



**Woods Hole Oceanographic Institution
Coastal Ocean Institute**

**Guide
for
Small Boat Operators**

Revised February 2014

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Guide for Small Boat Operators

Introduction

The WHOI Coastal Ocean Institute-Rinehart Coastal Research Center (COI-RCRC) maintains a fleet of self-operated small boats for coastal research projects. The boats have traditionally been available on request for project use to all WHOI researchers who have been certified to operate them. This guide is intended to introduce all boat users to the COI-RCRC boat fleet and operating procedures. Users are expected to be familiar with the information presented here and to operate the boats using these guidelines.

Boats are maintained by the Institute in good working condition and meet all federal and state safety and licensing requirements. Users are required to complete a certification process prior to using the boats. In some circumstances, temporary certification may be issued while the certification process is being completed.

A day-rate charge will be assessed to the users project to cover the costs of maintenance and operation. Users are responsible for transporting the boats (by trailer or over water) to research sites, thoroughly cleaning the boats after use, refueling at project expense and storing all equipment in its proper location so that the vessel will be ready for the next user. A completed float plan is required for each trip.

A PFD (*Personal Flotation Device*) is critically important safety equipment and it is essential to wear one that fits properly. For this reason we recommend that individuals who need to work extensively from small boats purchase and maintain their own PFDs. WHOI - COI Policy is that PFDs be worn at all times you are underway, aboard a WHOI small boat.

For more information contact: Matt Gould, ext. 2639; mgould@whoi.edu (or Keith Bradley, ext. 3719; kbradley@whoi.edu) or Bebe McCall ext. 2418; bmccall@whoi.edu

Operator Certification Process

The certification process is initiated by contacting the Institute office to discuss your requirements.

[New Policy and Operational Changes for Small Boat Operators](#)

All small boat users at WHOI must be certified before a boat may be signed out. In order to be fully certified to use a COI small boat in support of WHOI projects, a user must:

- complete 1-day course in operation and safety;
- complete WHOI-taught certification in First Aid and CPR;
- provide a statement of experience, including courses taken and licenses held. If the experience statement indicates a lower skill level, the Power Squad Piloting course may also be required;

- be checked out on individual boats by “boat manager” (e.g., Matt/Keith for COI boats). Full certification is a boat-by-boat process as each one has unique characteristics.
- develop hands-on experience through “buddy program” if individual boat check-out indicates a lower skill level. COI will provide boat time and instructor salary time for this additional training.

Regular renewal of each of these certification training components will be required at the repeat cycle specified by the individual programs. Individual boat check-out will be at the boat managers discretion, based on level of experience and extent of recent use. It is the users responsibility to provide proof of completion of certification requirements to the COI staff.

Provisional certification, may be granted to provide temporary access to boats for new users. Provisional certification may be issued at COI discretion if a user has not fully completed all of the above requirements but is actively attempting to do so. Provisional certification is explicitly temporary; the user will complete all certification requirements at the earliest possible time while using boats provisionally.

To promote safety and proper use and care of equipment we expect all boat users to be knowledgeable of the following:

Elementary Seamanship

- Boat types and terminology
- Evaluation of equipment prior to departure
- Evaluation of weather conditions
- Load distribution
- Boating courtesy
- Wind, waves and current
- Anchoring
- Refueling
- Emergency situations
- First aid

Federal, State and Local Laws

- Registration
- Required equipment
- Accident reporting
- Diving operations
- Life preservers
- Responsibility for wake

Charts and Aids to Navigation

- Determining your position
- Determining water depth
- Chart scales
- Aids marking sides of channels
- Daymarks

Basic Navigation

- The mariner's compass
- Plotting a course
- Steering a course

Marlinspike Seamanship

- Cleat hitch
- Round turn and two half hitches
- Bowline
- Coiling a line

Highway Towing & Boat Launching

- load security
- ”rules of the road”

Boat-to-Shore Communications

- cell phone
- VHF
- range limits

First Aid

- first aid, CPR

Center staff will schedule time to introduce a new user to the fleet and boat facilities. Additional time may be required to discuss or evaluate a user's familiarity with boat operation, trailering or launching/recovering boats. Re-introductions will be required for former operators who have not operated a RCRC boat for a full season, and recertification may be required in instances of long-term inactivity.

Small boats work in remote locations and significant time may pass before an injured person can be returned to port. All certified boat users must complete the WHOI "First Aid" training class, including basic first aid, and CPR.

With support from COI-RCRC, the Buzzards Bay Power Squadron conducts a Basic Boating Safety course at WHOI each winter. This course provides an opportunity for inexperienced boaters to gain exposure to small boat operation, navigation and safety issues. Experienced boaters attend the course to brush-up on their skills. Certificates of completion are awarded to attendees. All certified boat users are strongly encouraged to complete this course. Inexperienced users may be required to take it. Call the Center office (x2418) for more information.

**At least two people must be onboard vessels while underway.
A cognizant person and a float plan (see below) is required for every trip.**

A summary of the Certification requirements is appended as Appendix 1.

