UNLV BUSINESS AFFAIRS
Risk Management & Safety

UNLV Boating Safety Guidelines

Introduction

There are inherent dangers associated with working over and around water. No measurement or sample is worth putting yourself or your fellow researchers or students in danger.

DO NO HARM…… Safety must be the first consideration in deciding if, when, where, and how to take a measurement or collect a sample. When preparing to go out on any field research or instructional activity, always consider the possible hazards and prepare for the worst cases with regard to personal safety and the safety of others.

Working on and around boats and water can be very dangerous. Preparation and a constant awareness of your surroundings should be exercised to cope with the dangers associated with wind, waves, water temperature, instruments, cranes, and other potentially dangerous situations. Project -pecific practices related to sampling activities should be developed by the field project manager, supervisor, or instructor.

- Use this guideline document to develop your own project specific practices, as not all boats and vessels will require the same safety items and procedures.
- Know the Local, State and Federal regulations for your research locations and make sure your crew/passengers know them also.
- Use the Hazard Assessment and Mitigation Plan (HAMP) to evaluate your project and then to plan for site specific safe practices and procedures.
- Proper fitting personal flotation devices (PFDs) MUST be worn by all UNLV personnel on vessels, an, and all crew must be able to swim and be trained in the safe operation of the vessel.
- Avoid working alone if possible. During hazardous activity someone should be within earshot at all times.

- Take precautions to limit your exposure to ultraviolet (UV) rays. Clothes and hats offer the best protection, sunscreen of at least 30 SPF will help also but it may wash off with sweat or spray.
- All boat operators and crew are required to have current CPR and First Aid training.
- Boat operators should have completed an approved boating safety course or be able to prove their experience in the waters they will be navigating.

Much of the information in these guidelines is courtesy of the United States Coast Guard Boating Safety Division. Please visit their website, http://www.uscgboating.org, for more information and links to other sites.

General Policy and Procedures

1. Pre-Season Guidelines

- All operators of research boats and vessels must have a boat operator's certificate or be able to prove their qualifications before they can operate a vessel. This is specific and cannot be used on another type of vessel. Demonstrating knowledge and operation of the vessel may be sufficient enough but it is highly recommended that the operator takes a certified course from the state in which you will be working.
- Performing a pre-season check off /shakedown trip is a good idea as it can remind you of items which need to be addressed before the sampling field trips.
- Some training that should be mandatory:
    - Person Overboard drill, First Aid, Communications, Cell/Satellite phone use, Emergency Signaling devices and their proper use, Bilge pump location and operation, Anchoring, Body Temperature regulation, Personal Floatation Devices (PFDs), their sizes, use and locations.

2. Vessel / Trailer Inspection

- Perform a pre-season inspection on the vessel and trailer. See Appendix A for a sample Pre-Season Inspection List. This should include a detailed maintenance regime and inventory of spare parts and safety items. Always keep a spare propeller, shear pins, lock nuts, etc. on board and replace immediately when used.
- Perform a "Daily inspection" before heading out. See Appendix B for a sample Daily Inspection List. Log any discrepancies along with fluid levels and any maintenance required.

- Verify that the proper registration and insurance papers are on board and up to date. Know the listed capacity of the vessel and NEVER exceed it. It is a good idea to keep it at 75% or below of the listed gross weight.
- On the trailer, check tire pressure, integrated brakes, hitch assembly, safety chains and trailer lights. Make sure that the boat is loaded correctly and that there is proper tongue weight for the towing vehicle.

3. File a Float Plan

- Make sure to file out and file a float plan before departing on a trip. See Appendix C for a sample float plan.
- Include a contact person, location and a time to start a search if no one has checked in upon return. This could save you and your crew's life in case of an emergency. Any required permits or paperwork should be referenced along with the phone numbers to contact the local agencies.

4. Know Your Weather

- Thanks to the National Weather Service – Las Vegas, UNLV personnel have access to some of the best weather forecast data. Use this resource and do not get caught in a summer squall or lightning storm. Plan your day around the weather and you could reduce your dangers and your work load. Afternoons can change dramatically around mountains and lakes since this is when most thunder storms develop.
- Keep an "eye to the sky" and constantly scan the horizon for building clouds and wind patterns. You can do these while scanning the water for other vessels and obstructions. It is best not to let a storm sneak up on you and ruin your samples or measurements. No loss of life or injury is worth trying to get "one more" sample.
- Have a backup plan just in case something goes wrong. Know where to "weather out the storm" if it starts to get difficult. A little planning is better than having a wasted trip. Upon arrival at your launch site do a final "site survey" and decide if you will need to reschedule your field trip.
- Some common weather conditions to look out for are; Lightning, downbursts, wind gusts and waves. They can all happen at once or one at a time, so be ready and have your raingear on hand.

5. Emergency Protocol

a. Person Overboard

- Probably the worst feeling you can have on a boat is realizing that someone is missing. A Person Overboard (still sometimes referred to as Man Overboard) is a

real emergency situation that should never happen but does. In rough seas no one should be allowed on deck without proper tie offs and/or supervision.

- The "Person Overboard drill" should be practiced by all people working on a vessel. That one trained person could protect your life, so do it and do it well. The quicker you can get someone back on board, the sooner you can start life saving measures. If your vessel has a high freeboard (distance from waterline to top of the side rail) you might want to consider having a "Life Sling" on hand. This will help in the retrieval of the person from the water.
- If you find yourself in the water, keep your clothes and shoes on and assume the Heat Escape Lessening Position (HELP): bring your knees to your chest and hold them by wrapping your arms around them.

b. Radios and Phones

- Know how to operate the radio and what channels you should be using. Channel 16 VHF (156.8 MHz) is designated the 911 of the marine world. Use it in an emergency and get off it when you hear "Emergency Traffic". You should monitor it just in case you can be of assistance or are called in to help.
- VHF Radios are for public use and it is your responsibility to know the etiquette that goes with it. Keep your conversations short and concise, do NOT use profanity or explicit language and change to another channel if there is too much traffic.
- Not all cell phone carriers are available in all locations; if there is any doubt, bring along a satellite phone, satellite messenger, or personal locator beacon.

c. Locations

- All satellite communication devices and most cell phones have a GPS feature which can transmit your location if it is enabled. Otherwise you will need to know your location in order to get Emergency Personnel to you in a reasonable time. Keep your charts on hand and make sure your crew knows how to use them.
- Keep a GPS running during your trip so it is initialized and ready to give you your location. Check the batteries (if not hard wired in) before setting out and have new spares on hand if needed.

d. Breakdowns

- While on a vessel many things can happen, and all the pre-planning and foresight cannot fully prevent equipment failures and breakdowns. You should have a "spares" box with the items most needed for a standard trip. Props, hoses, spark plugs, hose clamps, duct tape, hole plugs, fuel filters, cotter pins, etc. are all

items you should consider carrying with you. Keep this box well stocked and accessible at all times.

- Make sure to notify your contact person if you will be returning late so they do not call in a search and tie up the Emergency Medical System.

6. <u>Preparedness</u>

- Require a "Duffle Bag" for each person on board that has enough gear in it to help them get through a night on board if that should happen. See Appendix D for a sample list of items to be included in this bag. It can be taken from vessel to vessel and can hold items such as sunscreen, hats, spare radio, signaling devices (mirror, flares, whistle and/or horn), raingear, extra clothes, water or a filter, and any personal protective equipment (PPE) that is required for the field trip. If working during the winter months an exposure suit might need to be a required PPE.
- It is a good idea to have a "Disaster Bag" in case a catastrophic collision occurs. It should have PFDs and basic survival/ signaling gear and should be located where it can be readily accessed (not in the cabin or below decks). See Appendix E for a list of items you might want to include in this bag.

7. <u>On the Road and in the Water</u>

a. Towing

- Towing a boat can be a safe experience if done properly. Know your trailer and its limits.
- Check the tire pressure in both the vehicle and trailer.
- Make sure that the boat is loaded properly and that the weight is distributed properly. Too much tongue weight and your steering might be compromised, too little and you might experience handling problems. Follow the manufacturer's recommendations for tongue weight requirements.
- Make sure that the towing vehicle brakes are adequate for the combined weight of the vehicle and trailer. It will be too late when you are on a steep hill and your brakes fail.
- Use your gears to downshift and use the engine to keep the vehicle at a safe speed.
- Turn off your overdrive to stop excessive shifting and wear on the transmission.
- Travel at the recommended speed limit and watch for others as they might not see the trailer behind you.

b. Loading at the Launch Ramp

- If you have planned ahead and done your practices, you should be able to drop off and pick up your boat with little or no problems.
- A few items to be aware of: make sure the plug is in, all through hull fittings are in the desired position and all persons and lines are clear of the propeller before dropping the boat into the water. The boat should be loaded before you get to the launch area. Take your time and bring everything you need for a safe trip.
- Follow the manufacturer's recommendations before starting the engine(s).

c. Environmental Issues

- Know the local regulations pertaining to waste disposal, allowed fuel types, draining of bilge, and transient organism transference.
- Be especially aware if you use the vessel in different bodies of water as you can introduce foreign animals and organisms into sensitive waters.

d. Docking

- Docking a vessel can be one of the most exhilarating events during a boating trip. Take care to plan it out, inform your crew of what you have planned and have a backup procedure if needed.
- Try to approach the dock from the downwind (lee) side as this will allow you to coast in and not fight the wind. Keep just enough speed to allow steerage but slow enough so you can fend off another boat.
- Keep an eye out for swimmers, buoys and personal watercraft as they can be around the dock areas.
- When departing, check that all dock lines are in the boat and motor slowly until well clear of other boats and obstacles.

e. Fueling

- Keep your fuel tanks full and make sure you are using the proper fuels for your vessel and operating area. Several local lakes, including Lake Mead and Lake Tahoe, have strict requirements for types of fuel additives and accidental spills. Educate yourself on all local regulations before launching the boat.
- When refueling, check that the type of fuel is correct and that all electrical sources are turned off. Always refill portable tanks on the dock, not inside the vessel. Watch for accumulated gas fumes or spills and provide ventilation if needed. Now is a good time to check the engine fluids and bilge. Have an overflow container at the gas tank vent in case the tank is overfilled and the excess is purged out.

8. Small Boats, Kayaks, Float Tubes and John Boats

- If you are using a small boat or kayak you will need to revise this Plan to fit your reduced space and needs. You will still need to have the minimum safety equipment and some addition items depending on where you are going. See Appendix F for a sample list of items you should have on hand.
- When loading you boat, make sure it is balanced and not overloaded or top heavy. Verify that your buoyancy devices are full and that you have a working bilge pump or bailer.
- Be aware of dam inlets and outlets and other moving water as these can create currents, eddies and hydraulics that can increase wave actions and may capsize your boat.
- Operators of small boats should in all cases have specialized training in the use of that particular craft. Persons working in swift water environments should have swift water rescue training, such as that available in a swift water rescue course. All persons using kayaks in river environments shall use a helmet. Always have rescue gear on hand, and know how to use it.
- Pay particular attention in regards to avoiding man-made hazards, such as low head dams, which are well known “drowning machines”.
- Make sure you wear clothes that match the air and water temperature and working conditions. A good general guide is the “100 rule”; if the sum of the water temperature plus the air temperature is less than 100° F, you should be wearing an insulating layer such as a wetsuit.
- Learn and practice self-rescue techniques for the type of boat you are on and the area where you will be working.
- Avoid standing in small boats as they are very unstable and you may capsize it. If you find yourself in the water by your swamped boat, stay with it as you are more visible that way.
- Be visible to others as they might not be looking out for you. Wear a highly visible PFD or vest and look out for others during your ongoing “site survey “. Again, keep an “eye to the sky” so you are not surprised by a change in the weather and have to “beat it” to shelter.
- