

FLORIDA INTERNATIONAL UNIVERSITY

# **BOATING SAFETY MANUAL**

**Updated**

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## 1.0 INTRODUCTION

Vessel operation is an important part of Florida International University's research and teaching goals in environmental science. FIU researchers and teachers use boats routinely in South Florida's inland and offshore waters, as well as in locations distant from campus. This document provides policies and procedures for safe boating by FIU faculty, staff, and students, as well as mechanisms for enforcement of these policies.

FIU policies establish roles for faculty, staff and students that are linked to minimum training standards. Boaters are classified as a crew chief, boat crew, science crew, student or observer based on their role in a boat trip. Safe boating requires that all members of the crew demonstrate water skills and local knowledge regarding the research area and boat operations. The crew chief and crew must be able to recognize limitations of their equipment and personnel and make safety decisions using that information to insure the welfare of everyone on board.

### 1.1 PURPOSE

The Florida International University Boating Safety Manual provides safety guidelines applicable to research operations and teaching activities involving the use of watercraft. The policy statements, recommendations, and guidelines provided here are meant to be minimum standards and are not intended to replace common sense; universally applicable guidelines for the diversity of marine research and teaching activities and conditions are not possible.

The goals of this manual are:

- establish safe practices as the primary concern for all boating activities by FIU students, employees and visitors;
- facilitate the effectiveness and efficiency of research operations through use of safe practices;
- promote environmentally sensitive practices by FIU boating research programs;
- control financial costs while maintaining safe boating practice.

### 1.2 SCOPE

The FIU Boating Safety Manual applies to all FIU sanctioned research and teaching activities involving the use of any type of watercraft as well as offsite use of charter boats and personal vessels.

### 1.3 REFERENCES

- 46 CFR, U.S. Coast Guard, Department of Transportation, Requirements
- 33 CFR, Navigation and Navigable Waters, Subchapter S, Boating Safety

### 1.4 DEFINITIONS

**ARB** Aquarius Reef Base as part of the Medina Aquarius Program

**Boat Log** This document registers permanent characteristics specific to each boat including hull identification numbers, registration number, length, etc. It records underway information

regarding every time the boat is operated, fueled, oil is added, and when operation problems arise.

**BAFA Box** The Boating Advanced First-Aid (BAFA) Box is a waterproof box that holds material to be used in case of traumatic injury. This is supplemental to a basic first-aid kit. Contents are listed in Appendix III.

**Call Tree** Located in Appendix I, the Call Tree is used in case of emergencies and is a flow chart of who to call.

**Crew Chief** The Crew Chief is the operator of the boat and is ultimately responsible for all aspects of the vessel's operation and the safety of the people on board. Crew Chiefs must be registered with the Office of Boating Safety and keep required certifications current.

**Crew** The Crew assists the Crew Chief and carries out any duties assigned to them in order to aid in boat operation. Crew must be registered with the Office of Boating Safety

**EMP** Emergency Management Plan is a report that outlines how the Crew Chief, Crew, and any other passengers should act during an emergency. The EMP for each lab may differ depending on location and type of research.

**EPIRB** Emergency Position Indicating Radio Beacon is a small transmitter used to send out an emergency signal to rescue services. Required for boats over 26' in length and must be tested monthly.

**Float Plan** A written or electronic document that includes boat identification, name of the operator of the boat (Crew Chief), persons on board (Crew, Scientists, and Passengers), boat call sign, trip expectations and vehicle description. Float Plans must be filed with the FIU unit that owns the boat (typically SERC FOC or Marine Biology), the Boating Safety Officer prior to the trip, and the contact assigned by the float plan

**FOC** The Field Operations Center (FOC) is a unit in SERC responsible for maintenance and management of a fleet of vehicles, vessels, and trailers assigned to an FIU administrative unit. It is also a support facility for the boat's safety equipment and performs preventative maintenance.

**Handheld VHF** A handheld VHF radio is used, in most cases, as an emergency back up to a mounted VHF. A handheld VHF can be given a registered MMSI number that allows the VHF to automatically give off certain information about the vessel if activated in a distress scenario. A handheld VHF can also be used as a primary source of communication on vessels too small to carry a mounted VHF.

**Observer** Observers are persons aboard that are not involved in boat operations or research activities.

**Personal Locator Beacon (PLB)** A small device that can be used for communication, It is used as backup to cellphones and VHF radios for vessels operating in places with limited or no cell phone reception.

**Principal Investigator (PI)** A detailed description of the PI's role is provided below. This PI is ultimately responsible for all boating personnel under her or his supervision, but they may delegate day-to-day supervision to a Research Coordinator such as their lab manager.

**Responsible Person (RP)** This person is designated by the Crew Chief to be the emergency shore contact. He or she will be the immediate contact person for a Crew Chief when the mission begins, is completed, or when assistance is needed. Refer to Appendix II for information for the responsible person.

**Satellite Phone** A phone used for communication that uses satellites instead of cell phone towers. It is used as backup to cellphones and VHF radios for vessels operating in places with limited or no cell phone reception.

**Science Crew** Science crew are personnel involved in the research activities but not in the active operation of the boat itself.

**Student** Students are persons aboard a boat participating in educational activities.

## **1.5 PROGRAM ADMINISTRATION, RESPONSIBILITY, AND ACCOUNTABILITY**

**BOATING SAFETY COMMITTEE** A group of at least five faculty and staff appointed by the Vice President of Research and charged to create and enforce safe boating practices at FIU. Members of the board have boating experience and expertise in conducting boating related research activities. The committee shall include one representative of the Department of Environmental Health and Safety and one of the Division of Research, with the remainder filled by faculty or staff representative of units using boats for research or teaching at FIU. Boating safety committee is responsible for maintaining and updating boating safety regulations as needed. They shall meet at least twice per year and maintain meeting minutes on a secure website or other storage option that makes them routinely available to ORED, EH&S, and committee members. They are also the policing body for boating safety infractions. The Boating Safety Officer will report all boating incidents to the Chair of the Boating Safety Committee, who will determine if a full investigation is required. In such an event, a meeting of the Committee will be called in a timely fashion, at which time the incident report will be presented by the Boating Safety Officer. At that time, the Committee will determine what actions, if any, are required. Actions may include restrictions of boating privileges by personnel, change of safety regulations or enforcement. If infractions are of a serious nature, recommendations will be made to the Vice President of the Office of Research and Economic Development for further action.

**BOATING SAFETY OFFICER (BSO)** is responsible for record keeping related to logistics and enforcement of FIU boating safety policies and investigation of boating safety incidents.

The BSO will maintain permanent and secure records of training completed by FIU boaters, boat inspections, reports produced related to boating incidents, and documentation of boating regulations including history of modifications as they are enacted by the Boating Safety Committee. She/he will also be available 24 hours as a contact person for all boating incidents and will conduct investigations into all boating incidents in a timely fashion. On-site investigation may be delegated to an appropriate assistant with no conflict of interest. The boating officer will prepare a report on all incidents for review by the Boating Safety Committee.

**PRINCIPAL INVESTIGATOR** shall serve as the supervisor of any research activities that require the use of boats and shall be ultimately responsible and accountable for the following:

- Ensuring that all employees and students working under the administration of a given research project are fully advised of potential risks and hazards involved in the operation of a boat.
- That employees and students have no role or responsibility regarding seamanship or operation of a boat until they have received training set forth in the FIU Boating Safety Manual.
- That employees and students be designated as Crew or Crew Chief and receive training to meet the qualifications of the position as set forth in this manual.
- That all passengers have no direct responsibility in operating any of the FIU boats unless properly authorized by the BSO.
- That all employees and students be provided with proper protective equipment that must be used and available during boating operations at the dock and underway.
- That a float plan is filed with the BSO, the RC and someone close to the Crew Chief prior to boat operation.
- The PI may serve as the RC or delegate that responsibility within her/his laboratory.

## **2.0 General Procedures and Regulations**

### **2.1 Vessel Operators**

All personnel who operate any powered or sail vessel of any type under FIU auspices must meet requirements set forth in this Boating Safety Manual.

- a) All operators of State-owned or personally-owned power boats must meet the following requirements that confirm boater competence. Required paperwork, and certification of successful completion must be submitted to, and kept on file with, the BSO prior to operating a vessel.
  1. FIU boating application/information sheet
  2. Florida Safe Boater course (or other state equivalent) if boater does not hold MOCC or USCG Merchant Mariners Credentials of OUPV or higher
  3. Twenty hours logged operating a vessel comparable to the one being certified.
  4. Current CPR/First Aid/AED certification
  5. Evidence of boater competence.
    - Motorboats: USCG merchant mariners credentials of OUPV or higher, MOCC/MOICC, or via the Personal Qualification System (PQS)
    - Airboats: MOCC/MOICC with airboat extension, or via the Personal

### Qualification System (PQS).

- b) All operators must demonstrate to the satisfaction of the BSO, or designee, knowledge of safe operating procedures for the boat they will be using including: engine starting, fueling, passenger and vessel safety including man-overboard, docking and undocking, anchoring, knowledge of basic navigation, right-of-way, communications, and filing of float plans. Copies of training and/or check-out records must be on file with the BSO prior to any departures.
  
- c) ALL FIU vessel operators operating small boats at or beyond 12 nautical miles from shore must receive offshore training and be approved for such operation by the BSO, or designee.

## **2.2 Vessel Inspections**

A Visual Safety Inspection (VSI) of all vessels used under FIU auspices must have proof of an annual inspection.

- a) The BSO or a designate will inspect vessels and boats registered and/or owned by Florida International University and based in south Florida.
  
- b) The BSO or a designate will inspect privately owned vessels or boats used under FIU auspices. The Coast Guard or Coast Guard Auxiliary can also do a courtesy inspection on these vessels.
  
- c) Commercial vessels or boats rented or chartered, domestically or abroad, under FIU auspices must provide documentation of an annual inspection.

Vessels maintaining a current U.S. Coast Guard Certificate of Inspection (COI) and which are subject to annual U. S. Coast Guard inspections are exempt.

## **2.3 Float Plans and Vessel Checklist**

Prior to getting underway, a float plan must be submitted to the BSO, or designee, and approved in advance to any boating activity for each excursion. If a given trip and/or activity is essentially repetitive, or of an ongoing type, a blanket Float Plan may be filed for a given time period or area of operation at the discretion of the BSO. This does not eliminate the responsibility of the operator to provide daily departure and arrival notification to a designated agent.