Signing Out A COI Boat

Boats are reserved on a first-come, first-served basis; we recommend that operators make reservations for a boat as soon as a date for project field operations has been set. This will improve the chances of securing the boat best suited for your needs and gives those managing the fleet adequate time to insure that the vessel will be prepared for your use. Last minute reservations will be considered on an as-available basis.

1) To reserve a boat, call the COI-RCRC office (x2418). Be prepared with the following information:

- Dates the boat is required, including weather days
- The specific location of work
- Name of your cognizant person (for non-Woods Hole area work)
- Number of personnel onboard
- Project number

You will be given the padlock combination to the outside stockade area (for boats that will be trailered) and to the boat lockers in the village (next to the carpentry shop and Redfield dock).

2) The procedures for taking a boat are:

Complete a Float Plan. See Appendix 2, or blank forms are located: a) on a clipboard hanging inside the boat locker door, b) and are on file with the Smith front desk, and c) downloadable from the COI website (<http://www.whoiedu/page.do?pid=12935>).

RCRC staff will maintain the readiness of the boat but it is the operator's responsibility to make sure all essential equipment is physically aboard before departure. A plastic toolbox clearly marked with the name of the vessel contains items that must be taken on the boat (e.g. boat keys, safety equipment). Be sure to complete the checklist on the float plan to verify that all gear is aboard. Specifically describe your area of operation and the type of work you will be doing on the Float Plan. Prior to departure check fuel and oil levels, check for the boat registration and recount the number of life preservers on board.

Once underway, the operator is responsible for the safety of the crew and is legally responsible for insuring that the vessel meets all federal and state requirements.

3) Bad Weather:

COI small boats may not be operated during inclement weather in any season. Immediately prior to every trip (i.e., the same day) it is the operators responsibility to: a) check the local weather forecast (e.g., see the websites below), b) consider sea conditions at the planned worksite based on that forecast and c) make a prudent decision whether or not to leave the dock. A COI small boat absolutely should not leave the dock when the local "small craft warning" is posted. It is the operators responsibility to give priority to safety issues, even if it means that essential work will be postponed.

Three useful URLs provide current weather conditions and forecasts:

MVCO

<http://mvcodata.whoiedu/cgi-bin/mvco/mvco.cgi?Units=Metric>

NWS Forecast

<http://seaboard.ndbc.noaa.gov/data/Forecasts/FZUS51.KBOX.html>

The Weather Underground, Inc.

http://www.wunderground.com/US/MA/Woods_Hole.html

Please bookmark these websites and make a habit of using them regularly.

4) Care in operating the boat:

While operating the boats treat them carefully. Research boats are exposed to a harsh environment but a little foresight can avoid another scrape or broken rail. Fenders and lines are available for each boat, please use them. Damage to the boats or accessories due to misuse or failure to follow guidelines will result in direct charges to the users project.

5) Returning:

When you return from a trip contact your cognizant person at once. The operator is responsible for refueling the boat, washing the boat and returning all equipment to its proper location. Wash stations and portable fuel cans are maintained at both the Iselin slips and the Coastal Research Lab outside boat storage area.

If you have comments or have noted any problems with the boats or equipment please make a note in the appropriate section of the float plan. These user comments are an important part of our maintenance procedures. All boats will be inspected by Center staff after being returned.

The Cognizant Person

In order to insure the safety of boat operators and crew it is imperative that a responsible "cognizant person" be identified in the Float Plan (A Float Plan must be completed before departure). For trips originating at WHOI, the cognizant person will be the Smith lobby front desk staff (receptionists & guards). For trips originating away from WHOI, the boat user is responsible for identifying a local cognizant person and for providing a Float Plan and local emergency contact information to that person.

Cognizant Person Responsibilities

The responsible cognizant person will:

- Make sure Smith Lobby marine radio is turned on Ch 19A.
- Know the location of the worksite and intended travel routes.
- Know the expected time of return.
- Remain available to receive notification until the boat and crew have returned safely.
- Know where to locate the float plan for detailed information of the equipment and crew at departure.
- Know emergency procedures and be prepared to take appropriate action if the boat does not return at the specified time.

If the boat operator expects delays in returning he/she must make every effort to notify the cognizant person by cell phone or VHF radio.

Appropriate Action by Cognizant Person

The COI-RCRC places strong emphasis on adherence to cognizant person responsibilities. If the boat and crew have not returned within 1 hour of the ETR the cognizant person should first contact the COI-RCRC representative at home and/or at work to advise them of the situation. If the COI-RCRC representative cannot be reached at once, keep trying. Speak to a person, do not simply leave a voice message. Once contacted, the COI-RCRC representative will assume responsibility for initiating search rescue.

If the cognizant person has not reached any COI staff within one hour (i.e., 2 hours overdue), call the U.S. Coast Guard directly. Advise them that a boat is overdue. If weather conditions are worsening, do not wait the full 2 hours. Use the completed float plan and boat description to provide trip and vessel details to the Coast Guard. Follow the Coast Guard instructions once you have contacted them. Continue to try to reach a COI representative.

