

# FHL BOAT MANUAL

## RULES FOR THE USE OF BOATS AT UW FHL

(last modified Aug 2024. Additional to come.)

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### General FHL Dock and Boating Policies

#### On the Dock

Children 12 & under must wear lifejackets and be *accompanied by a parent/guardian* on the pier, floating docks, and boats at all times. Adults must wear lifejackets on the boats (both row and motor) at all times.

#### Rowboats

Visitors no longer have autonomy, and must receive an in-person verbal orientation before using the rowboats. This includes weekend groups, field trip students, Whiteley scholars, etc. If you're wondering whether this applies to you, the answer is YES! If not scheduled ahead of time for groups arriving after business hours or on a weekend, then rowboat use (without an orientation) is NOT permitted.

**Rowboat age limits:** the minimum age to checkout a rowboat without an accompanying parent/guardian is 16. Rowboat passengers *under 14 years old* must be accompanied by a parent/guardian (not just a user who is 16+). Exceptions may be granted when specific cases are discussed with the Boating Safety Officer (BSO).

#### Motorboats

As of January 1, 2012, **anyone operating FHL's motorboats is required to carry a WA State Boater Education Card** in addition to the FHL motorboat course you may have already attended. You must provide us with a copy of your Boater Ed card to keep on file. Go to the **Mandatory Boater Education** (<http://parks.state.wa.us/442/Mandatory-Boater-Education>) webpage.

(<http://parks.state.wa.us/442/Mandatory-Boater-Education>) for details on how to get a card.

Instead of waiting for a scheduled FHL motorboat course, we are now doing **individual checkouts** for those who have WA Boater Ed cards and need to operate FHL motorboats for research purposes – contact the BSO for more information. If it's been more than **6 months since you last used an FHL motorboat**, check with the BSO before your trip to see if there are any equipment updates or policy changes you need to know about.

The procedure for **reserving motorboats** remains the same as it has been: the reservation calendar in the sign-out shed on the dock will be used on a first-come/first-served basis. Wherever scheduling conflicts arise, priority will be given to FHL faculty, students, and staff. Any research that requires reservation of more than 5 days of boat use within a given month must be discussed with and cleared by the BSO or DSO.

If you need to gently **"land" a motorboat onshore** for a beach seine or sampling/collecting purposes, talk to the BSO first. Also, be aware that we now require that you **"tend"** the boat at all times: no walking away from a beached boat! You'll now need an extra person with you on these trips.

**Motorboat age limits:** the minimum age to get motorboat certified is 18. Exceptions may be granted on a case-by-case basis by the BSO for younger users who have prior boating skills or experience. **Passengers must be at least 12 years old, actively participating in research, and from ages 12-17 be accompanied by a parent/guardian.**

## Levels of Boat Use at FHL

1. A **Level I** orientation/check-out = the use of *rowboats* for research or recreational activities. Anyone at the Labs who has been briefed in person (by the BSO, a marine tech, or the caretakers) on general rules and sign-out procedures may use the rowboats. Visitors no longer have autonomy, and must receive an in-person verbal orientation before using the rowboats.

2. A **Level II** check-out = use of the Labs' four *motorboats* for research activities only. In order to be checked out at this level, users must have a WA State boater card or equivalent and be trained by a marine tech – either individually or in a group – including a knowledge-assessment quiz and a practical component operating at least one of the motorboats. These requirements may be waived by the marine tech if a boat user has already demonstrated experience and proficiency.

3. A **Level III** check-out = use of the Labs' motorboats as a *tender to SCUBA divers*. In order to be checked out at this level, users must receive some basic training in the use of oxygen for SCUBA emergencies in addition to all the requirements described for Level II. This training can be done by the "lead" diver on a trip reviewing emergency equipment with the boat tender prior to their first dive trip. All the information on the "Level III boat tender to divers" **form** ([https://fhl.uw.edu/wp-content/uploads/sites/17/2021/07/AppendixII\\_2021.pdf](https://fhl.uw.edu/wp-content/uploads/sites/17/2021/07/AppendixII_2021.pdf)) must be covered; this form must be signed and submitted to the boat safety officer prior to the first time the boat user tends divers. A scientific diver who has been certified for oxygen can be considered a Level III boat user once they have been checked out for motorboat use AND shadowed another tender on a dive trip.

