENVIRONMENTAL CONDITIONS	5
3.8. SCUBA DIVING	5
3.9. SAFETY CHECKS AND GENERAL BOAT USE GUIDELINES	5
3.10. RECORD KEEPING AND ACCIDENT REPORTING	7
APPENDICES	
I Department of Fisheries Float Plan	
II Boat Operator Statement of Responsibility	
III Mandatory Safety Equipment List	
IV Sample of Alaska Marine Safety Education Association Vessel Handling Drills	
V <i>Ishkeen</i> Checklist	

ACKNOWLEDGEMENTS

This manual is adapted from University of California, Berkeley's Small Boat Manual. Therefore, thanks must be given to the unknown authors who gathered and documented the initial information. We are grateful for the assistance offered by the Director of Alaska Marine Safety Education Association (AMSEA). The review of our manual and valued suggestions helped complete the adaptation.

1. OVERVIEW

1.1. PURPOSE

Small boat operations involve certain risks that must be addressed prior to beginning any fieldwork. Knowing what equipment is required to be on the boat, the rules of the road, understanding the weather and its effects on the marine environment, and even the variations in operating one type of boat compared to another are all obstacles that must be overcome in order to minimize the risks to those on board, as well as maximizing efficiency in data collection.

The purpose of this manual is to establish good boating practices, to ensure that all boating is conducted in a safe and efficient manner, and to familiarize participants with the basic procedures that affect their own safety and the safety of their fellow users.

All UAF CFOS Department of Fisheries small boat operators and passengers are required to observe the provisions of this guide.

1.2. CONTENTS

The Small Boat Manual contains policies and procedures for all boating operations. This Small Boat Safety Manual includes:

1. Policies and procedures that pertain to all boating operations
2. Administrative procedures for conducting the small boat program
3. Equipment and maintenance recommendations
4. Safety and training requirements

1.3. APPLICABILITY

The provisions of this manual apply whenever Department of Fisheries personnel are using small powerboats to conduct research under UAF CFOS Department of Fisheries auspices, whether or not the University owns the boat. It also applies to any operators of UAF CFOS Department of Fisheries boats.

Specific examples of boat operations under Department of Fisheries auspices include but are not limited to: persons engaged in research; 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.

For the purposes of this program, a small boat is *any boat less than or equal to 27 feet in length*.

2. RESPONSIBILITY

2.1. ADMINISTRATIVE MANAGER OF LENA POINT BUILDING

The Administrative Manager of the Lena Point Building will maintain all records of training and ensure that all training/competency requirements identified in this manual are met.

2.2. COMMITTEE

The Chair of the Department of Fisheries will appoint representatives to serve on the Department of Fisheries Boat Use & Safety Committee. This committee, which should have at least one representative from both Fairbanks and Juneau, has final judgment on a person's competency in boat operations should a conflict arise, and has the responsibility of approving any changes to this safety manual.

2.3. BOATING SAFETY OFFICER

The Boat Use & Safety Committee members will serve as Boating Safety Officers in each location with Fisheries-owned and operated vessels.

2.4. PRINCIPAL INVESTIGATORS, ACADEMIC ADVISORS, & SUPERVISORS

Principal Investigators/Academic Advisors/Supervisors will assure all small boat operations that are part of a program under their direction are conducted in accordance with this manual. It is required that Principal Investigators/Academic Advisors who operate Department of Fisheries boats or supervise those using the boats have taken the online course and/or any other training that is required as published in this manual. The Principal Investigators/Academic Advisors/Supervisors are also responsible for assuring all the required safety equipment as outlined in Appendix IV is on board prior to use.

Principal Investigators/Academic Advisors/Supervisors are required to submit the Boat Operator Statement of Responsibility form for each boat operator working under them. This form is Appendix II in this manual.

2.5. BOAT OPERATOR

In all boat operations, one individual shall be responsible for boat operations and designated as the boat operator. This term does not imply that this person must be at the helm at all times; however, s/he is responsible at all times. The designated boat operator is responsible for all aspects of boating operations, regardless of the presence of any senior staff or faculty in the boat. These responsibilities include, but are not limited to:

1. The safe navigation of the vessel to and from the site(s) of operation.
2. The safe operation of all equipment, either in the collection of data, or the handling of the vessel.
3. Safe transport of the vessel to and from the launch site.
4. Ensuring that all required operational and safety equipment is on board before getting underway and properly stowed upon return.
5. Enforcing safe behavior of all persons on board, including the wearing of Coast Guard approved PFDs at all times when outside the cabin or when on board an open skiff.
6. Acquainting all passengers with safety equipment, its proper use, potential hazards and an emergency action plan before departure.

