

**University of Wisconsin-Madison
Hooper Sailing Club**

**Motorboat
Manual**

Hoofer Sailing Club Rescue Motorboat Manual

Rescue Motorboat Manual Editors

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**Hooper Sailing Club
Rescue Motorboat Manual**

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*Part One**Rescue Motorboat Theory and Role within Hoofers*

Sometimes sailors have a negative attitude toward power boats. This is ironic because where you find sailboats, you will almost always find motorboats being used to tend them in some way. It's far too easy for sailors to view power boats as lowly tenders at best, or dangerous rivals at worst. Let us take a moment to carefully consider the essential role which motorboats play in the Hooper Sailing Club program, and in sailing in general.

Many people who have tried both will argue that under a variety of conditions, sailing is preferable to motoring. Sailing is quiet, saves fuel, smoothes out the rolling motion of the boat in seas, and most importantly, there is something intangible and attractive about getting in tune with the elements of nature and working with them to your own advantage.

The sailing experience can be incompatible with power boating and there is naturally some potential for conflict. Sailors may hold some degree of animosity toward motorboats and their crews. These negative views can be displayed in ways that range from light hearted digs where motorboats are dubbed "stink pots," to a sincere belief that sailing is a greater challenge to skipper and crew than power boating. Sometimes motorboats are operated by inconsiderate or incompetent crews and it only takes a few examples to affirm the stereotype. When power boaters display incompetence, they do it in spectacular fashion. Careless powerboat skippers may streak through crowded no wake areas at 60 MPH, or they may seriously impair the night vision of other boaters with spotlights because they are going too fast to see without them. Sailors do display incompetence, but they do it in a less obtrusive way so there is less negative impact on observers.

Like all stereotypes, the idea that powerboats are less challenging to operate is a great oversimplification. Holding this shaky belief can be dangerous, and such conceit is bound to lead to disaster. A key theme that runs through this manual is that the operation of motorboats must be taken very seriously. It can take much more knowledge and seamanship ability to operate a power boat than it does to operate a sailboat. This is especially true when performing rescues in large waves and heavy wind conditions.

If you have not already done so, you should think positively of motorboats! Get rid of any negative views you have toward them, and learn all you can by reading this manual, and then practice by using the motorboats. Since sailors so often depend on motorboats, it is worth putting out the effort it takes to become a competent user. At Hooper Sailing Club it is essential that club leaders and staff have the basic skills.

Hoofer Sailing Rescue Capability Philosophy

Sailors at Hoofer Sailing Club depend on motor vessels for two reasons, convenience, and more importantly, safety. It is illustrative to note that sailing vessels which are large enough almost always carry motors. Why is the extreme bulk, weight, and smell of a motor and its related systems tolerated on a sailboat? It is because the motor is such a useful piece of safety equipment. In a sense, such a sailboat can instantly be turned into a motorboat when it needs to rescue itself! For the small boats we sail at Hoofer Sailing Club, the vital safety function of motor power is provided by our rescue motorboat fleet. Harvey, the University Lifesaving Station, provides a back-up to our own fleet.

The primary function of motorboats at Hoofer Sailing Club is search and rescue. These safety functions take priority over the many other convenience type activities they are used for. Examples of convenience activities are taxi service to keelboats, race committee, social events, and pier maintenance. Although emergency-type rescues do occur, most search and rescue is routine pick up of beginning sailing students who can't make it back to the pier without help. This non-emergency type of search and rescue is so common that it would be impossible to imagine our present instruction program without our motorboat fleet. In much the same way, but often to a lesser extent, motorboats are vital to the safety and smooth operation of all Hoofer Sailing Club activities.

Ideally, Hoofer Sailing Club must be ready to provide full motorboat rescue capability for all of its on-the-water operations. In a sense, it is wise to pretend Harvey does not exist. Club leaders and staff must be prepared to meet all our rescue needs any time someone goes out sailing. Under this philosophy, Harvey is simply a very welcome back-up to our own rescue capability. This is the level of readiness we must strive to maintain. We must never allow ourselves to get careless and adopt the belief that Harvey will flawlessly perform all our rescues for us. Rather, we must be led by the principle that we will always provide full rescue capability. If that fails, Harvey can back us up. Let's keep in mind Harvey consists of humans operating machines, and each can fail. Also, we occasionally run on-the-water operations when Harvey is off duty.