## Rules for Rowboat Use

1. Rowboats may be used for research or recreation. In order to use them **you must be briefed in person**, either as part of a group or individually, by the BSO, a Marine Tech, or one of the Caretakers.

2. The **minimum age to checkout a rowboat** without an accompanying parent/guardian is 16. Rowboat **passengers** under 14 years old must be accompanied by a parent/guardian (not just a user who is 16+). Exceptions may be granted when specific cases are discussed with the Boating Safety Officer (BSO).

3. There are **several rowboat types**: the 10' Plastic Walker Bay rowboat = 2 adults max, the 10' fiberglass Gig Harbor Navigator rowboat = 3 adults / 479lbs max, and the larger rowboats = 4 adults / 550 lbs max. If on the dock, the aluminum boat can take 4 people. Sign out multiple boats if you have a larger group! Each boat must be signed out separately by a person operating it.
4. EACH BOAT HAS A HOLE IN IT WHICH MUST BE PLUGGED BEFORE LAUNCHING. Find the **drain plug** attached to the hole and insert according to its type. The rowboats will sink if flooded. Remove drain plugs after pulling boats back up onto FHL dock.
5. **Life jackets** must be worn and fastened by each person in a rowboat anytime it is not tied up to a dock, including children. Child-sized lifejackets are in the eastern boat shed. This is a Coast Guard rule, and you are personally subject to Coast Guard inspection and fines.
6. **Rowboats must be signed out before leaving and signed in upon return.** Sign-out sheets are in the westside boat shed. This is the only means we have of knowing where a missing boat and its occupants may be. Be generous with your Estimated Return Time, leave a contact #, and feel free to call if you'll be overdue. Please **take your phone along if possible**. Rowboats cannot be reserved, so there is no need to check the reservation calendar.
7. **Check the weather forecast before you leave the dock.** These websites are best:
  - [NOAA Weather Service \(http://forecast.weather.gov/shmrn.php?mz=PZZ133\)](http://forecast.weather.gov/shmrn.php?mz=PZZ133)
  - [Weather Underground \(http://www.wunderground.com/US/WA/Friday\\_Harbor.html\)](http://www.wunderground.com/US/WA/Friday_Harbor.html)

Or consult a Marine Tech on the Boating Weather list, or call the Friday Harbor Port Office (360-378-2688). Boat use is not permitted under gale or storm conditions, and is restricted under a Small Craft Advisory. Be conservative; the weather can change very quickly. A tide chart is posted in most lab buildings and in the boat sign-out shed.

8. **Do not take a rowboat outside of the harbor** without first consulting the BSO or DSO. The tides in the channel are too strong to row against, so rowboaters must plan their trips carefully. See the red line on the chart on the wall of the sign-out shed – this is our definition of the “harbor” and is the default rowboat boundary. You may circumnavigate Brown Island by default, but venturing along the FHL shore past the Pumphouse (on the point) requires permission.
9. If you plan to **land on a beach**, take one of the older rowboats (with smooth hulls), and use extra care when landing. Gravel beaches often have larger rocks that are hard to see. Consider the phase of the tide when leaving your boat on shore: the incoming tide may wash it away when you aren't looking!
10. When taking a **rowboat to town**, be sure to moor it at the dinghy dock set aside for small boats at the base of the pier (see marina map in the shed). Never tie up at the Customs dock. If you take the boat to town, YOU are responsible for bringing it back.

When the rowboats are temporarily tied to a dock (like the dinghy dock in town), **“ship” the oars**: take them out of the oarlocks and lay them in the boat. Unshipped oars can break by bumping into the dock or being smacked by another boat. You may leave the lifejackets in the boat while you walk around town.

If anybody in your party is drinking alcohol in town, assign a **“designated rower”** to stay sober and make sure everyone gets back safely. **If you've all been drinking**, please leave the boat in town. Walk back to FHL or call a taxi, and when you arrive at the Labs make sure to **SIGN-IN at the boat shed by writing “back in 24”** for the actual return time. Then **go back in the morning and get boat!**

11. When you return to FHL: pull your rowboat onto the floating dock and into a cradle, and reattach the strap that holds the boat down in stormy weather. If you can't do this yourself, get help. Do not leave the rowboats in the water! Clean up the rowboat as necessary when finished. **Sign the boat back in**, and hang up lifejackets in the shed!