Non-compliance with this manual is to be reported to the Administrative Manager of the Lena Point Building for review by the Boat Use & Safety Committee.

2.6. PASSENGERS

Passengers are required to comply with this manual as it pertains to them. The boat operator is in charge at all times. Passengers are required to wear Coast Guard approved PFDs at all times when outside the cabin or when on board an open skiff unless they are engaged in SCUBA diving activities. These safety guidelines should not be deviated from unless a specific situation has occurred where following a guideline could cause personal injury—this decision should be made by the boat operator. If the passenger does not feel the weather and/or vessel condition is safe, it is their responsibility to inform the boat operator and not participate in the cruise. The passenger should inform the Administrative Manager of the Lena Point Building and the Chair of the Department of Fisheries of any safety concerns.

3. ADMINISTRATIVE PROCEDURES

3.1. GENERAL

The regulations in this manual must be observed wherever small boat operations are carried out under the auspices of UAF CFOS Department of Fisheries. All operators must follow the provisions of the manual and all equipment used must conform to U.S. Coast Guard requirements (Appendix IV of this manual). When using a small vessel owned by a cooperating agency, boat operators and passengers who are staff, faculty or students in the Department of Fisheries must comply with this manual *and* any boat use policies established by the cooperating agency.

3.2. OPERATION AREAS

The regulations herein shall be observed at all locations where boating operations are conducted under the auspices of the Department of Fisheries Small Boat Program.

3.3. BOAT OPERATOR TRAINING

Boat operators are expected to have 1) basic knowledge and 2) competencies for handling the vessel they intend to use in the expected environment and conditions for their fieldwork, and 3) familiarity with the vessel. The training requirements consist of three parts.

1. Theoretical Knowledge

Theoretical knowledge and an understanding of the “Rules of the Road” can be gained through any of several formal boating courses. One course that satisfies this requirement is the Alaska version of the Boat US online class <https://courses.boatus.org/>. Submit the course completion certificate to the Administrative Manager of the Lena Point Building as evidence.

2. Operating Experience

Boat operating experience is invaluable, and there is no substitute for time at the wheel on the water. Tides, river conditions, cold weather, cold water, and unpredictable winds can add to the dangers of Alaskan waters. Principal Investigators/Academic Advisors/Supervisors are responsible for making sure that boat operators have the experience to recognize these dangers.

To ensure that boat operators have basic on the water skills, a training program that provides hands-on demonstration of on-water skills and knowledge (Appendix V) is required of all boat operators that lack formal certification (e.g. Coast Guard Captain’s License). Boat operators can gain these skills through a formal course (e.g. the AMSEA Small Boat Operator Training course, a Motor Boat Operator Certification Course (MOCC) or an equivalent) or through an apprenticeship program of going out on the water with an experienced boat operator and then completing a demonstration of skills with a Principal Investigator/Academic Advisor/Supervisor. The apprenticeship should also ensure that trainees understand aspects of theoretical knowledge detailed in Appendix V. Individuals with significant previous experience may demonstrate their knowledge of the skills in the checklist in Appendix V through an on-the water skills demonstration and bypass this training/apprenticeship program.

3. Vessel Orientation

In addition, all operators will need to complete a one-time boat orientation for the particular vessel that they will be using. This orientation will include an overview of vessel-specific procedures, including trailering and launching, starting the motor, fueling, troubleshooting, and operating the vessel. It is the responsibility of the PI, Academic Advisor, or Supervisor to perform the orientation according to these guidelines, which are provided in the Small Boat Use Policy & Guidelines manual.

3.3.1. USEFUL LINKS

Other sources of boating safety, survival information, etc.:

<https://courses.boatus.org/>

<http://dnr.alaska.gov/parks/boating/>

<http://www.usgs.gov/usgs-manual/handbook/hb/445-2-h/ch31.html>

<https://www.amsea.org/>

3.4. BOATS AND EQUIPMENT

All boats and equipment used by authorized Department of Fisheries operators will conform to U.S. Coast Guard requirements and the standards set forth in this manual.

3.4.1. STABILITY

Boat users must abide by the USCG passenger and weight capacity placard posted in all boats. It is the responsibility of the boat operator to stay within these limits and to have all weight distributed so that the boat will be trimmed properly. If the manufacturer's specifications have been altered by adding research equipment, the trim and stability modifications may be compromised. For this reason, any modifications must be pre-approved by the Boat Use & Safety Committee.