As long as club leaders and staff adopt the philosophy that we must be self sufficient in our rescue capability, it follows that our boats will be ready to go each time we have a sailor out on the water, whether Harvey is on duty or not! This duplication of Harvey's efforts by Hoofer Sailing Club leaders is a small price to pay for the added safety it provides our students and members.

The Equipment Element

The Hoofer Sailing Club motorboats are perhaps the single most important type of safety equipment we have. These boats, handled properly, have saved lives and property dozens of times over the course of Hoofer Sailing Club history. Any veteran Hoofer can recall some of these dramatic rescues for you. Motor boats have been wrecked here too, resulting in thousands of dollars worth of damage and loss of a valuable safety resource. Some would argue

that these wrecks are not accidents, they are simply the result of errors made by the crew. If this is true, these and other disasters may be prevented by learning the right way to do things, and then having the discipline to do things right every time.

At least two fully functioning rescue motorboats are required in our present program at Hooper Sailing Club. Without these, the safety and smooth operation of our programs (including instruction) is compromised. Without at least one boat, instruction is completely shut down. Ideally three boats will be working so we have a spare ready to go when needed. Any more than three boats would get in the way at piers and storage areas.

Surprisingly, many immediate rescues need to be done between the shoreline and the boats in the mooring field. This area is also less visible to Harvey. Due to the high cost of maintaining three boats in excellent condition, not all of the motorboats in our fleet are equal in performance and guidelines for deciding which boat to use are needed.

In general, the fastest and most seaworthy boats are reserved for search and rescue purposes and remain at the pier until used for rescue purposes. Any slow boat is used as a race committee safety boat and, when available, for shuttling Hooper keelboat sailors to the club boats.

Usually search and rescue is performed by instructors retrieving students. If a mission can be accomplished using a lower performance boat, use it, and leave the high performance boat for rescue. The highest performance boat must never be taken out of service for long periods to do jobs like race committee. Always try to minimize the time a boat is in service doing any job, and return it to the pier promptly.

The Human Element

It takes a fair amount of ability to operate a motorboat, especially to perform rescues. With adequate training, practice, and good judgment, anyone can gain competence. Our motor boats save lives, but if they are not handled skillfully, they can kill. It is wise to maintain a healthy respect for these boats, and make conservative decisions regarding their use. Never attempt a rescue that is beyond your ability; it is O.K. to admit this. You will make a contribution to the safety of all Hooper Sailing Club operations if you learn the basics of motorboat operation. The boats are no good without a competent skipper.

Any club leader operating a motorboat must constantly be observing the lake and immediately be able to respond to emergencies and Hooper Sailing Club students who need assistance. Since the primary purpose of motorboats is rescue, **when you are operating any rescue motorboat, you are automatically responsible for providing rescues for all Hooper Sailing Club operations!** Be ready to instantly postpone your original mission (i.e. race committee) and perform your primary one (rescue) when you see a problem.

*Part Two**Rescue Motorboat Operation*

When you are operating any rescue motorboat, you are automatically responsible for providing immediate rescues for Hooper Sailing Club operations. Observe and be ready.

Hooper Boat Use

The rescue motorboat operator in using this boat understands that he or she is **responsible for tickets received** for not following any legal requirements and understands that he or she is responsible for knowing the material in the Hooper Sailing Club *Rescue Motorboat Manual* and has also successfully received a Hooper motorboat rating through proper training.

Preparation on-land

Visually inspect the boat when it's on the rail system; don't climb into it if it can be avoided because this can be dangerous. Never launch a motorboat if it fails any of the following items in this inspection; simply secure it and notify maintenance immediately.

1. Motor mounting brackets are tight and safety cable is attached.
2. Painter is present and serviceable. The hull, seats, and bulkheads are sound.
3. Air tanks are drained.
4. All plugs are in (especially the center stern plug by the engine).
5. All unnecessary items are removed including empty fuel tanks, trash, and unnecessary or tangled line.

The following equipment is required for the rescue motorboat.

1. One life jacket for each passenger.
2. One throwable floating cushion.
3. Lights if operating after sunset.
4. One large Danforth anchor with line untangled and immediately ready to use.
5. Fuel line and fuel tank, at least 1/3 full.
6. Consider bringing a paddle

Following The Law

Some items for which an operator may receive a fine or warning from the County Sheriff include:

1. Lack of the items 1-3 above.
2. Speeding in no wake zone (5 mph in any congested area, 100 feet from ALL shores, piers, and swimming areas)
3. Passengers sitting on gunwales
4. Drinking alcohol while driving
5. No life lines on crane barge
6. Failure to display proper registration numbers

Hooper Motorboat Use

The current Hooper policy is that the fast yellow rescue boat usually be kept at the pier so it is available for immediate use (and for windsurfing pick-ups), **the crane barge (slow boat) be used for operations not requiring speed** (race committee use, transport to Hooper mooring field boats, etc.), and the white rescue boat (Wayler) be used for operations where speed is desired (youth instruction program, on-the-water instruction, etc.).

Launching

Lower the boat into the water using the electric winch.

One experienced person can accomplish this if there are no waves, otherwise use two or more persons. Big waves can smash the propeller and lower unit of the motor into the railroad structure causing severe damage. Always get plenty of people to help under these conditions.

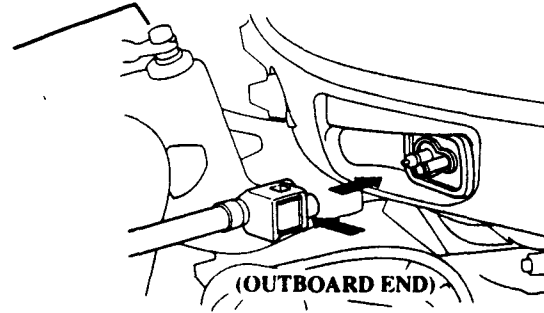
Walk the boat to the leeward side of the pier and check to make sure the prop can't drift into shallow waters.

Fend as needed. Often fending is best accomplished from inside the boat. Place the boat so as to minimize interference with sailboats at the pier. Be sure that the boat can't swing on the painter, so as to hit the lake bottom, or another structure, especially the railroad system. Secure the boat by its painter using a bowline, the wind should push it away from the pier. Do not tie the boat close in so it pounds against the pier.

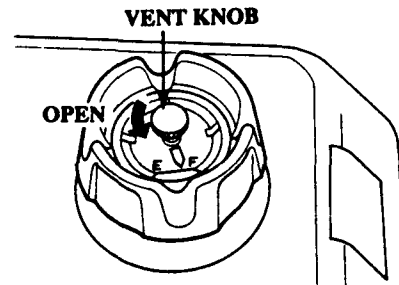
Start the motor and let it warm up fully. This takes around 10 minutes. This is done to be certain the boat will start if it's needed for an emergency rescue. The motor will almost always start if you do everything right. If the boat doesn't start, the odds are overwhelmingly high that you are doing something wrong. There is a lot to know about starting motors and it is worth while to study this section carefully.

Starting Honda Marine Engine

FUEL HOSE CONNECTOR

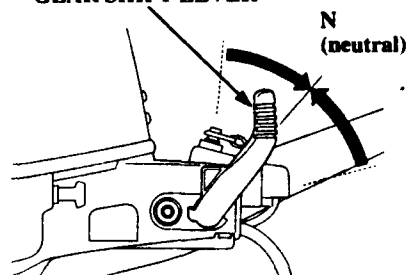


1. Attach emergency stop switch (and check for back-up clip) and attach the fuel line to the engine so that the clip is towards the outside. Be sure the fuel hose connectors are securely snapped in place.

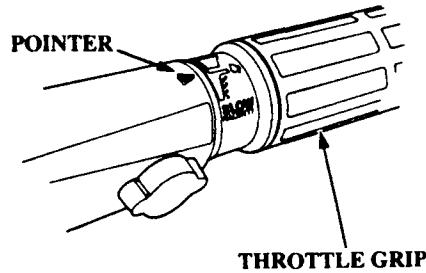


2. Turn the fuel cap vent knob at least 2 or 3 turns counterclockwise, to open the fuel tank vent.
3. Squeeze the primer bulb several times only until it is firm. Do not squeeze the primer bulb when the engine is running.

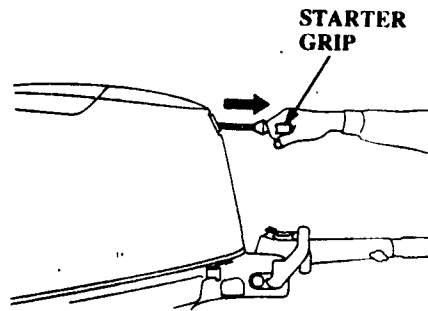
GEAR SHIFT LEVER



4. Move the gearshift to the N (neutral) position.



5. Align the engine start symbol on the throttle grip with the pointer.
6. When the engine is cold, pull the choke knob on the left side of the engine while looking back at it.



7. Pull the starter rope slowly until a resistance is felt; then pull briskly.
 - Note: • Do not allow the starter grip to snap back against the engine. Return it gently to prevent damage.
 - Don't pull rope to the end of its travel.
 - Do not pull the starter grip while the engine is running.
8. After starting, check to see if there is an engine cooling stream of water.
11. Shut off choke and warm up for at least 10 minutes for the first use of the day
12. Check to see if green oil pressure indicate light turns on.

Motor "Don't's"

1. Don't race motor RPM's in neutral.
2. Don't shift without throttling down all the way.
3. Don't keep pulling if it won't start in 6 pulls.
4. Don't shut down motor while in gear.

If a motor doesn't start in about 6 pulls, something is wrong and more pulling won't solve the problem. Additional pulling can cause further problems by flooding the engine. First, change the choke setting (if it was open, close it, and if it was closed, open it) and give 6 more pulls.

Operating in Open Water

If on the water, you might try a 10 minute rest. After the motor rests, try the same procedure again from the beginning. While you wait, prepare to deploy the anchor and try to signal help.

To shut down the motor, turn the throttle way down, shift to neutral, and turn the ignition switch to "off." It is bad for the motor to turn it off when it's still in gear. Also, the next operator may forget to shift into neutral before starting and break the rope.

Leaving The Pier

Check to be sure you have all required safety equipment on board (see above). Be sure the motor is fully warmed up before you leave the pier or it is likely to stall. Back straight away until you have plenty of room to clear the pier before you shift into forward. Be sure you have plenty of depth below you.

Loading

Make sure no one sits on the gunwales while you are motoring. It is dangerous and illegal. Don't overload the boat with people. The number you can take depends on conditions. It is dangerous to overload, especially in rough conditions. Check the boats for any current capacity limits.

The boat can go faster, and you can see better, if you keep the bow down by placing some people and equipment in the front. Conversely, placing weight near the stern will raise the bow and keep you drier when motoring to windward in waves.

Depth

Don't engage the propeller in shallow water! Shift to neutral immediately if you find yourself getting into shallow water. Also be careful of underwater obstructions like the large rocks near the rigging deck, and the underwater portions of the launching railroad.

Propellers are made of a delicate and expensive metal alloy. Any contact with the bottom will instantly destroy the propeller and it may stop the motor. This is extremely dangerous because if you are near a lee shore, you won't have time to anchor before you are driven up on shore by the waves. Operating in shallow water is always a foolish invitation to disaster. Keep in mind that waves can drive the propeller into the bottom even where there is plenty of depth when the water is calm. A good guideline is never to engage the propeller closer to shore than $1/2$ the longest pier length.

Planing

Some of our motorboats are capable of planing speeds. A dangerous situation can occur when planing, especially when first accelerating to planing speed. The bow of the boat rises, blocking the forward vision of the operator. Don't go fast if you can't see

what is in front of you! Proper loading will minimize this problem (see loading). When the boat is planing, you may operate the bailers to drain excess water from the boat. Don't make sharp turns when planing because the boat could flip over sideways.

Weeds or Line in Propeller

When weeds are thick, they will wrap on the propeller. This rarely stops the motor but it will drastically reduce performance. Motor slowly in weedy areas and when you are clear of the weed patch, the weeds are easily removed from the propeller by momentarily shifting into reverse.

If you do get a line caught on the propeller, it can be a major disaster. Take every precaution to avoid this! Severe engine damage may result and you will certainly lose use of the motor at least temporarily. If lines foul the propeller, shut off the motor immediately. Use the anchor to keep the boat from drifting away. The lines must be cleared by hand. Do not attempt to clear them by reversing the motor. Often it is necessary to get into the water with a knife to clear the lines. The most severe of these messes can only be removed in the shop when the boat is hauled out of the water.

Never start the motor until the line is completely cleared. **Never let lines dangle over the side of a motorboat** and be careful to steer clear of lines in the water, and you will never get one caught in your propeller.

Anchoring

A lee shore is the shore where the wind comes onto the land, blowing up large waves that crash hard onto the shore. Novice seamen often end up on the lee shore because anytime control of the vessel is lost, the wind immediately begins carrying it to the lee shore. Unless control can be regained before it runs aground, the vessel may be doomed. Maintaining steerage way, power, and the ability to anchor, are the three ways to avoid ending up on a lee shore. Good seamen are always extra cautious when near a lee shore. They make certain that steerage way, power, and time to anchor are always available.

The reason for carrying an anchor, and always keeping it ready to use, should now be clear. Steerage and power are both provided by the outboard motor. This is a mechanical device and it can fail. When this happens, the anchor is all that is left to keep a boat off the rocks. The anchor is one of the most important pieces of safety equipment on any vessel!

If you don't know how to anchor, you should ask for instruction and then practice with the help of an experienced person. It is a basic skill that can save lives and property. Anchoring techniques receive a great deal of coverage in many well known books on seamanship, so details are not given here. Unfortunately the topic is not covered in the Hooper Sailing Club instruction program, and the few who

know the technique seldom have cause to practice it on Lake Mendota. The main question when anchoring to keep off a lee shore, is when to deploy. Don't drop the anchor so early that it ends up in deep water with little scope left for holding. Conversely, don't wait until you only have time for one try! It often takes several attempts to get it set right.

The best anchor for Hooper Sailing Club is a Danforth type with a short piece of chain. It has two sharp triangular flukes that pivot on the shank. This style of anchor sets easily and holds well in the mud and sand bottom types commonly encountered. One problem with this type of anchor is weeds can easily foul it and prevent it from setting. Weeds are abundant for most of the year in depths below around ten feet. This means that it is extremely difficult to anchor below these depths.

Towing

Lower all sails and raise the centerboard, and have one person sit near the sailboat's stern and steer the sailboat so that it follows the motorboat.

If it is completely calm, and you tow slowly, you may be able to leave the sails up, but flogging the sails as you tow can cause damage. Also, the sails can tip the boat over. If a sailboat tips while being towed, the rig can be damaged severely.

Tow slowly because the towed boat has no way to stop quickly. Keep an eye on the boat you are towing because it could tip over, snag, etc.

Rig a towing bridle for boats larger than a Tech. A bridle improves ability to steer the motorboat so much that it is always worthwhile to rig one, and it is a mark of a good seaman to rig it properly. Rigging is best demonstrated but here are some pointers. Use line that is free of knots. Keep the length fairly short to minimize the chance of getting it caught in the prop. Secure the painter of the towed boat to the bridle with a loose bowline knot so it is free to slide along the length of the bridle.

Rescuing Techniques

The difficulty of rescues increases exponentially as wave size and wind speed increase. **Don't attempt any rescue or salvage unless you are sure you can pull it off without causing further damage or injury.** It is much better to allow a Tech to be dashed to bits on the rocks than to risk dashing a motorboat along with it. If the Tech made it to the rocks, the crew probably did too. If the sailors are safe, let them walk back to the pier.

There are an endless number of possible rescue scenarios, so it is hard to give general advice but here is a bit. Some specific techniques are outlined below in the hope that they can be modified as needed to suit the situation.

Don't compete with Harvey, cooperate with him. **If Harvey is present, their staff is in charge of the rescue operation. PERIOD.** If you can hail each other, and Harvey requests it, by all means help. If it is not clear that you can help, stay away or go rescue someone else.

It is recommended to **always do rescue operations with two people on the rescue motorboat.** Even the most seasoned captain can't pull off a rescue alone in rough conditions.

Make sure you are properly equipped before you go out. It is always worth it to take some time to prepare. Speed is just one part of the equation and if you rush out only to find you lack the proper equipment and personnel, you won't be of much help. Select a motorboat that is adequate for the task; if it is not seaworthy or too large to handle, it is of no use. In addition to the usual equipment, **bring line, a knife, wire cutter, and extra life jackets.** Dress for the occasion, put on a wet suit or foul weather gear if there is time, and **always wear a life jacket.**

Communication is extremely useful during a rescue operation. Grab a rescue radio if one is available. Try to coordinate efforts before you take off. If possible, phone Harvey and check in with other instructors and club leaders.

There are some specific types of rescue operations which are listed below.

Lee Shore Wreck Salvage

See the discussion on anchoring. It is hard to stand by and watch a boat being pounded, but pulling a boat off a lee shore with a motorboat is a difficult rescue to perform. The reason should be obvious, if the motorboat captain makes any mistake, his vessel will fall victim as well.

The key to success in this rescue is to never give up your ability to anchor. The only way you will ever have time to set the anchor is to do it before you go in near shore. In other words, don't wait for your vessel to lose power or steerageway, because if you don't have an anchor set at this point, you won't have time to deploy it!

Before you begin the rescue, set the anchor far to windward of the wrecked vessel, and ease the rescuing vessel toward the wreck by paying out anchor line. Extend a line to the wrecked vessel. This may be swum over, or if there is already some personnel on shore, the line may be attached to a float and the wind used to carry it to shore. Once the wreck is attached to the line, the rescue boat can haul in on the anchor line, carrying both vessels away from shore. The motor may be used to assist but be careful not to foul the lines.

Securing Rescue Motorboat After Use

Landing

At piers, it is best to do an in irons landing. Coast in on the leeward side of the pier. Don't come in fast and rely on reversing the propeller at the last moment. See the discussion on launching to find out how to place the boat at the pier after you land.

Land near the end of piers to be sure you have adequate depth. This is especially true on the shorter ones like the sailboard pier.

Raising Rescue Motorboat On Railroad

Motor boats are stored on wooden pallets that protect the hull from making contact with the metal rail car. Don't use the aluminum pallets because they are not designed to bear the weight. Of course, wood floats, so the pallets must be tightly bound to the rail car or else they will tend to float free before you can get the boat on the pallet.

The storage railroad and electric winches are dangerous if used carelessly. Keep people clear and always observe the boat as you raise it on the winch. Be sure it clears other boats and equipment as it moves on the track. Never run the winch unattended because if you don't stop it when you should, the boat may be drawn into the winch, and severe damage will result. Cables break regularly, so don't allow people to ride in the boat as you raise it. Also stay clear of the cable because a loaded cable can snap violently if it breaks.

To get power to the winches at the scow railroad, you must plug them in. The outlets are on the sea wall, just below the winches. These should be unplugged at night to prevent unauthorized use. A circuit breaker for these two winches is on the panel located on the back wall of the lake lab. This should be left on, but will automatically trip if the circuit is overloaded. Leave the Interlake winch plugged in at all times and secure it by locking the door of the winch locker.

Motorboats are much heavier than sailboats and they can tax the electric winches. For this reason, the heaviest boats should be raised on the strongest winches. Be sure you know which boat is stored on which railroad! **Currently, the strongest winch is the Interlake winch so the large, slow yellow (crane) boat is stored only there.** The two scow winches are equally strong.

If a boat has a lot of water in the bilge and/or the tank, a special technique must be used to raise it with the winch. Water in the boat increases the weight so much that it is certain to break the winch or the railroad if you raise it the usual way. The proper technique involves raising the boat so the water line inside the boat is a bit above the waterline of the lake. Open all plugs and let the water drain until the levels inside and out are equalized. Raise the boat a little more and repeat. In this way, the boat is raised gradually so the winch can handle it.

Securing On Land

Tie the boat down to prevent damage from wind and vandals. You may use the painter for this. Remove plugs so the tanks can drain. Place the plugs where they can be found by the next user. Nothing is stored in the boat.

Secure all gear in its proper place. Many items must be secured in locked storage. This is because safety equipment, like anchors, is vital to our program and their loss could temporarily shut us down! Of course these items are also expensive. One anchor set-up and the labor costs for acquisition and set up is well over \$100. An additional problem we face is club members and event organizers who don't understand the importance of such equipment borrowing and then misplacing it. When this happens, much time must be wasted in locating the equipment, and safety is compromised. Lock it up!

Part Three

Rescue Motorboat Training

Note to sailing instructors

Often students must launch a motorboat to get it out of the way so they can go day sailing. We must teach all students at the Interlake level and above the rudiments of putting a motorboat in the water. Incorporate this into every lesson. Above all, teach that plugs are required. Interlake sailors forget this because no plugs are required on the Interlakes! Every year many boats sink because people launch them without plugs. A trip to the bottom is very hard on expensive outboard motors. Also get in the habit of looking inside the motorboats when you pass. They sink so slowly that it is a wonder we don't catch it early more often.

Note to volunteer club leaders

Experienced club members often give welcome search and rescue assistance to instructors. They help pick up students, secure for storms, etc. If there are Hooper Sailing Club staff such as instructors or maintenance personnel present, volunteers must coordinate their efforts with these people. **Rarely is time so important that someone must jump in a boat and take off without coordinating.** Instructors should recognize and utilize volunteers with experience. There is no substitute for experience in rescue operations, so the person who has done the most rescue work operates the rescue motorboat.

Before using a motorboat, check in with the instructors to see if they have students that are still out on the water. Offer to assist in picking up students if you can. Never take the last motorboat unless you are certain it is O.K. Put motorboats away when you are done. Don't assume the security officer will clean up after you.

**Evaluation
criteria
checklist****Hoofer Sailing Club
Rescue Motorboat Training**

6/9/94

The evaluation criteria checklist is a list of what you need to know to get a motorboat rating. To be able to effectively use the motorboat, you should be able to accomplish all of these items.

1. Locate these items: life jacket, throwable cushion, anchor, light set, fuel tank, fuel hose.
2. Stow the anchor aboard with line ready to go.
3. Remove trash and unnecessary items.
4. Drain the air tanks, lockers, and bilge, then put in plugs.
5. Launch the boat, using two persons if there are waves. Fend properly as needed, position boat in proper location on pier. Tie bowline with enough painter length so boat clears pier.
6. Visually inspect the following for serviceability: painter, hull, seats, bulkheads, motor mount bolts, lock down pin for motor tilt mechanism, bailers.
7. Attempt to start the motor using procedure outlined in manual.
8. Driver, unassisted, secures boat to a mooring buoy by passing line through buoy and cleating back to safety boat.
10. Position the boat upwind of buoy facing downwind/down-current. Hold boat close to buoy by coordinating throttle, shift and steering.
11. Rotate boat in own length with throttle, shift and steering.
12. Land alongside a moored boat and retrieve a PFD from moored boat.
13. Shift to neutral before stopping motor with the ignition kill switch.

Discussion questions

1. Name five violations or warnings that staff members have received in the past from the Sheriff.
 2. When is it good to put some weight forward in the boat and when would you move weight aft?
 3. Why should you not engage the prop in shallow water and how far from shore should you stay?
 4. Name two dangers to be conscious of when planing.
 5. Explain what you would do if you find something missing or unserviceable when you inspect the boat?
 6. If weeds foul the prop, how do you clear them?
 7. Why should you never allow lines to trail from the motorboat?
 8. If rope fouls the prop, how do you clear it?
 9. Explain what a lee shore is. Why it is dangerous? What can you do to keep off a lee shore if you loose power or steerage?
 10. Name the type of anchor that should be used with the motorboat. What goes between the anchor and the rode?
 11. Explain how you tow a keelboat.
 12. Why should a bridle be used in towing?
 13. Give the specific reason for having two trained people in the motorboat to do rescues.
 14. Why is it best to wear exposure gear and life jacket for rescues?
 15. Why are rescues harder in heavy weather?
 16. Why does it matter which winch you raise a boat on?
 17. How do you raise a boat that is full of water?
 18. Name two problems that result when motorboat equipment is stolen or misplaced.
 19. Tying down boats on the rail reduces damage from what two sources?. When the boat is put back on the rail, where should removed items be put?
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