Float plans are to be submitted prior to departure.

- a) Departure and Arrival Notification – A responsible person (RP) not part of the boating operation must be designated to monitor departure and arrival times of each vessel and all passengers aboard. This person must be based on land and have access to their phone the entire time the vessel is offshore. This person

should be given a complete copy of the float plan and fully understand missing boat procedures. Additionally, the BSO should receive a copy of all float plans via email.

- b) Arrival Notification - Once a boat returns from an outing, the boat operator must notify the Responsible Person to report that the boat and its passengers have returned safely.
- c) If a boat operator fails to call in upon return or at the scheduled time, the RP will initiate an investigation to determine whether the boat has in fact returned or whether Federal or local Search and Rescue agencies should be requested. Once Search and Rescue has been requested the FIU Boating Safety Officer must immediately be notified. Refer to the Call Tree in the appendix..

### Vessel Checklist

A vessel checklist must be completed and verified prior to leaving the dock. The checklist includes looking over all safety gear, testing communication devices, and making sure the vessel is ready for the trip. There are three options for a checklist.

- a.) The FIU online checklist form on SharePoint: [go.fiu.edu/vesselchecklist](http://go.fiu.edu/vesselchecklist)
- b.) A paper checklist that is kept on file: [go.fiu.edu/boatingsafety](http://go.fiu.edu/boatingsafety)
- c.) A reusable laminated sheet, not erased until after the vessel returns safely back to dock.

The checklist may be completed by the crew chief, a qualified crew member, or a crew member training under the watch of the crew chief.

## 2.4 Alcohol or Drugs

- a) Drugs - Florida International University adheres to a Zero Tolerance policy for illegal drugs aboard FIU vessels. Operators of vessels under the auspices of FIU shall not operate vessels if under the influence of drugs, legal or illegal, or prescription drugs which may impair or influence their judgment or capabilities.
- b) Alcohol - It is strictly prohibited by Federal and State of Florida regulations to operate a vessel under the influence of alcohol. It is the responsibility of the boat operator or captain to ensure that no alcohol is brought onboard unless done in compliance with University Policy 1.2, Alcoholic Beverages.
- c) Smoking – Following FIU protocol deeming FIU campuses as smoke free zones, this also pertains to FIU and SERC vessels. For the health of everyone on the vessel, as well as the safety of the vessel, smoking of any kind is not permitted aboard an FIU vessel. Smoking aboard chartered or private boats is at the discretion of the vessels' owner and operator.

## **2.5 Safety Equipment and Procedures**

All vessels in use under FIU auspices must comply with Federal and State of Florida safety regulations.

All vessels or flotillas of vessels (i.e., groups of kayaks and/or paddleboards) must have at least one first aid kit available. First aid kits should contain at a minimum first aid supplies described in section 2.5.1. Sunscreen, and insect repellent are also recommended

Prior to departure, the vessel operator, captain or supervisor should conduct a safety briefing for participants, passengers and/or crew which at a minimum shall include:

- a) Location of any fire-fighting equipment or fire extinguishers, and description of proper use.
- b) Location of life jackets and directions of how and when to don. It is an FIU requirement that all passengers wear a PFD at all times when the vessel is in motion. Those who have passed a swim test may remove the PFD when anchored, docked, or aground. Those who have not passed, or chose to not take, the swim test, must wear their PFD at all times when on the vessel. Refer to section 2.8 in the manual for swim test protocol.
- c) Location of any throwable rings, line bags, or man overboard buoys as well as man overboard procedure.
- d) Location of first-aid kit.
- e) Location of emergency communication equipment such as a VHF radio or a satellite phone and procedures.

### **2.5.1 First Aid Kit**

All FIU vessels and flotillas are required to carry at least one first aid kits. The first aid kit(s) must be in an area that is quickly accessible and not buried under gear. At the end of every trip, boaters will check the first aid kit for water damage and report any. Personnel on vessels are not to use contents of the first aid kit for research (ex. using the scissors to cut line).

**BAFA Box:** The Boaters Advanced First-Aid Box is provided by the Office of Environmental Health and Safety and is supplemental to the First-Aid Kit and is to be used in case of trauma. If anything is used, boaters will report it so it can be replaced. EH&S will provide replacement materials. BAFA Boxes will be inspected when the vessels are inspected, or when it is returned after a research trip.

**Basic First Aid Kit:** The basic first-aid kit is provided by the vessel owner (SERC, Marine Science, etc.) and is to be used for all first aid. Kits will be inspected by the vessel when the vessels are inspected, when returning from a research trip, or if it is thought to be contaminated.

It is the responsibility of the vessels' owner (SERC, marine science, lab) to keep their first aid kits up to date.

Most FIU vessel carry a basic first-aid kit and a BAFA box, however, a different iteration of the first-aid kit(s) may be on a vessel as long as it contains the minimal requirements.

### **2.5.2 Communication standards**

All FIU vessels and flotillas are required to carry at least two forms of communication. The primary form is a mounted VHF radio on vessels large enough. If offshore, vessels should carry a handheld VHF radio with a programmed MMSI number. If operating in areas with questionable or no cell phone reception, the vessel must carry a satellite phone or a PLB. If a lab does not have a PLB, one can be checked out with the vessel. Vessels which are too small for mounted VHF radios, such as jonboats, that are operating outside of cellphone reception will carry a handheld VHF radio to communicate with rescue services, as well as a satellite phone. They will check in and out when entering and leaving areas with no cell phone reception.

## **2.6 ANCHORING AND MOORING PROCEDURES**

It is the sole responsibility of the vessel operator to assure that vessels are properly anchored or moored and that all Federal, State and local anchoring and mooring laws and regulations are complied with. Anchors must be present on all FIU vessels and should be appropriate for the specific bottom characteristics. Kayaks and paddleboards are not required to carry an anchor.

- a) Anchors shall not be dropped on living coral at any time.
- b) Vessel Swinging Arc – Vessels must not be anchored unless there is sufficient space available to adequately allow a 360 degree swing without colliding with objects or other vessels. When mooring on balls or in mooring fields, the added scope of line must not exceed a length which will allow the vessel to contact other vessels.
- c) When using mooring fields containing ball color codes, FIU vessels must not utilize balls designated for commercial vessels, or exceed hourly or daily limits. In no case should a dingy ball be used unless the vessel is in fact a dingy or small inflatable. FIU vessels will follow all other rules regarding mooring balls in national marine sanctuaries and national parks.
- d) Anchors and anchor rode should be of proper composition and include at a minimum an anchor, a chain, and/or the anchor line with appropriate shackles and swivels.
- e) When tying to a mooring ball it is preferable to use a bridle system with both bitter ends affixed port and starboard cleats and the line passed though the eye of the mooring ball tail.

- f) Anchor scope must be at least 7:1 for average conditions and least 10:1 if storm conditions are expected. Example: If the water that is being anchored in is 3m deep, you must use no less than 21m of scope.
- g) All FIU vessels should be equipped with docking/mooring lines. Boaters are not to use, cut, or otherwise dismantle vessel lines or equipment to use for their research.

## **2.7 DIVING AND SNORKELING FROM VESSELS**

### **Diving:**

The Crew Chief shall be ultimately responsible for the safe conduct of all diving operations. The Dive Supervisor or Lead Diver shall provide the Crew Chief with all information requested to assure safety of divers.

Refer to the Florida International University Diving Safety Manual for all protocols and procedures for diving at FIU and on FIU vessels.

### **Snorkeling:**

All snorkeling is at the discretion of the crew chief. Students, faculty, staff and guests who wish to participate in snorkeling activities associated with research, classes or tours who have not taken a swim test approved by the Boating Officer, shall adhere to the following guidelines:

- They shall be required to wear a standard snorkeling vest
- The snorkeling vest shall have enough air to keep the person afloat
- They shall receive instruction on the proper use of a snorkel vest
- They shall receive instruction on the proper use of a mask and snorkel
- An FIU faculty or staff employee who is a qualified boater as defined within this manual and qualified in CPR, shall act as a safety swimmer during the activity

## **2.8 SWIM TEST PROTOCOL**

All boaters are asked to take a swim test prior to boarding a vessel under the auspices of FIU. Boaters can go to the BBC pool during open swim hours and request the lifeguards to monitor a swim test. Boaters will receive confirmation, as will the BSO. If a boater does not pass, or does not want to take the swim test, they must wear their PFD at all times when aboard the vessel. If the boater passes the swim test, they may remove their PFD when the vessel is anchored, moored, or docked. Registered FIU scientific divers are exempt from the swim test. The swim test includes;

1. Enter the water and submerge head
2. Swim 100 yards (4 lengths/2 laps)
3. Tread water for 3 minutes (stay in position with head above the water)
4. Exit the pool under their own power without using the ladder

Exemptions for the swim test include:

- FIU scientific diver
- Certified Scuba Diver
- Certified Lifeguard
- Active swim team
- Active water polo
- Water Safety Instructor
- Other exemptions will be reviewed on case by case basis

### **3.0 POWER BOAT OPERATIONS**

#### **3.1 BOAT OPERATIONS**

Boating operations by FIU staff and students present a variety of challenges involved in managing the use of research boats at FIU. Factors that influence the management of boat operations include:

- The sheer size, remoteness and complexity of the aquatic habitats where research is conducted.
- The severe environmental conditions that exist in the South Florida boating environment.
- The widespread geographical distribution of FIU research sites.
- The communication challenges inherent to working in the Everglades and offshore sites throughout the Florida Keys and Gulf of Mexico.
- Ensuring personnel are qualified in boating operations and emergency management procedures.

#### **3.2 MOTOR BOAT SAFETY REQUIREMENTS**

This section establishes the policy that all Crew Chiefs and Crew members must make the prevention of an injury or accident a number one priority.

*Crew Chief, Crew, and observers must make every effort to insure establishment of the safest working environment possible.*

There are many hazards associated with boat operations, and many ways for personal injury to occur. Some injuries occur suddenly due to human error, equipment malfunction or from changing environmental conditions, while others occur from long-term exposure. The following safety guidelines must be adhered to in order to assure that this policy is enforced.

Minimum personnel requirements

This section defines the minimum personnel requirements for Power Boat Operations:

- Each vessel must have a minimum of two persons on board during normal operations
  - At least (1) person shall be a qualified Crew Chief
  - Persons on board not qualified as crew members shall receive instruction on emergency and communication procedures
- Vessels operating in remote locations out of VHF or cell phone range, are required to have (1) qualified Crew Chief and (1) qualified Crew member on board

### 3.3 MOTOR BOAT OPERATOR AND CREW TRAINING

All boaters are required to submit all certification paperwork, as well as a boater application and information sheet, to the BSO prior to any boating activities.

#### **Crew Chief Training**

Crew Chiefs need to have documented and verifiable experience and knowledge adequate to the vessels they will be using and the areas they will be operating in. This ensures Crew Chiefs can safely operate the vessel in a manner that promotes safety of the vessel, the environment, the research equipment, and most importantly, the personnel aboard the vessel.

1. The first requirement for all FIU boaters is to have a Florida Boating Safety Education Card (holders of a valid USGC Captains license or MOCC/MOICC are exempt). This is obtained by taking a National Association of State Boating Law Administrators (NASBLA) approved course. The NASBLA approved course is available through local Coast Guard Auxiliary Flotillas, as well as online from such places as the BoatUS Foundation at <http://www.boatus.org/onlinecourse/Florida.asp>.
2. Crew Chiefs must have a current certification in both CPR and First Aid from a nationally recognized association that includes both book and practical assessments.
3. Boater Competency:
  - Successfully pass the Department of Interior's (DOI) Motor Boat Operators Certification Course (MOCC) and log 20 hours underway. The MOCC qualifies one to operate boats up to 26' in any waters suitable for such boats, the PQS is tailored more to the size of vessels and operational area.
  - Personal Qualification Standard (PQS) under a qualified Crew Chief, and signed by a Crew Chief Trainer who is designated by FOC and the BSO. Completion of a section of the PQS may not automatically lead to qualification for a given role. Attitude, maturity, and related experience are among the items that may impact qualification decisions. The purpose of the PQS is to document experience and knowledge gained while working under a qualified Crew Chief in lieu of a formal training course. A "dockside" exam and check ride with a QE provides for verification of the prospective Crew Chiefs knowledge and ability. The PQS must be submitted with a log of at least 20 hours of experience on the type of vessel designated in the PQS.
  - USCG licensing requirements encompass and exceed FIU's Crew Chief requirements; prospective Crew Chiefs holding a valid USCG Merchant Mariners Credential (aka captain's license) as OUPV or greater, will not need to complete the MOCC or PQS, but will need to conduct a check ride with a QE in order to demonstrate knowledge of FIU's boats and boating program, as well as displaying a working knowledge of the operating area.
  - Certain vessels, such as the ARB vessels, and operational areas may have additional requirements because of their complexity, and training for those are not included in this boating safety manual.

## **Crew Training**

1. Successful completion of a boater education course approved by the Florida Fish and Wildlife Conservation Commission and the National Association of State Boating Law Administrators (NASBLA). This is demonstrated by presenting a Florida Boating Safety Education ID Card to the Boating Safety Officer. For more information visit <http://www.myfwc.com/boating/safety-education/boater-education-id/>.

## **Science Crew, Student and Observer Training**

1. Science Crew, Students and Observers are permitted after they are instructed in basic safety requirements outlined for all personnel in this manual (e.g., must wear life jackets at all times, must sit in designated seating on the craft, etc.) by the crew chief.
2. Science Crew, Students and Observers who are neither FIU students nor FIU employees must complete a SERC (<http://sercweb.fiu.edu/forms/serc-release-and-waiver-of-liability.pdf>), Aquarius Reef Base, or University liability waiver form in advance of the trip.
3. All Science Crew, Students, and Observers participate solely at the discretion of the crew chief.

## **3.4 PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Some hazards can be mitigated by the use of appropriate PPE. The PPE must meet and be labeled “approved by the United States Coast Guard”. Some PPE is mandatory when underway, while some PPE is considered optional or highly recommended depending upon the circumstances involved. The decision to wear the PPE will be based on the decision “to make the safest possible environment” while at work.

### **PPE Mandatory/Recommended Description**

- Personal Floatation Device (PFD) is mandatory. PFDs must be worn at all times while the vessel is underway. "Underway" is defined as anytime except when the vessel is anchored, moored, made fast to the shore, or aground. If traveling in a cabin or other enclosed space, the PFD is to be removed as it becomes an entrapment hazard in the event of the vessel sinking. The wearing of PFDs on station, in this case all times the boat is not underway, is at the discretion of the Crew Chief/Captain based on conditions at the time; all crew must obey the Crew Chief's decision on wearing PFDs when on station. Those who have not passed, or chose not to take the swim test, must keep their PFD on at all times when aboard. See 2.8 for swim test protocol. Can be a Type I, II, or III or V PFD with a mirror, and whistle attached. Night operations also require a cyalume stick or personal marker light attached to the PFD.
- Eye protection is required when the boat is on plane. The type should exclude wind and debris from hitting the eye.
  - Eye protection is not required when personnel are protected by a windshield or cabin.
  - Sunglasses and standard safety glasses are considered acceptable eye protection except at night when sunglasses are not acceptable.
- Skin Protection. Sunscreen is strongly recommended for daytime operations.

### **3.5 BOAT SAFETY EQUIPMENT**

In addition to the PPE, each vessel must be equipped with:

- Anchor with a minimum length of line appropriate to the boat's size and depth of water, where it typically operates. It should be adequate diameter with a suitable length of chain for the size of the boat. For most boats under 26', 3/8 nylon line with 5 – 15 feet of anchor chain is adequate.
- Basic First Aid Kit
- Boating Advanced First Aid Box (BAFA Box) or equal trauma kit.
- Visual Distress Signal Devices (at least 3 day & night flares) for motorboats
- Signal mirror for airboats
- A "Kill" Switch to immediately shut off the engine for boats 26' and under.
- An electric or air horn.
- An effective method of communication and a backup (VHF, Cell Phone, Satellite Phone).
- Type IV throwable flotation device with length of line in proportion to the size of the boat that can be attached as needed to aid retrieval of a man overboard, in accordance with 46 CFR 160.150
- Mounted Fire Extinguisher(s) according to USCG standards.
- Means to navigate, i.e. GPS,
- Charts for the particular area provided by the PI
- Binoculars for offshore trips (>12nm) provided by the PI
- Minimum of 1 gallon of water per day per person. Exception: short duration educational trips.
- Bailer or other manual dewatering device.
- Float Plan submitted prior to departure
- Vessel Checklist completed prior to departure
- Emergency Contact Numbers
- EPIRB(where applicable)
- "Working" Navigational Lights, if required by USCG for the class of vessel
- Tool kit

### **3.6 OPERATIONAL SAFETY PROCEDURES**

The Crew Chief is responsible for the safety of all passengers on board his/her vessel, as well as for their compliance with safety requirements.

All Crew Chiefs must:

- File a float plan in advance of all boating trips: [go.fiu.edu/floatplan](http://go.fiu.edu/floatplan)
- Prepare and file an Emergency Management Plan (EMP) with lab manager as part of the float plan
- Complete a vessel checklist
- Conduct a pre-underway safety briefing familiarizing all persons with the vessel. All persons should be able to locate and use the safety equipment on board.
- Ensure that all required safety gear is on board, in good condition, and stowed properly.

- Ensure that all persons on board have a PFD. PFDs must be worn at all times while the vessel is underway.
- Be attached by a lanyard to the kill switch (boats 26' and under) whenever the boat is underway.
- Operate the boat at all times at a speed which is prudent under the prevailing conditions, taking into consideration things such as weather, sea state, tides, currents, visibility, presence of hazards to navigation, presence of other boats, presence of people in the water, the handling characteristics of the boat and the operators skill.
- Never leave the controls when the motor is in gear.
- Ensure that no one swims when the engine is running unless live boating with prior authorization.
- Ensure the boat holds enough fuel to complete the mission with extra for contingency operations.
- If the Crew Chief has to dive for research purposes during snorkeling or scuba diving operations, absolute assurance has to be made that the staff member remaining on board assumes the responsibility of the Crew Chief and has the qualification to carry out those duties and responsibilities.
- If any aspect of the boat, truck or trailer does not meet safety requirements, the research mission must be postponed or cancelled by the Crew Chief until all safety standards are met.
- Vessels are never to be run continuously at maximum RPM.
- Vessel on trailer is not to be used to transport cargo
- Do not overload the vessel. Check placard and note max weight and do not exceed this number taking into account all gear, electronics, and personnel.
- It is absolutely forbidden to have FIU boats used for personal recreational purposes.

**Nighttime operations** require additional preparation for navigation and safe operations. Adequate lighting both for the boat and navigation is required. Running lights fore and aft in compliance with Coast Guard regulations and in use at all times. Speed should be reduced to be consistent with limited visibility. All operations should be limited to areas where operator has firsthand experience with navigation hazards. In addition to the operator, a crew member must be assigned to serve as a watch for hazards overlooked by the Crew Chief.

Operations outside of routine business hours, including night, require PI or RP to arrange for onshore contacts and response plans for non-emergency mechanical issues, grounding events, and accounting for absence of campus support staff. They must also set protocols for contact of emergency personnel when support staff may not be immediately accessible.

### **3.7 MINIMIZING IMPACT ON THE ENVIRONMENT**

#### **SUBMERGED FEATURES**

Vessels should be operated at all times in a manner that would *minimize* impacts to submerged natural features. Propellers are extremely damaging to bottom life and sediments. Prop “scarring,” which occurs when a propeller cuts through a sea grass bed, results in long-term negative impact on the health of the natural resources of the Everglades National Park. Prop “dusting,” which occurs when prop wash blows sediment from the bottom, diminishes water clarity and quality, reduces the amount of light getting to plants on the sea bottom, re-suspends

nutrients up into the water column and causes sediments to settle out on slow moving or sessile marine life. Any damage to seagrass must be reported. Much of the boating also occurs in the Florida Keys National Marine Sanctuary. Coral reefs are known to exist close to the surface, so local knowledge is important for operating a vessel near coral reefs. If a vessel does run aground on a coral reef, immediately contact the National Marine Sanctuary at (888) 404-3922

#### **EMERGENT VEGETATION**

Airboats can damage emergent vegetation, particularly when previously untraveled areas are crossed multiple times at low water levels. All airboat operations must follow existing approved trails in Everglades National Park (ENP), and should be restricted to trails in all possible occasions outside of ENP. All operations must follow permit requirements of all responsible management agencies.

#### **WILDLIFE**

Vessels should be to avoid all impacts to wildlife. Speed must be reduced when operating in areas where encounters with manatees, crocodiles, or sea turtles are likely. Operators unfamiliar with these areas must seek guidance from experienced operators.

### **3.8 COMMUNICATIONS**

Communication starts with the filing of the float plan. This plan should be filed with the BSO for approval, with a copy sent to the vessel owner, as well as with the trip emergency contact person (generally the RP). It is the responsibility of the RP to establish if teams have returned safe and sound or that a research team may need assistance for a non-emergency boat related incident. The BSO or designee, must be notified immediately of boating accidents or incidents. For any “emergency” type situation, where life is threatened, the U.S. Coast Guard should be notified first. Other steps would be to activate the EPIRB (if present on the boat) if requested by the USCG or no contact can be made. To insure that the research team can communicate during non-emergency or emergency situations each vessel must have a VHF radio as primary communication and a cell phone as secondary communication. When out of cell phone range, a satellite phone is secondary communication. It is the responsibility of the Crew Chief during the pre-departure briefing to assure that anyone on the boat has the ability to operate the communication devices.

## 4.0 Motor boating Personal Qualification Standards (PQS )

### Personal Qualification Standard (PQS)

#### Motorized boats up to 20' in confined fresh and marine waters, including Biscayne Bay and Florida Bay, Keys coastal water insider the reef tract

This PQS is designed to be completed under the guidance of a mentor. Any mentor signing off on a task must be a qualified crew chief. The purpose of the PQS is to allow crew members to gain experience and knowledge working under a qualified Crew Chief, while working as crew during normal research operations. This allows for specific “on the job” training with the vessels being used, and the operational area being worked in. Mentors should only sign off on tasks once the trainee is competent in performing the task independently. Once all sections are complete, the Crew Chief/Mentor should notify a Qualified Examiner to make arrangements for the “dockside” exam and underway check ride. Qualified Examiners are designated by the BSO with input from SERC and the FOC.

#### Initial Certifications

##### Completed

- \_\_\_\_\_ Obtain state of Florida Boating Safety Education Card. A copy should be submitted with this completed PQS.
- \_\_\_\_\_ Current First Aid certification. A copy should be submitted with this completed PQS.
- \_\_\_\_\_ Current CPR certification. A copy should be submitted with this completed PQS.
- \_\_\_\_\_ Perform as crew for 20 hours underway. Hours underway should be logged and signed off by Crew Chief. A copy of your log should be submitted with this completed PQS.

**Accomplished**    **Mentor signature** \_\_\_\_\_    **Date** \_\_\_\_\_

## Trailing

Note: The Marine Science BBC Boatyard is an excellent location to practice trailer skills without the complications of traffic.

### Completed

- \_\_\_\_\_ Properly hook truck up trailer. Hitch, chains and lights.
- \_\_\_\_\_ Conduct safety checks of truck, trailer and boat in preparation for transport.
- \_\_\_\_\_ Safely drive truck and trailer in forward gear, including pulling up boat ramp.
- \_\_\_\_\_ Safely drive truck and trailer in reverse, including backing down boat ramp.
- \_\_\_\_\_ Prep boat for launch, and safely launch boat.
- \_\_\_\_\_ Retrieve boat onto trailer, pull out of water and secure for travel.

**Accomplished**    **Mentor signature** \_\_\_\_\_    **Date** \_\_\_\_\_

**Pre-Trip Preparations**

**Completed**

- \_\_\_\_\_ Demonstrate knowledge of how to reserve FIU vehicle and boat.
- \_\_\_\_\_ Prepare a float plan.
- \_\_\_\_\_ Ensure boat is equipped with all necessary safety and operational equipment.
- \_\_\_\_\_ Verify boat is fully fueled and electrical systems are functional.
- \_\_\_\_\_ Ensure crew and passengers have sufficient food, water, clothing, and sun protection for anticipated field time, as well as reserves in case of trouble that leave boat and crew stuck for extended length of time.

**Accomplished**    **Mentor signature** \_\_\_\_\_    **Date** \_\_\_\_\_

**Operational Tasks**

**Completed**

- \_\_\_\_\_ Safely board all gear, crew and passengers.
- \_\_\_\_\_ Brief all crew and passengers, both safety and mission briefings.
- \_\_\_\_\_ Demonstrate proficiency in safely leaving dock/launching area.
- \_\_\_\_\_ Demonstrate proficiency in safely operating boat underway as part of mission.
- \_\_\_\_\_ Demonstrate proficiency in safely docking, returning to launching area, and boat retrieval.
- \_\_\_\_\_ Demonstrate knowledge of communications equipment, use and limitations. VHF radio, cell phone, and satellite phone; as applicable to operating area.
- \_\_\_\_\_ Demonstrate knowledge of emergency signaling devices. EPIRB, flares, mirror, whistle, etc.
- \_\_\_\_\_ Tie the following knots and state their use. Cleat hitch, bowline, sheet bend, clove hitch, round turn and two half hitches.
- \_\_\_\_\_ Demonstrate ability to read and navigate with appropriate charts and/or maps for area.
- \_\_\_\_\_ Demonstrate ability to use GPS to find your stations and return to launching point.

**Accomplished**    **Mentor signature** \_\_\_\_\_    **Date** \_\_\_\_\_

**Post Trip Tasks**

**Completed**

- \_\_\_\_\_ Fuel boat and truck at FIU fuel pumps after return to campus.
- \_\_\_\_\_ Remove and return all gear that does not remain stored aboard.
- \_\_\_\_\_ Wash down boat and trailer.
- \_\_\_\_\_ Close out float plan.

**Accomplished**    **Mentor signature** \_\_\_\_\_    **Date** \_\_\_\_\_

**Personal Qualification Standard (PQS)**

**Boats 21’ to 26’ in fresh or marine waters**

This PQS is designed to be completed under the guidance of a mentor. Any mentor signing off on a task needs to be a qualified crew chief. The purpose of the PQS is to allow crew members to gain experience and knowledge working under a qualified Crew Chief, while working as crew during normal research operations. This allows for specific “on the job” training with the vessels being used, and the operational area being worked in. Mentors should only sign off on tasks once the trainee is competent in performing the task independently. Once all sections are complete, the Crew Chief/Mentor should notify a Qualified Examiner to make arrangements for the “dockside” exam and underway check ride.

**Initial Certifications**

**Completed**

- \_\_\_\_\_ Obtain state of Florida Boating Safety Education Card. A copy should be submitted with this with this completed PQS.
- \_\_\_\_\_ Current First Aid certification. A copy should be submitted with this completed PQS.
- \_\_\_\_\_ Current CPR certification. A copy should be submitted with this completed PQS.
- \_\_\_\_\_ Perform as crew for 20 hours underway. Hours underway should be logged and signed off by Crew Chief. A copy of your log should be submitted with this completed PQS.

**Accomplished**    **Mentor signature** \_\_\_\_\_    **Date** \_\_\_\_\_

## Trailing

Note: The Marine Science BBC Boatyard is an excellent location to practice trailer skills without the complications of traffic.

### Completed

- \_\_\_\_\_ Properly hook truck up trailer. Hitch, chains and lights.
- \_\_\_\_\_ Conduct safety checks of truck, trailer and boat in preparation for transport.
- \_\_\_\_\_ Safely drive truck and trailer in forward gear, including pulling up boat ramp.
- \_\_\_\_\_ Safely drive truck and trailer in reverse, including backing down boat ramp.
- \_\_\_\_\_ Prep boat for launch, and safely launch boat.
- \_\_\_\_\_ Retrieve boat onto trailer, pull out of water and secure for travel.

**Accomplished**    **Mentor signature** \_\_\_\_\_    **Date** \_\_\_\_\_

**Pre-Trip Preparations**

**Completed**

- \_\_\_\_\_ Demonstrate knowledge of how to reserve FIU vehicle and boat.
- \_\_\_\_\_ Prepare a float plan.
- \_\_\_\_\_ Ensure boat is equipped with all necessary safety and operational equipment.
- \_\_\_\_\_ Verify boat is fully fueled and electrical systems are functional.
- \_\_\_\_\_ Ensure crew and passengers have sufficient food, water, clothing, and sun protection for anticipated field time, as well as reserves in case of trouble that leave boat and crew stuck for extended length of time.

**Accomplished**    **Mentor signature** \_\_\_\_\_    **Date** \_\_\_\_\_

**Operational Tasks**

**Completed**

- \_\_\_\_\_ Demonstrate knowledge of the inland “Rules of the Road”. A rules test will be given as part of the “dockside exam”.
- \_\_\_\_\_ Demonstrate knowledge of the inland and international “Rules of the Road”. A rules test will be given as part of the “dockside exam”.
- \_\_\_\_\_ Safely board all gear, crew and passengers.
- \_\_\_\_\_ Brief all crew and passengers, both safety and mission briefings.
- \_\_\_\_\_ Demonstrate proficiency in safely leaving dock/launching area.
- \_\_\_\_\_ Demonstrate proficiency in safely operating boat underway as part of mission in class of boat and operating environment you are being qualified for.
- \_\_\_\_\_ Demonstrate proficiency in safely docking, returning to launching area, and boat retrieval.
- \_\_\_\_\_ Demonstrate knowledge of communications equipment, use and limitations. VHF radio, cell phone, and satellite phone; as applicable to operating area.
- \_\_\_\_\_ Demonstrate knowledge of emergency signaling devices. EPIRB, flares, mirror, whistle, etc.
- \_\_\_\_\_ Tie the following knots and state their use. Cleat hitch, bowline, sheet bend, clove hitch, round turn and two half hitches.
- \_\_\_\_\_ Demonstrate ability to read and navigate with appropriate charts for area.
- \_\_\_\_\_ Demonstrate ability to use GPS and depthfinder for navigation and finding your stations.
- \_\_\_\_\_ Demonstrate ability to use tide tables.
- \_\_\_\_\_ Demonstrate knowledge of currents and transiting inlets.

**Accomplished**    **Mentor signature** \_\_\_\_\_    **Date** \_\_\_\_\_

**Post Trip Tasks**

**Completed**

- \_\_\_\_\_ Fuel boat and truck at FIU fuel pumps after return to campus.
- \_\_\_\_\_ Remove and return all gear that does not remain stored aboard.
- \_\_\_\_\_ Wash down boat and trailer.
- \_\_\_\_\_ Close out float plan.

**Accomplished**    **Mentor signature** \_\_\_\_\_    **Date** \_\_\_\_\_

## **Research Vessel Captain (Crew Chief) For Boats Over 26 feet (Unrestricted)**

### **Qualification Requirements**

To qualify as a Research Vessel Captain or Crew Chief for vessels over 26 feet, an individual must have the following qualifications:

- *U.S. Coast Guard Captain (OUPV or Greater)*

The following additional requirements must be met:

- Completion of the Research Vessel Captain or Crew Chief General Requirements portion of the FIU Boating and Safety Manual where applicable and the ARB Personnel Qualification System.

To conduct planned night time operations the following additional requirements must be met:

- Completion of the Research Vessel Captain or Crew Chief Night Time Endorsement section of the ARB Personnel Qualification System and or completion of portions of the FIU Boating and Safety Manual where applicable.

For specific vessel operations the following additional requirement must be met:

- Completion of the Research Vessel Captain or Crew Chief Vessel specific section of the ARB Personnel Qualification System and or completion of portions of the FIU Boating and Safety Manual where applicable.

Note: For a vessel new to FIU, the FIU Boating Safety Officer (BSO) shall determine which Captains have sufficient experience to operate the vessel without completing a relevant PQS section. Qualification in this manner shall be based on experience and skills and shall be documented in writing. FIU/ARB Operations Director will work with the BSO for ARB personnel.

### **Proficiency Maintenance**

A Research Vessel Captain or Crew Chief must maintain a U.S. Coast Guard Captain's license as above for vessels over 26 feet.

## 5.0 AIRBOAT SAFETY REQUIREMENTS

Airboat operations are similar to motorboat operations, but include additional training requirements and safety procedures because of the special nature of their operations. Airboats lack a rudder in the water, they cannot be operated in reverse or slowed by reversing the motor, steering is dependent on passing an airstream over the ailerons by the rotating prop such that quick maneuvers require acceleration, and a large airplane propeller is spinning immediately behind the operator and passengers.

Operating an airboat is an inherently risky activity and exposes both the operator and passengers to several hazards. Though not exclusive to airboats, their operations in the Everglades pose particular hazard from: (1) high level of engine noise; (2) risk of collision with wildlife, trees, pinnacle rocks, and other airboats; (3) injury from flying objects, including loose bolts from airboat, propeller fragments, and improperly secured cargo; (4) being ejected from airboat because of a collision, sudden stop, or fast turn; (5) rapid submersion of a swamped airboat; (6) engine- and fuel-related fires and explosions; (7) lightning strikes; (8) being stranded in remote areas because of mechanical problems or becoming stuck in dry or muddy ground; (9) risk of heat-related health problems and dehydration while in the field; (10) encounters with potentially dangerous wildlife, including venomous reptiles and spiders, large-bodied predators (alligators, crocodiles, panthers, bears, pythons), and biting and stinging insects (e.g., hornets, ants, mosquitos); (11) operating under reduced visibility (e.g., fog, heavy rain, nighttime); and (12) becoming lost in the field.

**It is the responsibility of every member of the field crew to maintain vigilance of conditions and awareness of potential hazards at all times. Every individual has the authority to stop any activity that he or she feels places him/herself or their co-workers at risk.**

### 5.1 AIRBOAT OPERATOR AND BOAT CREW TRAINING

Only approved Crew Chiefs or Crew Chiefs in training are permitted to drive airboats. An airboat Crew Chief must have a Florida Boating Safety Education ID Card (see section 2.2.1 of this manual), demonstrated knowledge of material in the FIU airboat operator safety manual through completion of the PQS for airboats, and have documented a minimum of 20 hours supervised drive time in an airboat.

Airboat operations are carefully regulated within Everglades National Park and may also be restricted on State-owned lands under special conditions. *FIU airboats may only be operated in a manner consistent with permit guidelines of appropriate management agencies in the area of operations.*

### 5.2 AIRBOATING PERSONAL PROTECTIVE EQUIPMENT

All personnel are required to wear PFDs, ear-protectors, and protective eyewear while airboat is underway. Failure to comply with these requirements may lead to loss of airboating privileges from the BSO.

Prior to operations, verify that every crew member has the following items of personal protective equipment: PFD, ear protection (foam ear plugs or headset ear protectors), protective eye-wear

(safety goggles or protective glasses). Other personal items that will increase worker comfort and health during airboat operations in the field include a hat (secured by chin-strap or headset to prevent blowing off), sunblock, jacket (especially important during coldest months and rainstorms), food, and water. Always bring plenty of water as work conditions in south Florida commonly include extreme heat and humidity. Sturdy boots and long pants are recommended clothing for comfort and safety.

### **5.3 AIRBOATING SAFETY EQUIPMENT**

Effective communication with outside support can be critical during emergencies, mechanical problems, or stranding; therefore, ensure that there are cell phones, and if necessary a satellite phone, in waterproof containers on the airboat. Before departure, familiarize yourself with the routes you will take and the areas you will work in and bring a GPS unit and map to aid in navigation. Bring a waterproof emergency bag with first aid kit, flashlight, spare batteries, extra ear- and eye-protection, multi-tool, space blankets, flares, water purification tablets, utility cord, rain-ponchos, bug jackets, “space” blanket, whistle, cyalume sticks, and emergency contact numbers. It is recommended that crew members also have a personal first aid kit, knife, spare clothes, bug jacket, and reflective object (for signaling air rescue crews). Before departure, verify that the fire extinguisher is charged and secured. When working in low-water conditions, bring 2x4 boards, a shovel, and a come-along winch in case airboat becomes stranded on dry or muddy ground. Make certain that there are the necessary tools and spare parts to make any potential repairs in the field. Load extra fuel and oil on the airboat. Attach and secure bow-line for travel.

### **5.4 AIRBOAT OPERATIONAL SAFETY PROCEDURES**

As an airboat driver, your actions and decisions affect everyone in the airboat. Therefore, airboat drivers must take on additional responsibilities. Each time you start an airboat, you are responsible for deciding that: 1) the airboat is in safe operating condition; 2) gear has been stored such that it will not hinder airboat operations or passenger and driver safety; 3) weather conditions are safe for airboat operations; 4) passengers are aware that airboat operations are beginning; and 5) passengers have access to life-preservers, eye protection, and ear protection. Additionally, airboat drivers are responsible for checking to see that the boat and trailer are properly hitched and safe for travel when both traveling to and returning from the field. The towing vehicle should be checked for road worthiness, including checking tires, and safety equipment, before leaving for the field. Occasionally, situations arise that necessitate airboat maneuvers that are out of the routine. It is the responsibility of the driver, whenever possible, to anticipate when unusual airboat maneuvers (running dry surfaces, dense sawgrass, fleeing storms, etc.) may be required and inform passengers so that they can prepare themselves.

As an airboat driver, you are liable for negligent actions or decisions that injure co-workers, passengers, or other persons. **An airboat driver must yield to any request made by any passenger to cease, suspend or alter airboat operations for safety reasons.** If a passenger feels you are driving too fast or unsafely, **YOU MUST** alter your behavior accordingly. If a passenger feels that weather conditions are unsafe for continued airboat operations, **YOU MUST** head in or seek shelter. If a passenger feels that you are placing him or her in unnecessary danger and wishes to return to shore, **YOU MUST** return to shore.

Prior to airboat operations:

- Airboat Crew Chief must file a float plan prior to work:

*Airboat exterior pre-flight check:*

- Check that airboat is properly secured to the trailer by boat-strap tie down across middle of airboat, two stern chains, bow-chain attached to trailer winch, and the winch is in locked position.
- Make certain that trailer is ready for road operations by checking that (1) coupler is closed, locked, and secured to trailer ball-hitch, (2) trailer lights are plugged in and working properly, (3) safety chains are secured, (4) winch strap secured to bow eye and locked in place, (5) wheel-jack is raised and locked into position parallel to trailer arm, (6) spare tire is properly inflated and secured, and (7) trailer wheels are inflated to appropriate air pressure.
- Make certain that all items in airboat are secured in such a manner as to prevent them from flying out of the boat while on the road.
- Inspect the outside of the hull for any loose rivets or peeling weld joints.
- Check that grass rake or bow rail is securely fastened to bow.
- Securely fasten drain-plugs before launching airboat.

*Airboat interior pre-flight check:*

- Check battery, magneto, and spark plug connections for damaged or loose wires.
- Verify that there are no broken weld joints on engine stand, that engine mounts are tight and that there are no loose bolts, nuts, and screws.
- Check oil level and inspect outside and beneath engine for signs of oil leaks. Check fan belts and cooling-fan blades.
- Inspect the propeller for pits, cracks, nicked edges, and that it is securely fastened by its mounting bolts. If any of these conditions is observed, cancel the trip and bring the issue to the attention of the boat manager.
- Inspect the rudders and rudder assembly for potential damage. Move the stick and verify that there are no problems with the steering connections.
- Make certain the battery switcher moves easily and that battery terminals are not corroded.
- Inspect the cage for broken or loose sections and seat frames for broken weld joints.
- Check that flexible exhaust pipe is securely fastened and not cracked or discolored.
- Verify that bilge pump's discharge hose is securely fastened and clear out any debris build-up inside discharge hose and bilge pump housing.
- Before the airboat is underway, raise the airboat flag into locked position behind the driver.
- Start engine and test magnetos by turning off one magneto at a time. There should not be more than 150 rpm difference when one magneto is turned off. Press the accelerator to verify smooth response between pedal and engine. \*Make certain nobody is behind airboat and yell 'CLEAR' before you turn on engine.\* While engine is running, check gauges and verify that bilge pump is operational.

### *Equipment pre-flight check:*

- Verify that every crew member has the following items of personal protective equipment: life jacket, ear protection (foam ear plugs or headset ear protectors), protective eye-wear (safety goggles or protective glasses).
- Other personal items that will increase worker comfort and health during airboat operations in the field include a hat (secured by chin-strap or headset to prevent blowing off), sunblock, jacket (especially important during coldest months and rainstorms), food, and water. Sturdy boots and long pants are recommended clothing for comfort and safety.
- Effective communication with outside support can be critical during emergencies, mechanical problems, or stranding; therefore, ensure that there are cell phones, and if necessary, a satellite phone, in waterproof containers on the airboat. Before departure, familiarize yourself with the routes you will take and the areas you will work in, and bring a GPS unit and map to aid in navigation.
- Bring a waterproof emergency bag with first aid kit, flashlight, spare batteries, extra ear- and eye-protection, multi-tool, space blankets, flares, water purification tablets, utility cord, rain-ponchos, bug jackets, whistle, cyalume sticks, and emergency contact numbers. It is recommended that crew members also have a personal first aid kit, knife, spare clothes, bug jacket, and reflective object (for signaling air rescue crews).
- Verify that fire extinguisher is charged and secured.
- When operating in marsh conditions, particularly in the dry season, bring 2x4 boards to use as levers to free the boat, shovels, and a come-along winch in case airboat becomes stranded on dry or muddy ground. Make certain that there are the necessary tools and spare parts to make any potential repairs in the field.
- Load extra fuel and oil on the airboat.
- Attach and secure bow-line for travel.

\*It is critical to make certain that all equipment is properly stowed and secured to prevent any items from blowing into crew members or the propeller. Do not overload the airboat and balance distribution of cargo weight as much as possible.\*

File float plan and check in with park rangers before and after each mission (for all ENP operations; see NPS permits for phone numbers). Float plan includes informing lab manager and family member/partner/reliable friend of where you will be, what you will be doing, and when you expect to return. After returning from field, do not forget to let your contacts, including park rangers for all ENP operations, know that you have returned safely.

### Underway safety procedures

- When starting airboat, make certain nobody is behind vessel and yell 'CLEAR' before you turn on engine. An appropriate speed for routine travel is difficult to measure and maximum safe engine rpms depend on the engine/propeller in use. In open condition, the airboat will move most smoothly while at a speed sufficient to maintain plane, but not too fast to navigate unexpected obstructions that arise, which include floating peat masses that may not rise noticeably above the water surface. Crew chief should have kill switch attached with lanyard to life-jacket.

- While operating the airboat, a bright orange flag must be raised in the locked position behind the driver so that other vessels can spot airboat in advance; this is required by Florida law. Avoid approaching other vessels too closely, at speed. Avoid catching other vessels and people onshore with the prop-wash from the airboat's propeller. Drive away slowly (idle speed if possible) from boat ramps with other boats and people. When vessels are approaching each other while underway, the vessel that maintains course is the one on the starboard side (starboard is the driver's right side). Vessels approaching head-on should drift slightly to starboard to pass along each other's port side (driver's left side).
- Inertia causes the airboat stern to swing wide on turns, and so do not come off accelerator completely to execute a turn as control of the airboat can only be maintained while air flow is maintained over rudders. When maneuvering through congested areas, avoid over-compensating with the accelerator, which creates a pin-ball effect of the airboat's stern repeatedly swinging into obstacles as driver attempts to over-correct to avoid collisions. Maintain a conservative speed around obstacles, such as dense sawgrass strands and trees.
- Whenever it is necessary to stop the airboat, reduce power gradually, staying ahead of your wake. If the wake overtakes the stern, it will swamp the boat.
- Airboats do not have brakes and cannot go in reverse, and so to avoid hitting an obstacle, the driver must either turn right or left to avoid the object, execute a turn-around, or hit the obstacle head-on. A head-on collision at slow speed is safer than hitting an obstacle from the side at high speed, as a fast, broadside crash can flip the airboat. In general, always keep your vision focused ahead of the boat to increase your awareness of approaching conditions and improve your ability to respond in a timely fashion to potential hazards.
- Many airboat trails are marked with posts (often pvc with reflectors). If you need a GPS unit to navigate to your destination, avoid spending too much time looking down at GPS unit as you will not see approaching hazards or drive off the trail.
- During night-operations, turn on running lights and reduce driving speed.
- In the dry season, you may be confronted with a partially dried stretch of trail. If possible, get out of the boat and walk ahead to fully assess the situation. When running the airboat through a dry or muddy section, forward motion must be maintained to avoid becoming stuck. You may need to increase acceleration and move rudder back and forth to keep moving. While driving through muddy or dry ground, try to avoid turns that reduce your momentum. As soon as you reach water, reduce power so as to avoid catapulting forward.
- When operating in deep water (e.g., canal), avoid excessive speeds that can cause the bow to nose under the water and avoid rapid turns. Primarily use left turns in deep water because turning in this direction uses engine torque to reduce listing of the airboat. Stop gradually and watch your wake; if the wake looks like it will overtake the airboat, stay ahead of the wake by gently accelerating forward. Be conscious of the wakes generated by other vessels operating in the area as they may swamp the airboat. If you must cut through a wave, approach it obliquely at a 45° angle.
- Getting stuck in an airboat is a common occurrence, especially during seasonally-low water levels. Be aware of appropriate measures to take in the situation where the airboat is stuck. When trying to extricate vessel, avoid overheating airboat engine by not going

above 2500 rpms for more than a few seconds. Under some circumstances, you will need to call a towing vessel. While waiting for assistance, **STAY WITH THE BOAT**, drink plenty of fluids, and if possible, stretch a tarp over the seat mounts for shade. Attempting to walk back to land from the stuck airboat is extremely dangerous and should **NOT** be tried. It is also much easier for rescue crews to find a stuck or disabled airboat than a person walking in dense vegetation.

- If the airboat swamps and begins to sink (this will happen **FAST**), the first priority is for all passengers to get off the vessel safely and, if possible, for driver to turn off the engine (spinning propeller can break on impact with water). Recover any floating cargo and mark airboat location if it is completely submerged, especially in navigable waterways used by other vessels.
- During the wet season, lightning storms are a regular hazard in the field. Florida has the highest rate of lightning strikes in the country. Always pay attention to cloud conditions and be prepared to leave the area before storms can develop.
- The high heat and humidity of south Florida increases the chance of heat-related health problems in the Everglades. Preventative measures include drinking plenty of liquids (water, Gatorade, fruit and vegetable juices best), wearing a wide-brimmed hat, wearing loose-fitting and light-colored clothes, and modulating your activity according to your physical ability and the time of day (i.e., reserve most strenuous activity for early morning and evening).
- Be aware that hypothermia is possible when operating an airboat under cold or wet conditions. Wear clothes appropriate for the conditions, including a windbreaker jacket while underway in the airboat.
- In the case of fog, turn on the boat's running lights, make sure the flag is visible, and reduce speed.
- Familiarize yourself with the location and use of the fire extinguisher. During a fire, aim spray from fire extinguisher at base of fire. Hot airboat engines can start fires if they come in contact with dry sawgrass
- Take extra care to avoid colliding with wildlife. Alligators are frequently found in trails that cut through tall sawgrass and birds and deer may dart suddenly into airboat's path from areas bordering the trail.
- Depending on the area where you are working, emergency contacts include Everglades National Park rangers (302-242-7740), Loxahatchee National Wildlife Refuge rangers (1-800-307-5798), SERC FOC (305-348-4240), your supervisor or lab manager, and 911.

## 6.0 Airboat Personal Qualification Standard (PQS)

This PQS is designed to be completed under the guidance of a mentor. Any mentor signing off on a task needs to be a qualified Crew Chief. The purpose of the PQS is to allow crew members to gain experience and knowledge working under a qualified Crew Chief, while working as crew during normal research operations. This allows for specific “on the job” training with the vessels being used, and the operational area being worked in. Mentors should only sign off on tasks once the trainee is competent in performing the task independently. Once all sections are complete, the Crew Chief/Mentor should notify a Qualified Examiner to make arrangements for the “dockside” exam and underway check ride. All Airboat operators are considered Crew Chiefs unless they are in a training mode being supervised by a Crew Chief. They must fulfill general boating requirements outlined in section 2.2.1 of this manual.

TRAINEE’S NAME: \_\_\_\_\_ DATE: \_\_\_\_\_

INSTRUCTOR’S NAME: \_\_\_\_\_

### AIRBOAT PRACTICAL CHECKLIST

1. Pre-flight safety inspection
2. Trailing  
\_\_\_\_\_ Appropriate hook-ups (safety chains, trailer lights)  
\_\_\_\_\_ Launching/loading  
    Drain plugs, safety chains, boat strap, trailer lights  
    Backing trailer (positioning, proper trailer depth)  
    Use of winch and bow line
3. Personal protective equipment (life jacket, ear- and eye-protection)
4. Airboat operation  
\_\_\_\_\_ Starting/stopping engine (adequate engine warm-up and cool-down)  
\_\_\_\_\_ Shallow-water operation  
    Gradual turns  
    Sharp turns  
    180-degree turns  
    Zig-zag operations  
    Operating speed  
\_\_\_\_\_ Deep-water operation  
    Turns  
    Operating speed  
    Stopping (monitoring wake)  
\_\_\_\_\_ Other skills (ability to follow trail, caution for wildlife)  
\_\_\_\_\_ Knowledge of and response to hazards  
    Getting stuck  
    Swamped boat  
    Lightning  
    Heat-related health issues  
    Operations during fog, heavy rain, nighttime (low visibility conditions)

5. Preventative maintenance and repairs

- \_\_\_\_\_ Post-operation clean-up
- \_\_\_\_\_ Trailer maintenance (tire condition, wheel bearings, trailer lights)
- \_\_\_\_\_ Airboat maintenance
  - Refueling
  - Checking/adding oil
  - Cleaning sediment trap and bilge pump
  - Checking fan belts
  - Secure bolts/screws (engine mount, grass rake)
  - Condition of spark plugs, wiring, and battery terminals
- \_\_\_\_\_ Emergency repairs and trouble-shooting mechanical problems

ADDITONAL REMARKS \_\_\_\_\_

**Initial Certifications**

**Completed**

- \_\_\_\_\_ Obtain state of Florida Boating Safety Education Card. A copy should be submitted with this completed PQS.
- \_\_\_\_\_ Current First Aid certification. A copy should be submitted with this completed PQS.
- \_\_\_\_\_ Current CPR certification. A copy should be submitted with this completed PQS.
- \_\_\_\_\_ Perform as crew for 20 hours underway. Hours underway should be logged and signed off by Crew Chief. A copy of your log should be submitted with this completed PQS.

**Accomplished**    **Mentor signature** \_\_\_\_\_ **Date** \_\_\_\_\_

## Trailing

Note: The Marine Science BBC Boatyard is an excellent location to practice trailer skills without the complications of traffic.

### Completed

- \_\_\_\_\_ Properly hook truck up trailer. Hitch, chains and lights.
- \_\_\_\_\_ Conduct safety checks of truck, trailer and boat in preparation for transport.
- \_\_\_\_\_ Safely drive truck and trailer in forward gear, including pulling up boat ramp.
- \_\_\_\_\_ Safely drive truck and trailer in reverse, including backing down boat ramp.
- \_\_\_\_\_ Prep boat for launch, and safely launch boat.
- \_\_\_\_\_ Retrieve boat onto trailer, pull out of water and secure for travel.

**Accomplished**    **Mentor signature** \_\_\_\_\_    **Date** \_\_\_\_\_

**Pre-Trip Preparations**

**Completed**

- \_\_\_\_\_ Demonstrate knowledge of how to reserve FIU vehicle and boat.
- \_\_\_\_\_ Prepare a float plan.
- \_\_\_\_\_ Ensure boat is equipped with all necessary safety and operational equipment.
- \_\_\_\_\_ Verify boat is fully fueled and electrical systems are functional.
- \_\_\_\_\_ Ensure crew and passengers have sufficient food, water, clothing, and sun protection for anticipated field time, as well as reserves in case of trouble that leave boat and crew stuck for extended length of time.

**Accomplished**    **Mentor signature** \_\_\_\_\_    **Date** \_\_\_\_\_

**Operational Tasks**

**Completed**

- \_\_\_\_\_ Safely board all gear, crew and passengers.
- \_\_\_\_\_ Brief all crew and passengers, both safety and mission briefings.
- \_\_\_\_\_ Demonstrate proficiency in safely leaving dock/launching area.
- \_\_\_\_\_ Demonstrate proficiency in safely operating boat underway as part of mission.
- \_\_\_\_\_ Demonstrate proficiency in safely docking, returning to launching area, and boat retrieval.
- \_\_\_\_\_ Demonstrate knowledge of communications equipment, use and limitations. VHF radio, cell phone, and satellite phone; as applicable to operating area.
- \_\_\_\_\_ Demonstrate knowledge of emergency signaling devices. Mirror, whistle, etc. *Note that flairs are not commonly used in airboats because of risk of fire in sawgrass.*
- \_\_\_\_\_ Tie the following knots and state their use. Cleat hitch, bowline, sheet bend, clove hitch, round turn and two half hitches.
- \_\_\_\_\_ Demonstrate ability to read and navigate with appropriate charts and/or maps for area, as appropriate.
- \_\_\_\_\_ Demonstrate ability to use GPS to find your stations and return to launching point.

**Accomplished**    **Mentor signature** \_\_\_\_\_    **Date** \_\_\_\_\_

**Post Trip Tasks**

**Completed**

- \_\_\_\_\_ Fuel boat and truck at FIU fuel pumps after return to campus.
- \_\_\_\_\_ Remove and return all gear that does not remain stored aboard.
- \_\_\_\_\_ Wash down boat and trailer.
- \_\_\_\_\_ Close out float plan.

**Accomplished**    **Mentor signature** \_\_\_\_\_    **Date** \_\_\_\_\_

## **7.0 NON-POWERED BOAT PROCEDURES**

Non-powered boats including sailboats, kayaks, canoes, rowboats and dingys belonging to FIU as well as those owned personally by an employee or student, or rented or chartered must adhere to the following requirements:

- a) Prior to each outing, a float plan, submitted to the BSO or a delegated authority, must be completed including the names of all participants.
- b) Boating alone under FIU auspices is prohibited. The “buddy system” is to be employed in all boating activities conducted under the auspices of FIU.
- c) Each person must have and wear a Coast Guard approved Personal Floatation Device (PFD).
- d) At least one boat in the group must be equipped with a means of communication such as a cell phone or handheld radio. These items should be stored in waterproof, floating containers when not in use.
- e) At least one boater must have a current certification in CPR, First Aid, and AED.
- f) Boats should be equipped with a bow and/or stern line to aid in docking or towing.
- g) Lines should be properly stowed when not in use.
- h) If your boat capsizes, account for your safety and the safety of others before attempting to recover equipment.
- i) Offer your assistance to any other capsized boats.
- j) Always remain within sight and voice contact of your group.
- k) Do not overload small boats. If not stated on the boat, contact the manufacturer for weight capacity.
- l) Get off the water as soon as possible when a storm threatens.
- m) Inspect boats frequently to identify cracks or leaks. Damage to a kayak’s bulkheads can severely hinder the vessel’s buoyancy.
- n) Non-motorized boating cannot be done solo and must use the buddy system; more than 1 person in a single vessel, or multiple vessels. Multiple vessels traveling together must maintain visual contact.

**Personal Qualification Standard (PQS)**  
**Recreation Kayak/Stand Up Paddleboard Guide**

This PQS is designed to be completed under the guidance of a mentor. Any mentor signing off on a task needs to be qualified personnel designated by the Department of Wellness and Recreation. The purpose of the PQS is to allow crew members to gain experience and knowledge working under a qualified mentors, while working as crew during normal operations. This allows for specific “on the job” training with the vessels being used, and the operational area being worked in. Mentors should only sign off on tasks once the trainee is competent in performing the task independently. Once all sections are complete, the Mentor should notify the Department and schedule a checkoff.

**Initial Certifications**

**Completed**

- \_\_\_\_\_ Obtain state of Florida Boating Safety Education Card. A copy should be submitted with this completed PQS.
- \_\_\_\_\_ Current First Aid certification. A copy should be submitted with this completed PQS.
- \_\_\_\_\_ Current CPR certification. A copy should be submitted with this completed PQS.
- \_\_\_\_\_ Complete Level 2 American Canoe Association (ACA) “Essentials of Kayak Touring” and “Essentials of Stand Up Paddleboarding”
- \_\_\_\_\_ Perform as helper on 3 kayak or paddleboard excursions.
- \_\_\_\_\_ Perform as helper on 2 nighttime kayak or paddleboard excursions.
- \_\_\_\_\_ Participate in one in-service training in which possible emergencies are practiced.
- \_\_\_\_\_ Discuss the emergency action plan with a mentor.

**Accomplished**    **Mentor signature** \_\_\_\_\_    **Date** \_\_\_\_\_

**Pre-Trip Preparation and Departure**

**Completed**

- \_\_\_\_\_ Organize proper amount of paddling equipment for number of participants.
- \_\_\_\_\_ For night excursions, organize and test all lights.
- \_\_\_\_\_ Organize proper safety gear for excursion.
- \_\_\_\_\_ Give safety briefing
- \_\_\_\_\_ Give orientation to equipment and basic paddling techniques.
- \_\_\_\_\_ Get participants safety onto kayaks or paddleboards.
- \_\_\_\_\_ Demonstrate proficiency in safely leaving launching area.
- \_\_\_\_\_ Organize participants.
- \_\_\_\_\_ Follow radio protocol.

**Accomplished**    **Mentor signature** \_\_\_\_\_    **Date** \_\_\_\_\_

**Underway**

**Completed**

- \_\_\_\_\_ Demonstrate proficiency in safely maneuvering boat underway.
- \_\_\_\_\_ Demonstrate ability to keep all participants within visual and audible range.
- \_\_\_\_\_ Demonstrate proficiency in safely returning to launching area, and boat retrieval.
- \_\_\_\_\_ Demonstrate knowledge of communications equipment, use, limitations, and frequency. Hand radio, cell phone; as applicable to operating area.
- \_\_\_\_\_ Demonstrate knowledge of emergency signaling devices: whistles, lights at night.
- \_\_\_\_\_ Tie the following knots and state their use. Bowline and sheet bend
- \_\_\_\_\_ Perform self-rescue by “falling” off/out of kayak and paddleboard and be able to mount by oneself.
- \_\_\_\_\_ Perform rescue by aiding a fellow paddler and towing them to shore.
- \_\_\_\_\_ Demonstrate ability to navigate the common route.
- \_\_\_\_\_ Demonstrate ability to troubleshoot problems while underway.

**Accomplished**    **Mentor signature** \_\_\_\_\_    **Date** \_\_\_\_\_

**Post Trip Tasks**

**Completed**

- \_\_\_\_\_ Safely extract all equipment from the water.
- \_\_\_\_\_ Remove and return all gear that does not remain stored aboard.
- \_\_\_\_\_ Rinse kayaks, paddleboards, and paddles.
- \_\_\_\_\_ Close out float plan.

**Accomplished**    **Mentor signature** \_\_\_\_\_    **Date** \_\_\_\_\_

## **8.0 INCIDENT / ACCIDENT REPORTING**

### **8.1 Procedures**

It is unlawful for any person operating a vessel involved in a boating accident to leave the scene without giving all possible aid to the involved persons and without reporting the accident to the proper authorities.

Immediately following an accident:

- a.) Determine if the vessel is in danger of sinking or other immediate peril and if everyone is on board.
- b.) If there is more than one vessel involved, ascertain as quickly as possible if the other vessel(s) are in danger or if anyone is missing. Render assistance if this can be done without further danger to your vessel or personnel.
- c.) If necessary issue a distress call, or notify local emergency medical services (call 911 if accessible, ENP Dispatcher, or use Coast Guard distress channel on VHF).
- d.) If it is necessary to abandon ship, make sure each person has a PFD, that flares or other signaling devices are present, and if possible a handheld marine radio. All personnel must remain together at all times and wait for assistance.
- e.) As soon as possible after emergency help arrives, notify the BSO and RP

### Reporting

Report any incident, not matter how small or seemingly insignificant using the form in Appendix IV. By keeping track of the smaller incidents, such as minor engine trouble or basic first aid, we can hope to prevent further incidents. These minor incidents will be used for data compiling and not for disciplinary action unless negligence is obvious.

### **8.2 Distress Calls**

It is the responsibility and discretion of the vessel operator or captain to make the decision to request assistance at sea in the event of an emergency. However, for any of the following reasons it is mandatory to request emergency assistance:

- a) When the vessel has become seriously disabled or there is reason to believe it is in the process of becoming seriously disabled.
- b) When there is serious injury.
- c) When the vessel is likely to sink.
- d) When it becomes necessary to abandon ship.

In the event of a serious accident or vessel in distress event, one or all of the following procedures must be used to call for help.

- a) Digital Selective Signaling (DSC) – If vessel radio is equipped with DSC/GPS follow the directions for activation, then immediately follow-up with a voice MAYDAY call.
- b) MAYDAY-On frequency 2182 (offshore) or Channel 16 (near-shore <25-50 nautical miles) state:
  - 1. “MAYDAY, MAYDAY, MAYDAY.”
  - 2. Latitude and longitude or proximity to known landmark or aid to navigation.
  - 3. Nature of emergency.
- c) PAN – On Channel 16 state:
  - 1. “PAN, PAN, PAN ”
  - 2. “All stations, or the name of a particular vessel or station.”
  - 3. “This is (boat name).”
  - 4. “We (nature of emergency).”
  - 5. “We require (type of assistance needed).”
  - 6. “This is (boat name) over.”
- d) Activate 406 Emergency Position Indicating Rescue Beacon (EPIRB).
- e) Call 911 if close enough to cell tower.
- f) If no radio or electronic communication is possible, use flares or other distress signaling devices.

### **8.3 NOTIFICATION**

The operator of a vessel involved in a boating accident where there is personal injury beyond immediate first-aid, death, disappearance of any person under circumstances which indicate death or injury, or if there is damage to the vessel(s) and/or personal property of at least \$2,000, must, by the quickest means possible, give notice to one of the following: the Florida Fish and Wildlife Conservation Commission, the sheriff of the county in which the accident occurred, or the police chief of the municipality in which the accident occurred, if applicable. The U. S. Coast Guard must be notified in writing within 48 hours.

- a) After any serious boating accident or incident which results in the disappearance of any person, a fatality, personal injury which requires medical attention beyond first-aid, or damage to vessel(s) and or personal property exceeding \$2000 diving accident or incident, the following personnel must be notified as soon as possible and no longer than 24 hours: Boating Safety Officer, Chairman-Diving and Boating Safety Committee.
  
- b) The Boating Safety Officer will investigate any serious accident and a written report will be submitted by the Boating Safety Officer within one week to the Chairman, Diving and Boating Safety Committee with the following information:
  1. Name, address, phone number of the principal parties.
  2. Summary of experience of operators involved.
  3. Location, description of area of operation and conditions that led up to the incident.
  4. Disposition of the case.
  5. Recommendations to avoid repetition of incident.

All personal injuries and damages to FIU property must be reported to the Boating Safety Officer and the Office of Human Resources as soon as possible and always within 24 hours of the incident. The boating incident report will include:

- Date, time and place of the incident.
- Vessel(s) involved.
- Number of people on board
- Nature and severity of injuries, if any.
- Damage assessment; structural, approximate cost.
- Description of what happened.
- Was a law enforcement agency notified and/or involved?
- What first aid assistance was administered?
- Did the injured parties require emergency evacuation and where were they transported?
- Emergency contact information for administrative follow up and investigation.
- Information given to Human Resources related to Workman Compensation concerns for coverage of employee injuries.
- If witnesses were at the scene, obtain a statement from each one regarding the incident.
- How could this have been prevented?

In the event of an accident:

- Follow Call Tree located in the appendix.
- Provide no information at any time in the presence of the media.

## **9.0 Chartering and Rentals**

If a commercial charter vessel is engaged and compensation is provided under the auspices of FIU, it is the responsibility of the supervising faculty member, staff, or principal investigator to assure that the vessel is properly licensed, insured and inspected. Further, vessel operators must have and maintain a current captain's license appropriate to the tonnage of the vessel and number of passengers on board.

If a vessel is rented or chartered "bareboat" without a hired operator and compensation provided under the auspices of FIU the supervising faculty member, staff, or principal investigator must assure that the vessel has had an annual safety inspection and meets all required safety regulations. The operator of the "bareboat" vessel will meet the minimum requirements set forth by the FIU boating safety manual for type and size of vessel.

A Float Plan must be submitted prior to departure to a Responsible Person who will begin notification should the boat fail to return.

## **10.0 Volunteers**

All volunteers must submit forms A and B to FIU HR. Once these are submitted, volunteers must fill out a waiver for the department they are working in. Once the waiver and HR forms A and B are submitted and approved, the volunteer may work on the vessel in accordance with the FIU Boating Safety Manual and are covered by workman's compensation. Volunteer forms for HR can be found at:

<https://sercweb.fiu.edu/forms/volunteer-unpaid-intern-forms.pdf>

## **11.0 Hurricane Procedures**

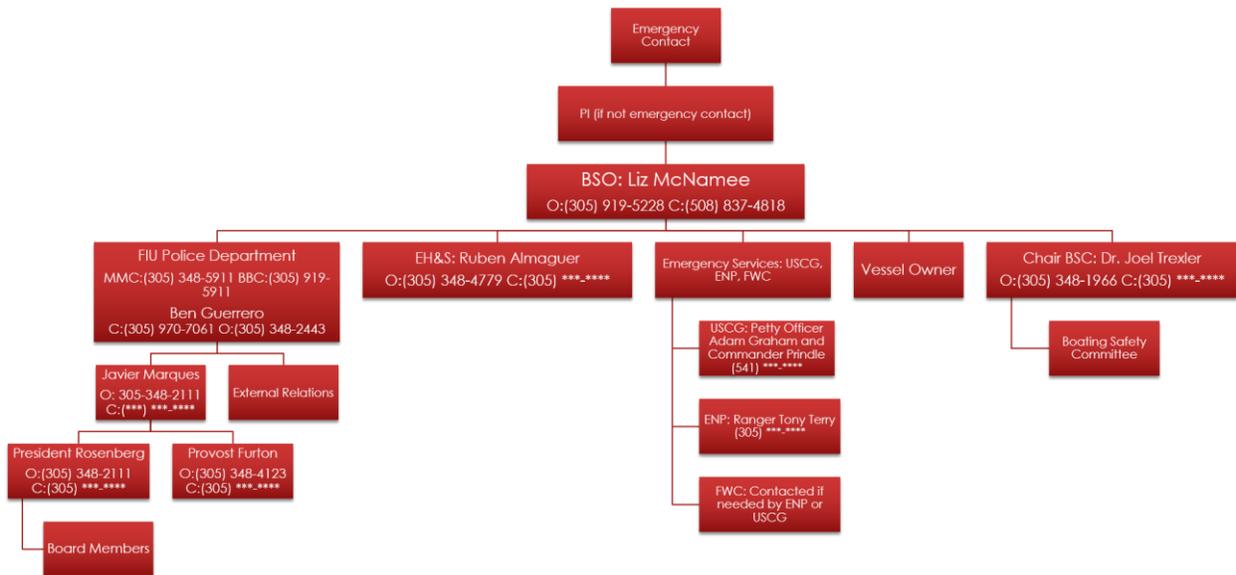
It is the responsibility of all boaters to monitor weather throughout the year and make knowledgeable and informed decisions regarding the safety of the vessel, boaters, and equipment. If at any time there is question, the BSO can be contacted.

In case of an approaching hurricane, refer to the ARB Storm Response Plan for Aquarius Reef Base vessels and to the FIU Storm Response Plan for all other vessels under FIU auspices.

## Appendix I:

### Call Tree

The FIU Boating Call Tree is to be followed in case of an emergency or incident. Don't skip levels, and the sequence must be followed. If the BSO cannot be reached, notify the Chair of the Boating Safety Committee, Dr. Joel Trexler. In cases where there is no injury or danger, and resolving the situation remains within FIU or affiliates, the BSO or designee can discontinue call tree. Any case which involves the US Coast Guard, Emergency Medical Services, or multi-agency searches, the entire call tree must be completed.



## **Appendix II:**

It is the duty of the Responsible Person to monitor when the vessel leave and return to dock. The Responsible Person must:

- Remain on land.
- Remain near the agreed upon form of communication (ex. cell phone).
- Be of sound and sober mind.
- Have knowledge of where the vessel is going.
- Know what personnel is onboard.
- Have knowledge of what activities or type of research they are doing.

Timeline for a Responsible Person (RP):

1. Notified that they are the responsible person.
  - a. Given information about personnel and activity/research
  - b. Given information about destination, and expected route
  - c. Told what time the vessel is expected back to shore
2. Boaters on vessel may check in throughout the day. Boaters must check in if:
  - a. Route changes
  - b. Destination changes
  - c. Return time changes
  - d. Non-emergency incident occurs
  - e. Emergency occurs
3. Return time
  - a. Boaters on vessel notifies RP that they are safe and back at dock.
  - b. Boaters do not check in at agreed-on time
    - i. RP should attempt to contact boaters.
    - ii. If cannot contact boater, begin call tree in Appendix I.

## Appendix III:

### Boating Advanced First-Aid Box

#### Standard Inventory

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1	Surgical Tape 2"
1	Glucose Gel 15g
2	Drain Sponge 2" x 2"
4	Watergel Burn Dressing 18" x 18"
1	Water-Jel Burn Dressing 4" x 16"
1	Sterile Burn & Wound Dressing 4" x 4"
2	Drain Sponge 4" x 4"
4	Xeroform Petrolatum Gauze Dressing 5" x 9"
1	Sterile Abdominal Pads 8" x 10"
4	Elastic Bandage 3"
1	Adult & Infant CPR Mask
1	Burn First Aid Dressing 4" x 4"
2	QuickClot Advanced Clotting Sponge
1	Sam Splint 36"
1	Trauma Shears
1	Combat Application Tourniquet
1	SWAT-T Tourniquet
1	Surgical Gloves Non-Sterile
6	Chest Seal Twin Pack
2	Hydrogen Peroxide 2oz. Spray Bottle
1	Band-Aid Adhesive Bandages
2	Self-Adhesive Bandaging Tape 4" x 5"
1	First Aid Antiseptic Burn Cream
2	Triple Antibiotic Cream
2	Burn Jel External Analgesic Cream
6	Antiseptic Wipes

**Appendix IV:**

**Incident Report**

**Date:**

**Time:**

**Vessels involved:**

**Place of incident:**

**Personell:**

**Nature and severity of injuries:**

**Damage Assessment:**

**Description of what happened:**

**Law enforcement agencies notified and/or involved:**

**First Aid administered:**

**Injured persons require emergency evacuation:**

**Administrative contact for follow up and investigation:**

**Witnesses:**

**How could this have been prevented?:**

**Follow Up:**