12. If you are taking a **rowboat out after sunset**, be sure to take along your personal **flashlight or headlamp** that can be turned on to show your position to an approaching boat in sufficient time to prevent a collision. This is a Coast Guard rule, and you are personally subject to Coast Guard fines.

13. Remember that **fishing is restricted in the UW Marine Preserve**. See Preserve boundaries on the map in the sign-out shed and consult Washington State fishing regulations (a license is required to fish, and can be obtained in town at King's Marine or West Marine).

**Violation of these standards will result in loss of rowboating privileges.**

## **Rules for Motorboat Use**

(motorboats are for research purposes only)

### **Who can use motorboats**

1. Motorboats can only be used for approved **research** projects. Only certified faculty, staff, independent investigators, and students may operate the motorboats.

2. You must meet with the BSO for a check-out/certification before you use FHL's motorboats for the first time. As of January 1, 2012, **anyone operating FHL's motorboats is required to carry a WA State Boater Education Card** in addition to the FHL motorboat course you may have already attended. You must provide us with a copy of your Boater Ed card to keep on file. Go to **Mandatory Boater Education**

(<http://parks.state.wa.us/442/Mandatory-Boater-Education>) webpage for details on how to get a card.

If it has been more than **6 months since you used the boat**, see the BSO for an update on equipment/facilities or procedures. If you are unsure about any aspect of boat operation, do not hesitate to ask the BSO.

3. The minimum age to get motorboat certified is 18. Exceptions may be granted on a case-by-case basis by the BSO for younger users who have prior boating skills or experience. **Passengers must be at least 12 years old, actively participating in research, and from ages 12-17 be accompanied by a parent/guardian.**

### **Choosing the best boat for your needs**

4. Passenger/weight limits in boats must be followed without exception. This may be different than posted on the manufacturers' specifications. See instructions for **particular boats**.

5. Make boat reservations on the calendar in the sign-out shed by writing:

- boat name
- times you need (e.g., "10:30-3")
- your name
- contact info (phone/email/lab)

To cancel a reservation you don't plan to use, erase or cross it out. If it's 30 minutes past someone's reservation time and there is no sign of activity around the boat they reserved, it is **considered "fair game" and you may use it**. If there is a phone # listed on the calendar you might call the reserver out of courtesy.

6. Boats with fiberglass hulls (Bufflehead) should **never** be beached. Rocks (sometimes hidden in a gravel or sandy beach) will damage this hull. If you need to go fully ashore by boat, take the Duroboat or one of the older rowboats. Use extra care when landing. Under special circumstances the Auklet or Coot may be beached, but consult the BSO first. If you need to gently **"land" a motorboat onshore** for a beach seine or sampling/collecting purposes, talk to the BSO first.

We **require that you have a "tender"** for the boat at all times (just like divers are required to do so). You'll need an extra person with you on these trips so that somebody is dedicated to making sure the boat doesn't get swamped or stranded by the tide: no walking away from a boat onshore! Any sediment tracked onto the deck needs to be rinsed out with a hose once back at FHL, so that it won't get into sensitive dive equipment (seals).

## When / where you can go

7. All excursions beyond our “yellow line” standard area of operations [Cattle Point (south), upper San Juan Channel between Limestone Point and Spring Passage (just north of Jones Island), or the passage between Upright Head and Foster Point (east)] **must be cleared in advance by the BSO**. For example, this includes trips to East Sound or Roche Harbor. See the **chart** (<https://fhl.uw.edu/wp-content/uploads/sites/17/2024/03/yellow-lines.pdf>) in the boat sign-out shed.

To get permission for a trip outside of this area, fill out a **float plan** ([https://fhl.uw.edu/wp-content/uploads/sites/17/2020/07/floatplan\\_fillable.doc](https://fhl.uw.edu/wp-content/uploads/sites/17/2020/07/floatplan_fillable.doc)) and email to the BSO **at least 24 hours before your trip**. You are required to **carry a VHF radio** on ALL trips, attached to your lifejacket, and if you’re tending divers make sure that they put a **second oxygen bottle** in the O2 kit. You must also attached the **engine “kill cord”** to your lifejacket except when you must step away to tie a boat up to the dock or help diver back onboard.

8. **Check the weather forecast before you leave the dock**. Gale or Small Craft Warnings should be posted in the boat sign-out shed. If the warning board is not up but the weather looks questionable, check these websites:

- **NOAA Weather Service** (<http://forecast.weather.gov/shmrn.php?mz=PZZ133>)
- **Weather Underground** ([http://www.wunderground.com/US/WA/Friday\\_Harbor.html](http://www.wunderground.com/US/WA/Friday_Harbor.html))

Or, consult a Marine Tech (phone numbers listed in the boat shed and in the dock office window).

Boat use is not permitted under a Gale Warning or Storm conditions, and is restricted under a Small Craft Advisory. Be conservative; the weather can change very quickly. A tide chart is posted in most lab buildings.

During spring tides, currents may exceed 4 knots in some areas. Take this into account when planning your trip.

9. **All motorboat excursions that will extend beyond sunset must be cleared in advance with the BSO**.

All boats must display running lights after dusk. See the BSO before you take out a motorboat after sunset to discuss your plans, make sure you know how to turn on the running lights, and that the bulbs aren’t burned out. This is a Coast Guard rule, and you are personally subject to Coast Guard inspection and fines. In addition, FHL requires you to **carry your own personal flashlight or headlamp** on the motorboats after sunset.

10. Remember, **fishing is restricted** in the UW Marine Preserve. See Preserve map in the Boathouse and consult Washington State fishing regulations (a license is required).

## Sign-out & reporting problems

11. **All boats must be signed out before leaving and signed in on return**. The sign-out sheet is in the westside lifejacket shed on the pier. When signing out, check the reservation calendar to make sure someone else hasn’t reserved the boat you are taking. Fill out a line of the sign-out sheet completely (except for “actual return time”), including the *pre-trip inspection of propeller and skeg*.

12. Report these problems ASAP to the BSO or directly to the Maintenance department:

- any major boat or motor problems (dead bilge pump or battery, leaky fuel line, etc)
- shortage of the main fuel supply in the shore shed (i.e., when one chamber of the tank is empty)
- fraying of the starter rope on the Duroboat’s outboard (or Auklet’s auxiliary hydraulic motor)

This can be relayed via email, phone/text, or by leaving a note in the main office. Less time-sensitive items can be recorded on the sign-out sheet in the “needed repairs” column, including things like stubborn bow winches, stuck hatch latches, etc. **If it will inhibit the boat’s next use, we want to know ASAP.**

## Gas, oil, & engines

13. Before each trip, check for or fill the gas tanks you'll need. At the end of each trip, be sure a **full tank remains on the boat** in case it's needed quickly for emergency/rescue purposes. All FHL outboard engines use straight gasoline (not pre-mixed with oil), **except the one on the Duroboat**. It uses pre-mixed gas that can be found in red plastic cans (marked pre-mix) on the floor of the gas shed. **Carry these down to the Duroboat and pour into its unique gas tank**. There is a metering system in the fuel shed, installed in 2020. If you aren't familiar with it, ask the BSO before use so that we can continue tracking what's delivered vs used.

14. When you fail to vent a gas can, it creates a vacuum that makes it impossible for gas to flow to the engine. **Make sure the gas tanks are always vented**. Close the vent ONLY when carrying / moving a gas can: *leave vents open on full and empty cans stored in the fuel shed, on docks, and on boats*.

15. A strong stream of water should be shooting from the engine housing. Check the flow before leaving the dock and periodically while under way. Engine RPMs and exhaust smoke should be monitored for signs of overheating. **If the motor stops/slows and it's not a fuel issue**: put shifter in neutral, turn off the ignition and check for kelp, plastic bags, or other debris that may be blocking the coolant intakes (in front of propeller). If blockage can be identified and coolant stream returns, you may proceed cautiously while monitoring engine, otherwise get help (see next section, Emergencies). **Never** operate an engine that has overheated or has an impeded flow of cooling water.