COI representatives:

Matt Gould	office: x2639 home: 508-540-0885
Keith Bradley	office: x3719 home: 508-548-6212

Note: During normal working hours if above cannot be reached, call Bebe McCall at x2418.

Coast Guard Station Woods Hole: 508-457-3211.

The cognizant person will automatically initiate emergency search and rescue procedures if a boat is overdue by more than one hour.

Fee for Use

A cost center has been created to cover direct COI-RCRC expenses for boat maintenance, training, record keeping, etc. and a fee-for-use is charged to all users. A project number will be required at the time a reservation is made. Boats will be charged in half-day units; loading time and post-cruise cleanup will be included in the time charged. Boats trailered to distant locations will be considered "in-use" for the full time away from WHOI. New funding proposals should include a budget line item to cover the cost of boat use according to the schedule found on the WHOI Controller website <http://cis.who.edu/who/gcs/whoigrants/webrates/current.cfm>.

A small COI-RCRC fund is available to be used as cost share in funding proposals. Support from this fund may be requested in the same manner as other requests for COI funding support (contact Chris Reddy, x2316 or Andrew Daly, x2852).

Outside Users

The COI-RCRC small boats are owned and maintained for the use of WHOI employees and their research collaborators. Institute boats may be made accessible to non-WHOI users who are collaborating with WHOI staff. A project number needs to be established to pay for direct costs and the WHOI collaborator may schedule the boat in his/her name. For further information, contact:

Bebe McCall
Coastal Ocean Institute & Rinehart Coastal Research Center
Woods Hole Oceanographic Institution
98 Water Street, MS#10
Woods Hole, MA 02543
Tel. 508-548-2418

Distant and Long Term Use of Boats

The primary intent for the COI-RCRC boat fleet is for local short-term use (i.e., WHOI-based, day-to-day). This allows for scheduling of multiple users and for regular maintenance. Trailering to distant work sites may be possible as long as other users do not lose all access to a small boat. Distant use places additional responsibilities on the user as normal WHOI facilities and COI-RCRC staff are not available. User must request distant use in writing (or email), including a detailed description of the type of fieldwork to be performed and the gear to be used. Please explain why a WHOI boat is the preferred alternative. Also, identify the local (on-site at remote location) cognizant person who will be available in emergencies. The COI-RCRC will review requests to use the boats away from WHOI and reserves the right to modify or decline requests where appropriate. Exceptions to the intended WHOI-based, short-term use may be made if:

- Use of a commercial charter vessel at worksite has been investigated and found to be inconvenient or impossible.
- Scheduling demands of other WHOI users permits.
- A WHOI-certified operator will be in charge for all remote operations.
- Sampling plans make appropriate use of boat.
- Operator is able to accomplish boat and trailer maintenance during distant operations.
- A local cognizant person has been identified.

If distant use is approved by COI-RCRC, the user must request extended insurance coverage at this time.

The vessel and trailer will be serviced by Institute staff before departure. The boat will be loaded to the trailer by COI-RCRC staff in the presence of the user, in order to teach proper tie down security. The boat user will be responsible for loading the boat and vehicle with scientific and safety gear. COI-RCRC staff will supervise the loading to insure safe and careful transport.

Upon return, the trailer will be serviced at the WHOI mechanical shop at the expense of the user's project.

Long Distance Towing

Drawing from previous remote site experience of our boat users, we have developed the following procedures for over-road towing in order to protect the user and the boat.

1) Pre-cruise planning and preparation

The vehicle driver will need to be thoroughly familiar with towing heavy trailers over the highway. The trip will probably include highway travel, maneuvering in heavy traffic and backing. Flat tires, shifting of loads and other dangerous surprises may occur. You need to be prepared to deal with these circumstances efficiently and safely. We are fortunate to have several people at WHOI who have extensive experience in trailering heavy loads; consider recruiting an experienced driver for the over-road travel legs of your trip.

An appropriate vehicle for local hauls (e.g., Cape Cod, South Shore) may be scheduled through the WHOI facilities office. WHOI trucks are equipped with class III hitches and the 2 $\frac{5}{16}$ " (Mytilus) or 2" (Calanus) ball, required by the boat trailers. The trailer lighting connector plugs directly into the truck bumper. For hauls greater than 75 miles we strongly recommend renting a large chassis vehicle (e.g., 15' Ryder box truck). These vehicles pull a heavy load smoothly, minimizing swaying and bouncing. This reduces drifting in highway lanes and driver fatigue. In addition, the lockable cargo area of the truck is large enough to transport and secure project gear. You will need to replace the tow ball on the Ryder truck with a 2 $\frac{5}{16}$ " ball. WHOI Shop services can assist with this. For signal lighting an adapter is included in the trailer box that has bare leads for connecting to the truck lights. The bare wires hook directly into the Ryder bumper as follows:

<u>Trailer light cable</u>	<u>Ryder truck</u>
black	left turn signal
green	right turn signal
red	tail and brake
white	ground

NOTE: the trailer leads on a Ryder trucks may have been altered by previous renters. Allow sufficient prep time to deal with such mini-emergencies prior to departure. Technical assistance is available from the WHOI vehicle mechanic, Troy Kelley, ext. 2415. It is the driver's responsibility to maintain functioning signal and brake lights during the trip.