3.4.2. EQUIPMENT

The operator shall be familiar with the operation of the equipment and shall inspect all emergency equipment prior to departure (see Appendix IV for a list of required equipment). Special attention should be given to Personal Flotation Devices (PFDs) and communication equipment (radios and cell and/or satellite phones). The operator shall notify the Principal Investigator/Academic Advisor/Supervisor and the Manager of any malfunctioning equipment discovered during their operation. Coast Guard approved PFDs are to be worn at all times outside the cabin. If anything critical, such as communication equipment is malfunctioning, it must be fixed prior to using a boat.

3.5. FLOAT PLAN

All Operators of boats must leave a float plan with a responsible party on shore (Appendix I), regardless of whether CFOS owns the boat. The minimum requirements for a float plan are:

1. The boat being used;
2. The planned date, time and place of departure;
3. The planned date, time and place of return;
4. The site(s) of operation;
5. The Principal Investigator;
6. The names and affiliation of people on board;
7. Communication schedule, i.e., cellular telephone number, InReach device, and/or VHF working frequency;
8. Safety equipment on board;
9. Emergency contact information for people on board

The float plan is in addition to and does not take the place of any other field work safety plans required by UAF.

3.6. COMMUNICATIONS

Scheduled cell phone, satellite phone or radio communications with agreed upon frequency shall be maintained with a responsible person. To initiate any change in an approved schedule, the shore contact or assigned alternate must be notified and changes confirmed. If the boat operator, or their designee, is unable to notify the shore contact or assigned alternate, the filed plan must be adhered to. Failure to maintain scheduled radio, cell phone, or satellite phone communications (within one-half hour) may cause initiation of U.S. Coast Guard Search and Rescue procedures.

The shore contact or the agreed upon alternate shall be notified by phone, InReach, or in person upon completion of work. Notice of return is required within one hour after the scheduled time of return. If shore-based or radio contact is not made, procedures for U.S. Coast Guard action may be initiated. Vessel operators and shore contacts shall take into account the limited VHF radio and cell phone coverage in coastal waters.

3.7. ENVIRONMENTAL CONDITIONS

Use of any boat is always contingent upon environmental conditions. Responsibility for monitoring weather and water conditions, including wind, tides, sea conditions, river discharge levels, flood advisories, etc., prior to departure and during operations resides with the operator. When small craft advisories are issued by the National Weather Service for the waters of a planned operation or experiment, boats that are scheduled for operations within that area should postpone their operations until more favorable conditions prevail.

3.8. SCUBA DIVING

Any person SCUBA diving is required to observe the provisions of the University's Diving Safety Manual.

3.9. SAFETY CHECKS AND GENERAL BOAT USE GUIDELINES

See guidelines for specific vessels in the Small Boat Use Policy & Guidelines document.

3.9.1. Prior to Departure on the day of checkout the boat operator shall:

1. Perform a functional inspection of the boat and all equipment.
 - a. Ensure the plug is in the drain hole on the transom.
 - b. Check all fluid levels in the vessel.
 - c. If you are using a jet boat, grease the jet unit.
 - d. Conduct a vessel “walk around.”
 - e. Check for all safety equipment, including PFDs and communications equipment.
2. Assess all environmental risks, including weather conditions, river/lake/sea conditions, and so forth.
3. Inform all passengers of emergency procedures, to include man-overboard, fire, and abandonment and methods for seeking assistance.
4. Inform all passengers of the location of emergency equipment including PFDs.
5. Complete a verbal risk assessment with all passengers, to discuss additional hazards and appropriate precautions for the particular environment, weather and objectives of the operation.
6. File a **COMPLETE** Float Plan with a responsible shore contact person (see Appendix I). Please note: All the information on the Float Plan is required. Do not leave sections blank, this document is your lifeline, take the time to complete all information. Leave one copy of the Float Plan with a responsible party.

3.9.2. While Underway

It is expected that all operators and passengers will adhere to the guidelines in the safety manual and follow boating rules of the road. This includes, but not limited to, appropriate and safe behavior, PFD usage, and remembering you represent the UAF Department of Fisheries when you are on the water and in transit.

Conduct all pre-arranged communication check-ins with shore.

3.9.3. After Returning

1. Upon return the operator will check in with the shore contact person.
2. Use a fresh water hose to thoroughly rinse and scrub the boat and trailer. Be sure to remove all mud and debris. Pay close attention to the trailer brakes.
2. If boat was used in saltwater, flush both motors for 2 minutes with freshwater using a motor flusher ("ear muffs") or hose attachment on the motor (depends on the vessel).
3. If you are using a jet boat, grease the jet unit.
4. If freezing conditions will occur prior to the next boat use, fog the motor and/or winterize the boat to prevent engine damage.
4. Make sure all electronics are shut down. Turn off battery switches (if applicable).
5. Take all of your trash off the boat. Tidy up the cabin, remove dishes, food and clothing. Properly stow all items. Leave the boat cleaner than you found it!
6. Park the boat where you found it and place wheel chocks. Conduct a vessel “walk around.”
7. You are expected to return the vessel with full fuel levels.
8. Note any problems with the boat or equipment that occurred and inform the responsible department within 24-hours.

4. TRAILERING AND LAUNCHING GUIDELINES

These are general trailering and launching guidelines. Note that some of the specifics will vary depending on the vessel.

4.1.1. Trailering

1. Check that the boat is properly secured to the trailer (including safety chain and securing straps) and that the motors are in the trailering position (for most boats, the motors should be up and resting on tilt support lever).

2. Secure lines in the boat so they won't get caught in a trailer wheel
3. After hooking up the trailer check the following:
 - a. The hitch is secure and the lock/pin is in place.
 - b. The trailer chains are crossed under the hitch and secured so that the end of the hook is facing the boat.
 - c. The emergency brake cable is secured to the vehicle with the end of the hook facing the boat.
 - d. All of the lights are functioning properly.
 - e. The tires are properly inflated (NOTE: recommended psi depends on the specific boat & trailer). Check for a spare tire and make sure it is inflated properly.
 - f. The trailer jack is fully raised or stored prior to driving
4. A spotter standing outside of the University truck when a trailer with or without a vessel during backing is required. The spotter should always stay in the driver's sight.

4.1.2. Launching

Before backing the trailer into the water check the following items:

1. Drain plug(s) are installed.
2. The securing straps on the back of the boat have been removed.
3. Disconnect the trailer lights.
4. The battery switch has been turned on (if applicable).
5. The fuel switch is in the on position (if applicable).
6. The trailering lock is off (if the trailer has one).
7. The tilt support lever is up. Motors are up and ready to be lowered.
8. All of your gear has been loaded into the boat and you are ready to deploy.

Once the boat has been backed into the water to the point that boat is buoyant, lower motor and get it started or secure the boat to a dock before releasing the boat from the trailer. Once the engine is started allow it to warm up briefly until you are confident that it will not stall.

4.1.3. Retrieving

Retrieving the boat can be difficult if the conditions are not fair. Wind and currents need to be considered on your approach to the trailer. Once you have the boat on the trailer and secured by the winch and security chain pull out and into the prep area and do the following:

1. Secure the rear of the boat with the straps.
2. Raise the engine, lower the trailering lock, and lower engine into the locked position.
3. If there is a kicker motor on the boat, secure the kicker bracket and make sure the motor is locked in the down position. Some vessels will have ratchet straps for securing the kicker motor—this may vary from boat to boat.
4. Remove drain plugs to allow any water to drain from the boat. Note some boats do not have drain plugs.
5. Secure all loose lines and gear.
6. Turn off the battery switch and fuel switch (if applicable).
7. Lower any antennae or objects that project above the boat.

4.2. RECORD KEEPING AND ACCIDENT REPORTING

4.2.1. Routine Records

The Administrative Manager of the Lena Point Building or designee shall keep a file of usage for all Fisheries-owned vessels, including a log of scheduled and unscheduled maintenance for boat, boat trailer and outboard engine. Principal Investigators are responsible for keeping these files for boats solely used by individual research programs.

4.2.2. Accident Reporting

All accidents and incidents (collisions, near collisions, groundings etc.) involving boats must be reported to the Administrative Manager of the Lena Point Building and/or the Chair of the Department of Fisheries. The

Administrative Manager of the Lena Point Building will contact the appropriate Risk Management personnel. The boat operator will be required to give a full written accounting of the accident/incident. In the event of an accident or incident, the Boat Safety Committee will determine continued approval to serve as a boat captain on a case-by-case basis.

Definitions:

Incidents are defined as events that result in minor injuries (cuts and scrapes) or “cosmetic” damage to vehicles or vessels (dents and scratches that don’t affect the operation of the vehicle or vessel.) Incidents also include near misses, such as when a situation occurred that could have led to an accident, which should be reported as well.

Accidents are defined as events in which a serious injury requiring medical attention beyond basic first aid occurred. An accident is also defined as a situation where major property damage occurred.

Reporting guidelines and resources:

1. Any accident and or incidents no matter how minor are required to be reported to the Administrative Manager of the Lena Point Building and/or the Chair of the Department of Fisheries within 12 hours of occurrence. Failure to report injuries within this time could result in Worker’s Compensation claims being denied.
2. Any accident resulting in a fatality must be reported to the Administrative Manager of the Lena Point Building and/or the Chair of the Department of Fisheries immediately after emergency personnel have been contacted.
3. Reporting should follow the flow chart in Appendix II.

APPENDICES

Appendix I	Department of Fisheries Float Plan (2 pages)
Appendix II	Incident and Accident reporting
Appendix III	Boat Operator Statement of Responsibility
Appendix IV	Mandatory Safety Equipment
Appendix V	Skills Descriptions and Checklist (5 pages)

DEPARTMENT OF FISHERIES FLOAT PLAN

Instructions for use:

This 2 page document is for your benefit and is required. In the event of mechanical difficulties, weather related problems, or other boating hazards, having a plan and the proper equipment to deal with these issues can make a huge difference in the outcome. Fill out this form completely and leave it with a responsible party on shore. In the event your return is delayed and communications are lost, this shore party should activate the appropriate response as detailed on this form. It is recommended that you bring a second copy with you in the boat. Please be specific in the areas you will be operating in.

Name and description of vessel: _____

Purpose of trip: _____

Operator Name: _____ Telephone #: _____

Local address: _____

Principal Investigator/Academic Advisor/Supervisor _____ On board? _____

SURVIVAL and SAFETY EQUIPMENT (Check as appropriate)

- | | | |
|---|---|--|
| <input type="checkbox"/> PFDs (#: _____)* | <input type="checkbox"/> Paddles | <input type="checkbox"/> Bell/whistle/horn* |
| <input type="checkbox"/> Working Radio* | <input type="checkbox"/> Day Signals * | <input type="checkbox"/> Cell phone (#: _____) |
| Monitoring channel: _____ | <input type="checkbox"/> Night Signals* | <input type="checkbox"/> Exposure Protection |
| <input type="checkbox"/> Anchor | <input type="checkbox"/> Line (Amount: _____) | <input type="checkbox"/> Fire Extinguisher* ¹ |
| <input type="checkbox"/> Bailing Device | <input type="checkbox"/> Tool kit | <input type="checkbox"/> Satellite phone |
| <input type="checkbox"/> Compass and Charts | <input type="checkbox"/> First-aid kit | * required equipment |
| <input type="checkbox"/> Food /Water | | ¹ see USCG regulations for details |

CFOS equipment checked out: _____

NOTIFICATION

Shore Contact: _____ Phone# _____

If no contact is made with Shore Contact by: _____ (time), the contact will:

- **IN JUNEAU:** Call the Coast Guard Juneau Command Center at (907) 463-2000. After contacting the Coast Guard, call the Administrative Manager.
- **IN OTHER AREAS:** Call the Alaska Rescue Coordination Center at 1-(800)-420-7230. After contacting the Coast Guard, call the Administrative Manager.
- **FOR TRIPS OVERNIGHT:** the Shore Contact will be contacted each day by the time certified above.

DEPARTMENT OF FISHERIES FLOAT PLAN

TRIP DETAILS

Departure Date: _____ **Time:** _____ **Return Date:** _____ **Time:** _____

Departing from: _____ **Returning to:** _____

Planned Activity (Include all destination(s) including planned route):

Latest Time of Return: _____

Other travel notes:

Weather Considerations

Forecast:

Source:

Wind conditions:

Sea conditions/Tides and/or River conditions/Discharge levels:

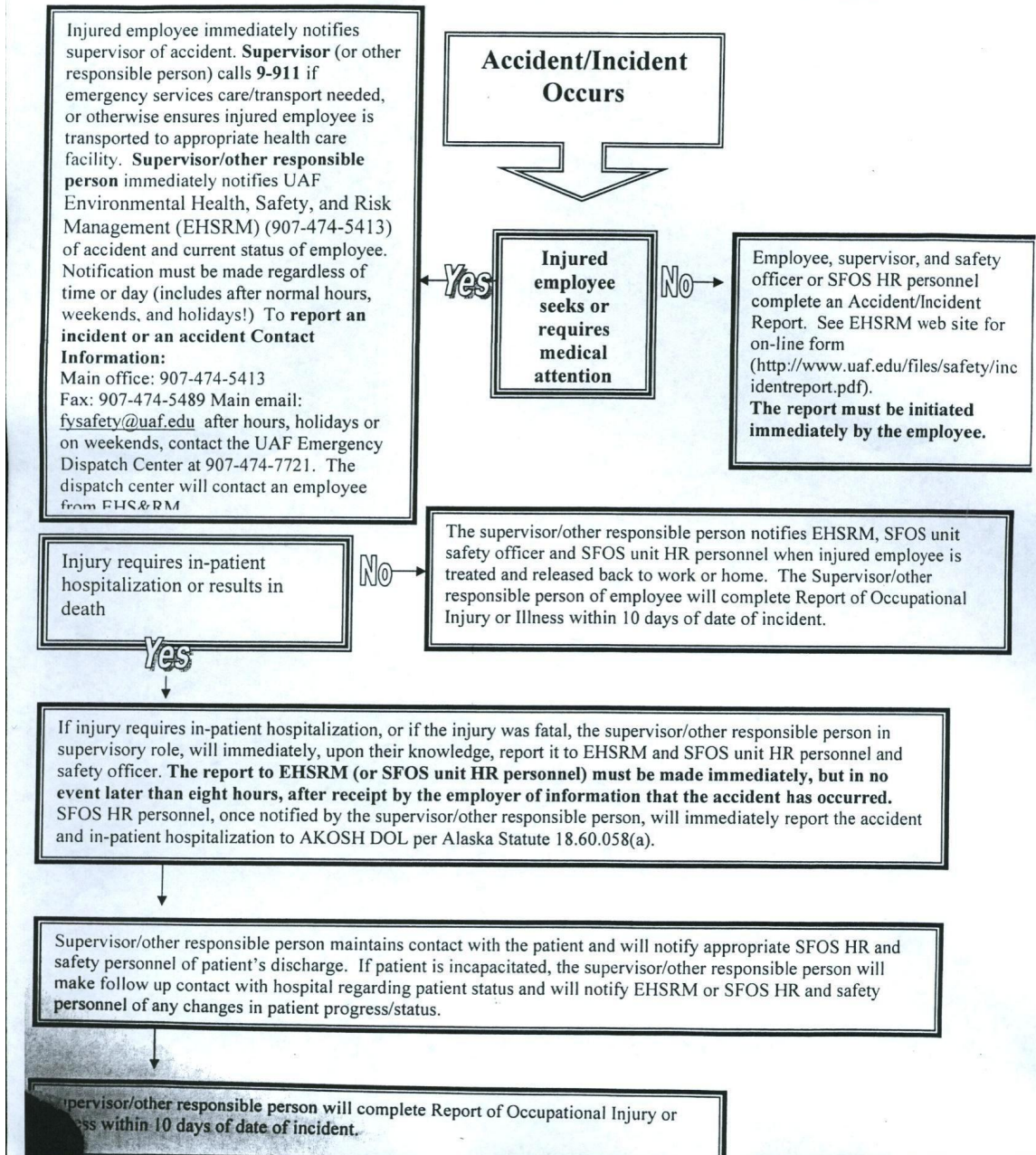
Any current weather advisories?

Personnel on board

Name	Gender	Age	Phone #	Emergency Contact (name, phone)

Incident and Accident Reporting

Accident Reporting/Notification Procedures For School of Fisheries and Ocean Sciences



APPENDIX III

BOAT OPERATOR STATEMENT OF RESPONSIBILITY

I understand that as a designated boat operator I am responsible for all aspects of boating operations, regardless of the presence of any senior staff or faculty in the boat. These responsibilities include, but are not limited to, the safe navigation of the vessel to and from the site(s) of operation, the safe operation of all equipment, safe transport of the vessel to and from the launch site, insuring that all required operational and safety equipment is on board, and enforcing safe behavior of all persons on board. I have thoroughly read and understand the contents of the Small Boat Use & Safety manual.

_____ DATE: _____
Boat Operator

Print, sign and submit to the Administrative Manager before operating any boats.

MANDATORY SAFETY EQUIPMENT

Don't Leave Port Without It!

We've put together a list of required and recommended boating equipment:

U.S. COAST GUARD MINIMUM EQUIPMENT REQUIREMENTS				
EQUIPMENT	Boats less than 16 feet	16 to less than 26 feet	26 to less than 40 feet	40 to not more than 65 feet
<p>4.2.2.1.1. Personal Flotation Devices (life jackets)</p>	<p>Recreational boats must carry Coast Guard approved Personal Flotation Devices, in good and serviceable condition, and of the appropriate size for the intended user. Wearable PFDs must be readily accessible, not stowed in bags, locked or closed compartments or have other gear stowed on top of them. Throwable devices must be immediately available for use. There must be one Type I, II, III, or V PFD for each person on board or being towed on water skis, etc., PLUS one Type IV throwable device. Throwable, Type IV PFDs may no longer be substituted for wearable types on boats less than 16 feet. State laws on mandatory PFD wear may vary.</p>			
<p>Fire Extinguishers (Coast Guard Approved)*</p>	<p>At least one B-1 type (see below) Coast Guard-approved hand portable fire extinguisher. Not required on outboard boats less than 26 feet long and not carrying passengers for hire if the construction of such motorboats will not permit the entrapment of</p>	<p>At least two B-1 type approved portable fire extinguishes; OR at least one B-2 type.</p>	<p>At least three B-1 type approved portable fire extinguishers ; OR at least one B-1 type PLUS one B-2 type.</p>	

	explosive or flammable gases or vapors, and if fuel tanks are not permanently installed.		
Visual Distress Signals	Must carry approved visual distress signals for nighttime use.	Must carry visual distress signals approved for daytime and nighttime use. For pyrotechnic devices (hand-held or aerial red flares, floating or hand-held orange smoke, and launches for aerial red meteors or parachute flares) a minimum of three required, in any combination that totals 3 for daytime and 3 for night use. Three day/night devices will suffice. Devices must be in serviceable condition, dates not expired and stowed accessibly. Exceptions are open sailboats less than 26 feet long and not equipped with propulsion machinery, and manually propelled boats; both required to carry only night signals.	
BELL, WHISTLE	Every vessel less than 39.4 feet (12 meters) long must carry an efficient sound-producing device.	Every vessel 39.4 (12 meters) long, but less than 65.6 feet (20 meters) must carry a bell and a whistle.	
VENTILATION (boats built after April 25, 1940)	At least two ventilator ducts fitted with cowls or their equivalent for the purpose of properly and efficiently ventilating the bilges of every closed engine and fuel tank compartment of boats constructed or decked over after April 25, 1940, using gasoline as fuel and other fuels having a flashpoint of 110° F or less.		
VENTILATION (boats built after August 1, 1980)	At least two ventilator ducts for the purpose of efficiently ventilating every closed compartment that contains a gasoline engine and every closed compartment containing a gasoline tank, except those having permanently installed tanks vented outside the boat and containing no unprotected electrical devices. Also, engine compartments containing a gasoline engine with a cranking motor		

	must contain power-operated exhaust blowers controllable from the instrument panel.
BACKFIRE FLAME ARRESTOR	One approved device on each carburetor of all gasoline engines installed after April 25, 1940, except outboard motors. Device must be marked to show compliance with SAE J-1928 or UL 1111 Standards.
* When fixed fire-extinguishing system is installed in machinery spaces, it will replace one B-1 type portable fire extinguisher.	

Coast Guard minimum equipment requirements vary with the size of the boat, type of propulsion, whether operated at night or in periods of reduced visibility, and, in some cases, the body of water on which it is used. For a more thorough discussion and complete details on how many and what types of equipment you must have aboard your boat, request a free copy of the pamphlet "Federal Requirements for Recreational Boats" from the Coast Guard. For a copy, call their Infoline at (800) 368-5647. Many state requirements go beyond Coast Guard requirements. Contact your state boating office for details. Alaska Boating Safety, <http://www.dnr.state.ak.us/parks/boating/pdf/boatrequire.pdf>

Recommended Equipment:

Coast Guard minimum requirements are just that, minimum.

It is suggested you carry additional safety equipment, such as:

- anchor with sufficient line/chain (at least five times water depth)
- bailer (bucket)
- oars or paddles
- first aid kit
- VHF radio – Cell Phone
- extra fuel & water
- tool kit
- sun protection
- flashlight
- Personal Locator Beacon (PLB)
- Grab and go Survival container

APPENDIX V.

AMSEA Vessel Operation Drill Sets, Certification Skills and Check off List

RB Drill Sets

Verbalize ALL Throttle And Direction Changes, Wait for Receive Crew Responses.

- 1. Slalom Course
- 2. Figure Eights
- 3. Object Avoidance/Advance & Transfer
- 4. Stopping Distance (Safe Speed)

+++++

1. Slalom Course

Set 3 or 4 buoys in a straight line, approx. 2 boat lengths apart each.

Return

- 1. Begin... Bow-on to first buoy
- 2. Back thru all (engines trimmed up lifts stern...)
- 3. Variations 1 – 2 engines
- 4. Bow thru all both engines

(Engine(s) Trim, Advance and Transfer, Wheel & Throttle Ctrl, Crew Positioning and Help, Lookouts, Close-Qtrs...)

+++++

2. Figure Eights 8s

Set buoys approx. 200+ yards apart

- 1. Begin 8s at minimum planning speed.
- 2. Turn as tight around buoys as possible.
- 3. Increase speed by approx 500 rpms and control max. to short of hooking a chine.
This is NOT an E or J turn but continuous turns.

(Hands on Wheel & Throttle, Centrifugal force, Advance and Transfer, Trim and Throttle, Safe Turning Speed, Verbalization, Crew Positioning, Lookouts assigned)

+++++

3. Object Avoidance / Advance & Transfer

Set one buoy/fender for run

or

or

1. Begin first run(s) at minimum planning speed.
2. Instructor tap Coxn to announce object in time to closely avoid Approx. 30 ft.
3. Increase subsequent runs by 500+ rpms
4. Direction to Turn? Fish-tale to Avoid?

(Hands on Wheel/Throttle, Advance and Transfer, Trim and Throttle, Safe Turning Speed, Verbalization, Crew Positioning, Lookouts assigned,)

+++++

4. Stopping Distance/Safe Speed

Use a fixed object attached to bottom (away from fast currents)

.....

1. Begin first run(s) at minimum planning speed.
2. Abeam of object pull throttles to Clutch (not neutral)
3. Note stopping distance/seconds (stopped when wake catches stern)
4. Increase subsequent runs by 1000 rpms until reaching full throttle.
5. Note distance/seconds between *Minimum-Planning* and *Full Throttle*.

Note:

1. Instructor may throw over a fender to mark advance limits between runs.
2. Reducing to clutch instead of neutral keeps prop in gear for more drag...

(Hands on Wheel/Throttle, Advance, Trim and Throttle, Safe Stopping Speed, Verbalization, Crew Positioning, Lookouts)

SKILL-BASED OPERATOR CERTIFICATION

Certification of operators is intended to assure that any person who operates a NOAA small boat has passed minimum criteria relating to knowledge and skill. The wide range of operational risks inherent in the vast array of NOAA small boat operations dictates that field activities must be responsible for implementing operator skill certification criteria. The importance of text-based training and evaluation toward establishing and verifying a basic knowledge base for all small boat operators is not superseded or replaced by certification through demonstration of practical skills.

Skill criteria should be used:

1. in conjunction with underway time accumulated with out accident in order to establish "grandfathering" criteria for existing operators,
2. to supplement the minimal operator training criteria in NAO 217-103 when that criteria is not sufficient or not applicable to address specific operational risks, or
3. as a means to ensure that boat operations are conducted in a safe and professional manner which, when visible to the general public, will reflect positively on NOAA.

The following exercises involve various degrees of small boat handling expertise and can/should be considered in developing skills-based certification criteria. For skill based certification to be meaningful, the successful demonstration of the skills must include specific criteria for evaluation and passing. For example, being able to dock a boat with out causing a 2" bolt standing on its head to fall over, is a specific criteria for passing a docking exercise.

Responsibilities and Requirements as a NOAA Small Boat Operator

Operational Risk Assessment

Vessel Inspections

- Vessel integrity
- Engineering
- Safety Equipment

High Speed Operation and Handling

Theory & Practical

- Demonstrate bringing the vessel up to full speed
- Demonstrate and describe importance of maintaining a proper lookout
- Conduct tight radius turns without causing propeller cavitation and describe signs of propeller cavitation
- Demonstrate high speed avoidance techniques including turns and emergency astern

Close Quarters Maneuvering

Theory & Practical

- Maneuver boat through 360 degrees within two boat lengths by utilizing back and fill turns
- Maneuver boat astern around obstacles/buoys
- Maneuver boat through anchorages

Docking/Undocking

Theory & Practical

- Demonstrate use of various lines (fore and aft spring, endlass, breast, stern, bow) in getting away from and alongside a dock
- Demonstrate docking and undocking in currents and wind

- Demonstrate mooring a boat in a slip

Anchoring Theory

- Demonstrate dropping anchor, setting anchor, selection of proper scope for bottom characteristics
- Describe effect of scope, bottom type, and environmental conditions on anchor watch radius
- Raise anchor and discuss tactics or cautions in freeing fouled anchors

General Operations Theory & Practical

- Maneuver and hold station within 1 boat length of a fixed object (buoy, mooring, piling)
- Maneuver and take an adrift object alongside and aboard the vessel (PFD, float)
- Deploy and retrieve SCUBA divers -**Theory**
- Demonstrate coming alongside an underway vessel

High Risk Operations Theory & Practical

- Describe risks and demonstrate proficiency for landing and launching boats from low energy coasts
- Describe risks and demonstrate techniques for landing and launching boats in high energy coasts (Surf Zone or Beach landings).
- Describe risks and demonstrate techniques for towing vessels alongside or astern
- Describe risks (stability and general risks) and demonstrate deploying and retrieving fishing gear or heavy apparatus - **Theory**

Miscellaneous Theory

- Demonstrate safe speed and navigational techniques for various situations including reduced visibility, heavy weather, or large traffic avoidance
- Describe precautions to take prior to encountering heavy weather
- Identify signs of impending weather
- Identify local hazards to navigation

Engineering Theory

- Underway troubleshooting
- Corrective Actions

Damage Control Theory

- Emergency corrective actions