## Emergencies

16. If a boat you are operating breaks down:

1. Open the emergency bag & call down the list of phone #s for assistance,
2. Attempt to contact another vessel for a tow back to Friday Harbor, or
3. Call Vessel Assist at the bottom of the list.

After business hours or on the weekend, call down the list of "Emergency Phone Numbers" that can be found in each of the boat's first aid kits, and on laminated cards on a shelf under the sign-out sheets in the boat sign-out shed. **DO NOT attempt to operate an engine which is not running properly.**

17. If your boat has broken down and you are adrift, deploy an anchor. It may be necessary to paddle close to shore in order to get the anchor to "bite" (reach the bottom). **Deploy an first anchor only from the bow (front) of the boat, never the stern** (see Anchoring section below).

## General safety

18. If you cannot recall the marine Rules of the Road, a good rule of thumb is to "give way" to all vessels that are on an intercept course with you. Make an early and decisive change of course or slow down to avoid a crossing situation. **Drive defensively**: assume that other boat operators are oblivious of your presence. Never assert right-of-way over the ferries or floatplanes – go around them.

19. **Life jackets must be worn** by every person *while underway*, and must be *on board* for each person in a boat as well as for divers wearing zipped-up drysuits. A diver wearing a wetsuit or whose drysuit is unzipped must wear a lifejacket. This is a Coast Guard rule, and you are personally subject to Coast Guard inspection and fines.

20. Operate all motorboats **very slowly** in the vicinity of FHL. Do not open up the throttle to get up on plane until you are well clear of the FHL breakwater. Be particularly watchful for swimmers, snorkelers and divers around the dock and breakwater. Snorkelers and divers should be flying a dive flag from the southwest corner of the pier (near the crane), but may forget.

21. There is a great deal of material floating on (and just below) the surface of the water in this region. A log can put a hole in your boat; an almost-invisible plastic bag can clog your cooling water intake. **Be very cautious, and as vigilant as if you were driving on a freeway.**

## Anchoring

22. To anchor, put the engine in neutral and then **DROP the anchor** and chain over the side of the boat – don't throw it. After the anchor has hit bottom, let out some more line to allow for proper "scope" (line angle). Ideally this length is 5x the water depth so that the anchor tugs horizontally, not up. Tie the line off to a bow cleat (NOT near the stern) using a SIMPLE docking knot with one locking hitch. You should be able to release the line in a hurry if necessary. Then, reverse slowly away from the anchor to make sure it bites.

23. When you're ready to **retrieve the anchor**, make sure you turn on the boat's engine first! If you are unable to pull up the anchor by hand, tie it off again and try motoring forward while watching the anchor rode so you don't tangle it in the prop. If it won't release from the bottom, set a mark on the GPS and deploy the rest of the line with its marking float and let a marine tech know where the anchor was left. In an emergency, the anchor line may be cut if the knot can't be released (a knife can be found in the dry bag along with the first aid kit, and usually near the helm also).

If you use an anchor, please **coil the line backwards into its bucket** when finished so the next user can deploy the line quickly and easily. DON'T leave it in a knotted heap.

Boaters/divers working near shore may use a stern anchor as well, so that the boat won't swing into the rocks with shifting winds or currents. **ALWAYS anchor primarily from the bow**, using a stern anchor only secondarily.

Consult the BSO for additional advice on anchoring techniques.

**Violation of these standards will result in loss of boating privileges.**

## Auklet, Bufflehead, and Coot

(see also "[General](https://fhl.uw.edu/facilities-resources/boating-and-diving/fhl-small-motorboats/)" rules and the [Boat spec page](https://fhl.uw.edu/facilities-resources/boating-and-diving/fhl-small-motorboats/) (<https://fhl.uw.edu/facilities-resources/boating-and-diving/fhl-small-motorboats/>))

1. In the Auklet, maximum weight limit is 1,130 lbs and the maximum number of people is 7. When the large overhead lift and hydraulic block+motor are bolted on, capacity is reduced to 620 lbs and 3 people! In the Bufflehead AND the Coot, maximum weight limits are 1,000 lbs and the maximum number of people is 6.

2. First aid kit, flares and fire extinguisher are in the aft storage boxes on the Auklet and Coot, and in the bow section of the Bufflehead.

3. Before dive tending in the Auklet and Coot, make sure the **bow ramp** is functioning correctly while still at FHL.

### 4. Prep the boat

- Check **gas cans onboard**. These 3 boats use straight gasoline (not mixed with oil) from the large red tank in the gas shed below Lab 2. They have 4-stroke Honda engines and oil does not need to be checked or added (the BSO will do this).
- Turn **battery switch** to on. In the Auklet, the battery switches are in the compartment beneath the console and steering wheel (use "Battery 1" or "Battery 2" but NOT 1 + 2 together). In the Bufflehead the switch is in the starboard stern corner. In the Coot, it is inside the starboard stern hatch (not the switch below its steering console). **Turn these off when finished with the boat** to ensure the GPS unit doesn't wipe out the battery.
- Bring motor up off the kickstand, flip kickstand up, then lower engine by pressing the toggle switch on the side of the throttle handle. Be sure the motor is all the way down, not just to the change in tilt speed.
- Connect gas line to one of the tanks by retracting its collar the releasing collar once connected. If fuel runs out and needs to be primed, hold the pump bulb vertically with the arrow pointed up and squeeze with 2 thumbs just until bulb begins to firm up.

### 5. Starting procedures

- Even when cold, simply turning the key should start these engines. Let it idle for 5 minutes before leaving the dock. If it doesn't want to start, pull up on the cold-start/idle lever and push in the ignition key briefly to choke the engine. Turn the key again.
- Once engine has fired, bring the idle lever to an intermediate position. If engine starts to stall, push the choke again. **Do not let engine race at high RPMs after starting.** After about one minute pull the idle lever all the way down. The engine won't shift into gear until this is done. When you return, note the engine's grouchiness on the sign-in sheet, because it's highly unusual that they require this kind of fidgeting, even in freezing weather.
- If engine floods (you will smell gas and probably see a sheen on the surface of the water), disconnect gas line from engine and turn on key until engine starts, then reconnect gas line. If this doesn't work, just wait ten minutes or so for excess fuel to evaporate.
- It's important to **idle the engine at the dock for 5 minutes** to warm it up.
- While squeezing the shift-lock (white bar in the throttle lever), push the shift/throttle lever forward and reverse for respective gears; continuing to move it in either direction increases the speed. **Make decisive shifts instead of grinding the gears.**

6. Once you are well clear of the breakwater, advance the throttle sufficiently to just bring the boat up on plane. Do not run the boats above 5,000 RPMs. Higher throttle settings waste fuel and do not greatly increase speed.

7. While cruising, be very attentive to avoid floating debris. Wood can damage the prop or hull, and seaweed or plastic may plug the cooling intake of the motor. When steering to avoid obstacles while at high speed, do not quickly turn "hard over" to one side, as this could throw a passenger or gear out of the boat. Large wakes from ferries or yachts should be taken at a slower speed, and 45-degree or nearly head-on angle to minimize rocking of the boat.

8. The Auklet and Coot have automatic **bilge pumps** below deck that can also be switched on via the dash console. If you notice excess water in these boats, check the scuppers at the rear of the deck and in the stern, which may be clogged with debris. The Bufflehead also has an automatic bilge pump; if there is a significant amount of water in this boat it means that the float switch circuit is faulty, the pump died, or the battery is dead. Try activating the pump using the switch to the left of the steering wheel, and be sure to notify the BSO or Maintenance upon your return. If activating the switch doesn't pump out the water, **DO NOT OPERATE THE BOAT**; notify the BSO or Maintenance.

9. When shutting these boats down, turn off the ignition key & let the motor drain for 30 seconds. Before turning off the battery switch, **tilt motor up** all the way using the toggle switch on the side of the throttle handle. In the Auklet: once engine is all the way up, flip down the "kickstand" and then lower the engine until its weight rests on the stand. **THEN TURN OFF THE BATTERY SWITCH.**

10. Clean up the boat, check that the anchor line is neatly coiled in its bucket, adjust the dock lines so they are secure (but not squeaky tight) and have sufficient spacing to prevent bumping nearby boats.

11. Return life jackets (hang them up!), sign in the actual time of your return, and note any problems on the sign-out sheet. Urgent problems should be immediately brought to the attention of the Marine Tech or the Maintenance crew.

***Talk to the BSO about circumstances under which you might gently "land" the Auklet or Coot onshore, keeping in mind that you (or someone else who is boat-certified) will need to "tend" the boat at all times. No walking away from a beached boat!***



# Duroboat

(see also “**General**” rules and the **Boat spec page** (<https://fhl.uw.edu/facilities-resources/boating-and-diving/fhl-small-motorboats/>))

1. Maximum weight limit is 700 lbs. Maximum number of people is 4.
2. Move the emergency bag from the sign-out shed to the boat. If an anchor setup isn't onboard, check the dock and get it (was likely borrowed as a second anchor for another boat).

## 3. Prep the boat:

- Lower engine by pulling the back of the housing up, then it'll lower into the water. Move the engine tilt knob (on port side) into LOCK position. There's an art for finding this notch again when raising the motor; ask the BSO for help if needed.
- The Duroboat takes pre-mixed gas from jerry-cans on the floor of the gas shed. Communicate with the BSO ahead of time that you'll need this, and then carry the can(s) down to the boat and fill its gas can there. Connect the gas line to the tank so that the metal clip faces the longer of the two fitting's prongs.

## 4. Starting procedures

- Make sure kill switch's little red nub is up, and throttle's in neutral.
- If engine is warm (or hot) simply pulling the start cord should start the engine.
- If engine is cold, pull out the choke knob on lower front of engine housing & turn toward fast speed. Give the bulb in gas line a squeeze and clip **engine kill cord** to your lifejacket.
- Pull start cord out slowly to inspect it. Then, let the rope retract and pull it briskly/roughly 3/4 of its full travel until motor starts.
- When engine starts to slow/cough, push choke knob in. WITH BOAT STILL TIED UP, twist throttle control to forward & confirm that it'll run without dying. Drop back to neutral, unclip kill cord long enough to untie the boat and get back in.
- To stop motor, push the red button on end of throttle wand or pull down on engine end of kill cord.

5. Once you are well clear of the breakwater, advance the throttle sufficiently just to bring the boat up on plane. Higher throttle settings waste fuel and do not greatly increase speed.

6. When up on plane, the **bilge plug** may be removed to drain any water in the bottom of the boat. Keep the plug in your hand, so that you don't forget to replace it before slowing down and coming off plane!

7. If you will be **beaching this boat**, use extreme care. Select a gravel or sand beach, and be attentive to avoid rocks in the water or nearly buried by the sediment. While still in deeper water, shut the motor off and tilt it up. Put the oars in the oarlocks, and row ashore. Consider the phase of the tide, and drag the boat up the beach to a point where it won't float away on an incoming tide during the length of your stay (but not so far that you can't get it back to the water). Carry the anchor up the beach and secure it.

8. On return to FHL, raise the engine.

9. Clean up the boat, check that the anchor line is neatly coiled, (you may leave the oars on board), adjust the mooring lines so they are secure (but not squeaky tight) and with sufficient spacing to prevent bumping nearby boats.

10. Return life jackets (hang them up!), sign in the actual time of your return, and note any problems on the sign-out sheet. Urgent problems should be immediately brought to the attention of the BSO or the Maintenance crew.

## Rates

Our rates are structured to make it easy to determine your estimated costs based on visitor category. Refer to the Rates pages below for more information:

[Researchers](http://fhl.uw.edu/research/researcher-scholar-rates/) (<http://fhl.uw.edu/research/researcher-scholar-rates/>)

[Whiteley Scholars](http://fhl.uw.edu/whiteley-center/whiteley-costs/) (<http://fhl.uw.edu/whiteley-center/whiteley-costs/>)

[Conferences & Field Trips](http://fhl.uw.edu/conferences-and-field-trips/visiting-group-costs-new/) (<http://fhl.uw.edu/conferences-and-field-trips/visiting-group-costs-new/>)

[Students in FHL Courses](https://fhl.uw.edu/courses/costs-for-fhl-courses/) (<https://fhl.uw.edu/courses/costs-for-fhl-courses/>)