Be familiar with the intended work area before you start operations in unfamiliar waters. Arrive on-site prepared with tide tables, local charts and a plan for launching, storing and recovering the boat. Have a "cruise plan" prepared for how you will operate in distant waters, including responses to emergencies and storms. Where possible, work with a local scientist who

knows the waters. It is essential that you use a local cognizant person who is familiar with area conditions when using a COI-RCRC boat at remote locations and that you file a Float Plan with him/her.

2) Loading the Boat onto a Trailer

COI-RCRC staff will load and secure the boat onto the trailer, with direct assistance from the user (the user will have to repeat this process alone for the return trip). Loading may be done up to 2 days prior to departure, if scheduling permits. Time for use of the WHOI crane and for COI-RCRC staff time will be charged to the users project number. The weight of the *Mytilus* is 6,400 lbs. with full fuel (80 gallons), 5,830 lbs. empty. Although this is below the trailer capacity, the trailer performs more comfortably on the road as the weight is reduced. Contact the users who have scheduled the boat before you and encourage them to postpone refilling the fuel tank until your return. This will reduce the trailering weight (by about 650 lbs.) and will reduce over-the-road hauling of flammable fuel. Upon return, fill the fuel tank in Falmouth before coming into Woods Hole. Only a short 4 miles with full fuel and helps a great deal. Ensure that all tools you will need are in the trailer box provided. Loading and securing tasks are:

- Secure the hull to the trailer with three 2" ratchet straps (supplied). One strap runs over the bow, one over the stern and one amidships.
- If leaving overnight, ship any electronics and other easily removable gear in the tow vehicle to avoid theft.
- Lower and tie down all antennas. Use chafing gear where rubbing might occur.
- Transport as much loose deck gear and all scientific equipment in tow vehicle, especially large items.
- Lock engine in "trailering" position.

Loading and inspect the loaded trailer prior to departure. Loading for distant use will take approximately two hours if all goes smoothly; be sure to schedule adequate time to accomplish this essential task properly.

3) On the Road

While traveling, pull over and check the boat and trailer frequently. Check the tires, tie downs, lights, hitch and safety chains at every stop. Ensure that ratchet straps are tight. Other travel suggestions include:

- Park in well lit areas and secure loose items.
- The truck, boat and trailer weight will be between 9,000 and 12,000 lbs. depending on scientific gear weight. Follow traffic at a prudent distance, leaving plenty of room to stop.
- Use the beltways around major cities and time your travel to avoid rush hours.
- Use your seat belt; do not exceed posted speed limits.
- Make frequent rest stops.

- The minimum allowable overhead clearance for the trailered boats is 12' 6". This is fine for highway travel, but some rural locations may have lower bridge clearances. If your travel plans take you to rural locations, you may need to contact local authorities beforehand to determine an appropriate route.

4) Launching and Recovering

Launch and recovery operations are dangerous and the operator must take extra care at this time. Learn local conditions and plan to carry out these operations during high tide. Be cautious of slick ramps and steep pullouts.

- Regrease trailer wheel bearings prior to entering water. Every time!
- Launch/recover at high tide.
- Transfer much of the boatload to the tow vehicle to reduce weight.

When you are towing or operating COI-RCRC boats you are representing WHOI to the people who see you. On the road or at the dock keep the boat clean and squared away!

Towing with Private Vehicle

COI-RCRC strongly discourages towing with a private vehicle. The load is very heavy. If you plan to tow with your own vehicle you will need to certify, using manufacturer specs, that the private vehicle is capable to haul the given weights. Also, the vehicle owner (and his/her vehicle insurance) will be fully responsible for all personal injury and/or property damage that may occur. WHOI insurance does not cover private vehicle towing. The WHOI trucks have been outfitted with appropriate hitches and trailer light-bar connections for all small boat towing. It is expected that these vehicles will be used for transporting small boats. WHOI trucks can only be used to move the Mytilus around Woods Hole. No longer can most WHOI trucks tow Mytilus off-site. Only truck 24 (fee). For off-site, a 15' box truck, or better, is needed.

Insurance

WHOI carries liability insurance to cover damage to others. This insurance coverage has strict geographic area and distance-from-shore limits. If you expect to operate outside these limits, it is the operators responsibility to ensure that insurance coverage is extended (at project expense). COI-RCRC boats may be operated in / near the coastal waters up to (but not beyond) twenty (20) miles offshore of the East Coast but operations in the following areas must be declared prior to the operation:

- Any operation north of 52 degrees 10' N. Lat. And west of 50 degrees W. Long
 - Any operation in the Gulf of St. Lawrence, its connecting waters and the St. Lawrence river between December 21st and April 30th both days inclusive
 - Any operation west of Baie Comeau, but not West of Montreal between December 1st and April 30th both days inclusive
 - Any operation in the Great Lakes or St. Lawrence Seaway or St. Lawrence River west of Montreal
 - Any operation in Greenland or its adjacent waters
- The rowboat is to be operated only in sheltered ponds.

Caution: the outer range of this limit may tax available communication equipment; it is the operators responsibility to maintain contact with his/her cognizant person.

WHOI carries no hull insurance on the RCRC fleet except for the *Mytilus*, and this coverage has a large deductible. Individual users may be responsible for damage to boats caused by misuse or neglect.

Science equipment used at sea is not insured. To arrange for over-the-side insurance, users can fill out the WHOI form provided by the Facilities Office at the URL: <http://cis.who.edu/administration/FandA/internal/OTSRequest.cfm>

Winter Use of Small Boats

Research from small boats during winter introduces additional safety problems beyond normal seamanship concerns. Docks and decks may be icy, bulky clothing and gloves restrict movement, and the water is deadly cold. Floating ice and freezing temperatures are extremely hard on fiberglass hulls and instrumentation. Careful planning, preparedness and experience allows for successful winter fieldwork, but scientists must give extra time and attention to safety issues when working at sea in cold water temperatures.

The availability of boats during the winter will be limited only to experienced operators and COI-RCRC staff will consult with individual operators on the weather immediately prior to a trip. Winter operators need to be especially cognizant of survival skills and such issues as vessel preparation and limitations, use of emergency equipment and survival suits. When working in winter, the boat operator should be assigned exclusively to boat operations and should not be asked to double as a scientific assistant.

**Researchers requiring winter boat use are strongly encouraged to
use the 24' *Mytilus***

Mytilus is the principle small boat for winter use. It is hauled each winter for a 2-4 week service period but is otherwise berthed at the WHOI boat slips to allow immediate access to local waters. The enclosed and heated pilothouse of the *Mytilus* provides cover for personnel and equipment.

Mytilus has three buoyant worksuits (Class V Thermal PFD worksuit) available for use. Cold weather working conditions greatly increase the chances of falls on the docks or overboard. Even brief immersion in cold water rapidly reduces body temperature and causes hypothermia. When the local water temperature is below 50 degrees F., all persons onboard COI-RCRC vessels are strongly urged to wear a buoyant worksuit. These suits are widely used by seagoing researchers at WHOI and are comfortable to wear. Proper use of the worksuits will extend the expected survival time of a person in cold water beyond the times given below in Table 1. Additional buoyant worksuits may be borrowed from the rigging shop (Rick Trask, x2395) on an

“as available” basis. During unseasonably mild air temperatures during wintertime, all persons on board should wear the type III workvest, or equivalent. Plan ahead; working in winter requires it. The boat operator should inventory and inspect the suits before each trip. The number of personnel onboard may not exceed the number of buoyant worksuits available under any circumstances. Be sure that each passenger is able to locate and put on a worksuit if necessary. It is important to wear a buoyant worksuit that fits properly. For this reason we recommend that individuals who need to work regularly from boats during winter purchase and maintain their own. COI-RCRC maintains three thermal buoyant worksuits, which are available for loan to those occasional users who do not have their own. In addition to the worksuits, the Dive Safety Office has hypothermia bags available for loan and anyone involved in cold-season work should borrow one.

Table 1:
How Hypothermia Affects Most Adults

Water Temperature (F)	Exhaustion or Unconsciousness	Expected Time of Survival
32.5	Under 15 min.	Under 30 min.
32.5 to 40	15 to 30 min.	30 to 90 min.
40 to 50	30 to 60 min.	1 to 3 hrs.
50 to 60	1 to 2 hrs.	1 to 6 hrs.
60 to 70	2 to 7 hrs.	2 to 40 hrs.
70 to 80	2 to 12 hrs.	3 hrs. to indefinite

(ref. U.S. Power Squadron)

Not only is winter work on the water more dangerous, but getting to your worksite is also more difficult in winter. Many public launching ramps are not maintained during winter and may be dangerous or impossible to use. Do not tow trailers unless roads are dry and completely clear of snow and ice. The COI-RCRC small boats should not be used under marginal road or sea conditions.

Ancillary Equipment Available Through COI-RCRC

COI-RCRC has assembled a variety of ancillary equipment, which is separately available for loan to WHOI researchers. In some cases, a calibration or use fee may be charged to the user. Short term use, or use in conjunction with the COI-RCRC small boats will be given top priority. Use of equipment may be reserved by calling Bebe at the COI-RCRC office (ext. 2418).

- Hand held VHF radio

- Hand held DGPS
- Buoyant worksuits, (Class V thermal PFD worksuits) for use with COI-RCRC boats only
- 2000 watt gas powered generator
- Cellular telephone
- A longer list of available scientific instrumentation (e.g. CTD) may be found on the COI-RCRC web page.

Diving from a Small Boat

WHOI maintains a strict diver training and certification program. All scientific diving must be done under the auspices of this program following the procedures outlined in the Institution's Diving Safety Manual (DSM). The WHOI Dive Safety Program is described at URL: <http://www.whoi.edu/page.do?pid=13298> and copies of the Manual are available in hard copy and PDF from the Dive Safety Office. A copy of the latest version of the WHOI DSM must be available on board during diving operations and a WHOI-approved dive plan must be appended to the Float Plan when making a boat reservation. An appropriate "diver down" flag must be flown at all times divers are in the water. COI-RCRC strongly recommends that boat operators who regularly take out divers should be certified in Diver First Aid and oxygen administration. When diving is included in the small boat cruise, a diver emergency oxygen kit must be aboard (available from dive locker).

Personnel safety requires that the boat operator will not participate directly in any dive operations. The boat operator must be fully available to maneuver the boat as required by divers in the water. The boat operator has the ultimate responsibility for the boat and crew safety. He/she has the authority to modify or cancel dive operations based on his/her interpretation of weather and sea conditions.

Boat-to-Shore Communications

The boat operator is responsible for maintaining communications with his/her cognizant person and with the US Coast Guard or other emergency services. Do not work beyond the range of on-board communication tools (i.e., know the range limits). Be very familiar with both cell phone and VHF operation, emergency contacts, and protocols. Monitor the VHF radio at all times while under way and on station.

VHR Radio Telephone Guidelines

Avoid excessive calling. Make calls as brief as possible. Give name of called vessel first, then "This is (name of your vessel)," your call sign, and the word "over". (NOTE: transmission protocol: "over" implies a response is expected; "out" states end of transmission) If the station does not answer, delay your repeat for 2 minutes, then repeat the call.

Channels:

16 Distress and safety. Ship-to-shore and ship-to-ship. Monitored 24hrs./7 days per week by US Coast Guard. NO ROUTINE MESSAGES are allowed on channel 16.

09 Calling frequency for commercial and pleasure craft in New England waters. Use channel 09 to establish contact then switch to a working frequency. (e.g. channel 19)

13 Bridge-to-bridge communications. Monitored 24hrs. by commercial craft.

19 Working frequency.

For more detailed information refer to the "Radiotelephone information" pages in the Eldridge tide and pilot book, available on each boat.

Research Vessel *Tioga*

The principle WHOI coastal research vessel is R/V *Tioga*. *Tioga* replaces *Asterias* which was the Woods Hole Oceanographic Institution's first research vessel, delivered in June of 1931. *Tioga* follows the model of her successor and has become a part of the Oceanographic's continuing commitment to coastal research.

R/V *Tioga* is operated by a licensed captain and can be scheduled for research use through the WHOI Port Office (x3322). Captain Ken Houtler can be reached directly by cell phone (774-863-0054). The *Tioga* has a significantly greater operational range and capability for handling heavier gear and should be used for trips when increased capabilities are required.

The COI Coastal Research Fleet

12' Orzrus

Daily Rate: no cost
9.9 HP outboard available at \$20



Equipment

6½' Oars

Danforth Anchor w/100' $\frac{3}{8}$ " nylon line

This rowboat is used for research support in harbors and ponds. It allows users access to waterways where engines are not permitted or feasible.

13' Limulus

Daily Rate: \$224



Characteristics

Length: 13 ft.
Beam: 5 ft.
Freeboard 10 in.

Equipment

25 HP Yamaha, 4-stroke, tiller-arm outboard
8 lb. Bruce anchor w/100'
of $\frac{3}{8}$ " nylon line
Galvanized steel trailer

Easily trailered, the 13' Whaler can provide access to areas not suitable for larger vessels. It is most commonly used as a platform for nearshore research tasks and for shuttling equipment and personnel.

21' Calanus

Daily Rate: \$506



Characteristics

Length: 21.8 ft.
Beam: 8 ft.
Draft: 2.5 ft.
Fuel: 62 gals., gasoline
Speed: 25 kts.

Equipment

Propulsion: 115 HP Mercury
Outboard
Tackle: 16 lb. Bruce anchor
w/250' of $\frac{1}{2}$ " nylon line
Hot Dipped Galvanized trailer

Electronics

DGPS: Furuno GP36
Depth Sounder: Furuno RD30
Transducer: Furuno 235KHZ
VHF Transceiver

In order to provide researchers with convenient access to Great Harbor, Vineyard Sound and Buzzards Bay, the Calanus is berthed from April through October each year. It may also be trailered to remote locations. Deck space is approximately 100 sq. ft. This vessel provides a wind/spray shield and center console.

Mytilus

Daily Rate: \$568



Characteristics

Length: 24 ft.
Beam: 8.5 ft.
Min. Height: 8 ft.
Draft: 1.5 ft.
Fuel: 80 gals., diesel
(8-12 gph cruising)
Cruising speed: 18 kts.
Maximum speed: 24 kts.

Equipment

Propulsion: 210 HP Volvo Penta
Turbo Diesel with Duo-Prop
outdrive
Tongue: Bluefin Trim Tabs
Tackle: Davit with windlass
(Max. Capacity) 250 lbs.
Deck space: 66 sq. ft.
Diesel Cabin Heater in winter
Galvanized steel trailer

Electronics

DGPS: Northstar 941DX
DGPS: Furuno GP-36
Radar: Furuno 1721 MK2
Fathometer: Furuno LS-6000
Marine radio: GX1250S Horizon
Eclipse+
AC Power: 1000W inverter

Recent (2004) repowering with a diesel I/O has expanded this vessel's versatility. Since launched in the spring of 1990, the *Mytilus* has become the most heavily used COI-RCRC boat. Her large deck area, dry cabin and shallow water mobility make the *Mytilus* a versatile and popular coastal research vessel. *Mytilus* is normally berthed at the W HOI boat slips to allow convenient access to local areas but may be hauled and trailered by users to remote work sites. Those wishing to obtain user certification for *Mytilus* must have extensive experience in the operation of boats.

Research Vessel *Tioga*



Capabilities

High Speed -- 20 kts Cruising

- Efficient access to coastal waters, including Martha's Vineyard Observatory, Massachusetts Bay
- Operate within narrow weather windows
- Cost effective use to distances of 150 miles (e.g., New York Harbor, western Gulf of Maine)

Seaworthy, Capable Design and Operation

- Handle coastal moorings - 4,600 lb A-Frame; powerful winch and capstan
- High-quality diver support - dive platform, big shower
- Tow new instrument systems - versatile fantail, boom
- 3-point moor in moderate sea states
- Endurance 2-3 days - usually 1 day
- WHOI operator expertise

Competitive Day Rate: \$2,950/day

- Cost-effective for instrument testing, coastal studies, education
- Single operator for day trips

State-of-the-Art Instrumentation

- Flow-through water sampling
- ADCP
- Full Met measurements
- Clean power
- Dedicated CTD, conducting wire winch

For additional information visit Marine Operations web site:
http://www.whoi.edu/marine/ndsf/research_vessels/CRV/index.html

WHOI SMALL-BOAT OPERATOR TRAINING & CERTIFICATION

BACKGROUND

Traditionally, RCRC-COI maintained an informal certification program for WHOI staff who borrowed COI small boats. This certification included: a statement of experience; an a COI-prepared Operators Guide; facilitation of an introductory Power Squadron course at WHOI; an informal on-boat check-out by the COI boat manager, Matt Gould; and an annual boat safety inspection by the R/V Tioga captain K. Houtler, (or by someone designated by the Port Office Ship Operations Manager). Documentation of operator performance was limited. With the recent addition of project-supported boats to the WHOI “fleet”, some operators did not even receive that much oversight and there were no regular required safety inspections of boats and equipment.

In March, 2000, a small-boat accident in the Gulf of California cost the lives of five researchers from the University of California at Davis and colleagues from the University of Kyoto. This tragedy prompted WHOI to review in-house training of small boat operators and to adopt a more rigorous certification program to ensure safe handling and operation of small boats involved in WHOI research. This task was delegated to the Coastal Ocean Institute.

Using the existing WHOI course “Safety for Scientists at Sea” as a general model, COI built on it’s traditional training base and developed a small boat training course. This day-long operator training course is now offered to all WHOI staff who use small boats.

WHOI CERTIFICATION

Starting in 2003, all small boat operators at WHOI must be certified before any small boat may be used in support of WHOI projects. The WHOI Coastal Ocean Institute (COI) implements the training and certification program, with advice and support from the WHOI Port Office, the WHOI Safety Office, and the Vice President for Marine Operations. COI maintains operator certification records and the COI boat manager (M. Gould, X2639, mgould@whoi.edu) is the point-of-contact for questions about training and certification.

In order to be fully certified to use a small boat in support of WHOI projects, a user must:

- complete the 1-day in-house operator training course;
- maintain WHOI-taught certification in First Aid and CPR;
- provide a statement of experience, including courses taken and licenses held. If the experience statement indicates a lower skill level, the Power Squad Piloting course may also be required (COI will reimburse out-of-pocket expenses);
- be checked out on individual boats by the appropriate “boat manager” (i.e., COI or project). Full certification is a boat-by-boat process as each one has unique capabilities and characteristics. Individual boat check-out will be at the boat managers discretion, based on level of experience and extent of recent use on each boat.
- be familiar with the contents of the COI Boat Operators Manual
- improve hands-on skills through the “buddy program” if individual boat check-out indicates a lower skill level. COI will provide boat time and mentor time for this additional training.

All boat operators will be classified into two categories:

- all-weather
- fair-weather

Provisional certification may be granted at the boat managers discretion to new operators to provide temporary access to boats. Provisional certification is intended for new users who have demonstrated competence but who have not fully completed all of the certification requirements. Provisional certification is explicitly temporary; the operator will work aggressively to complete all certification requirements at the earliest possible date while gaining provisional access to the small boats. Provisional certification may include use-restrictions similar to the 'fair-weather' classification.

Very skilled operators may request a waiver of the 1-day in-house training requirement if he or she can provide documentation that equivalent (or better) training has been successfully completed elsewhere. This equivalent training must be recent and cover similar content materials at the same (or greater) level of detail. The requirement for WHOI First Aid and CPR training may not be waived.

Provisional certification will be granted for a 6-month period, subject to review at the end of that time. The initial 6-month probationary period may be extended once (for a total of 12 months) if the new user has demonstrated that full certification is personally a high priority and that a sincere effort to complete all certification requirements is being made. Temporary provisional certification will be automatically terminated at the end of the 6-mo (or 12-mo) period if progress toward certification is not being made.

The 1-day operator course be repeated at 3-year intervals, but recertification of active operators will be less intensive, requiring only a summary refresher lecture and an on-board skills test conducted by the boat manager. COI boat operator's use is recorded in the Float Plan; project boat operators need to provide documentation of boat use. It is the users responsibility to provide proof of completion of certification requirements to the COI staff.

All small boats at WHOI must meet all US Coast Guard and WHOI safety standards at all times. All boats will be inspected annually to ensure that boats remain in good operational condition and are in full compliance with safety standards. The WHOI-certified operator is responsible for meeting all standards on a trip-by-trip basis.

In addition to the training to meet operator certification requirements, COI supports all boat operators with on-going communication. For example, an Operators Guide prepared by COI staff has traditionally been provided to each COI boat user. This document is the primary method of communication with all users and can be considered the operators "bible". It is distributed to new boat operators in hard copy and may be found on the web at URL:

<http://www.who.edu/page.do?pid=8032>

Short-term communication is also important to keep users up-to-date with changes to the boats and with boat-related issues. COI maintains a "boat user" email communication list for direct communication with WHOI small boat operators.



WOODS HOLE OCEANOGRAPHIC INSTITUTION

SMALL BOAT FLOAT PLAN

Boat Name: _____

Boat Operator: _____

Operator's signature acknowledges that operator & crew understands their roles for the "cruise"

Cognizant Person: Front Desk (WHOI)/ _____ (Away)
(508) 548-1400

Departure Time and Date: _____

Estimated Time of Return (ETR) and Date: _____

Check local radio or internet weather

Nature of Work: _____

Area of Work: _____

Travel Routes: _____

Scuba Diving Plans: Yes _____ No _____ Depth _____ No. of Dives _____
(Diving Equipment: Rope and Ladder)

List Trip Participants & Job

Small Boat Office Use Only

_____ Day(s)

Project # _____

EQUIPMENT CHECK

(Note not all items on equipment check list apply to each boat)

Boat Equipment Check

Safety Equipment Check

_____ Oil level

_____ #PFD's**

_____ Fuel level at Departure (Gals.)

_____ Fire Extinguisher(s)

_____ Charged Batteries

_____ First Aid Kit

_____ Tools

_____ Cell Phone (No. _____)

_____ Engine Hours

_____ VHF Radio, DGPS

_____ Nav. Aids (charts, compass)

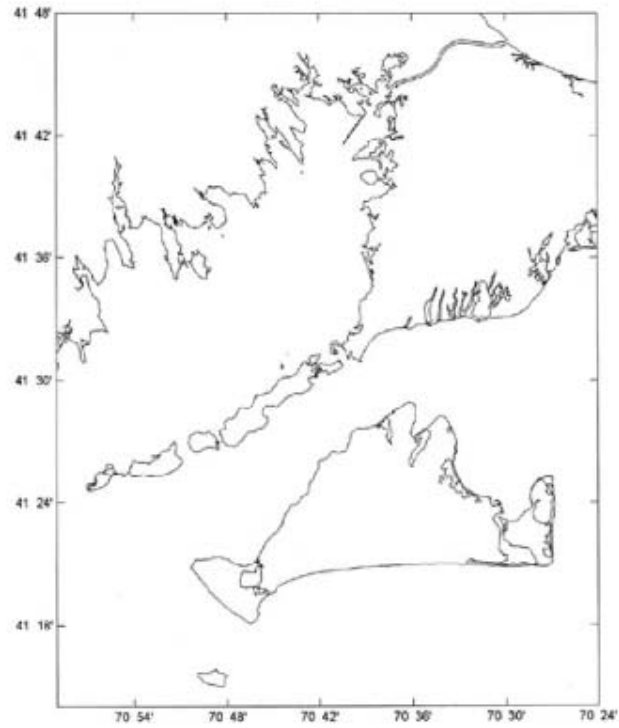
_____ Paddles (Calanus), Bailer, Anchor

_____ Ditch case

** State and Federal required safety gear, USCG recommends that all persons wear PFD at all times.

When the water temperature is below 50°F, use of thermal bouyant worksuits are encouraged.

Local Area Chart: Please circle general area of research for WHOI-based departures and include route of travel



COMMENTS/DEFICIENCIES (please let us know):

At Conclusion of Cruise:

- | | |
|--|--|
| <input type="checkbox"/> Turn off Main Battery | <input type="checkbox"/> Refuel Boat (if needed) |
| <input type="checkbox"/> Tilt Engine Up (Calamus) | <input type="checkbox"/> Rinse off boat and gear with fresh water |
| <input type="checkbox"/> Turn off Circuit Breakers | <input type="checkbox"/> Store all gear including the boat in the proper |
| <input type="checkbox"/> Fuel level at Arrival | |
| <input type="checkbox"/> Engine Hours | |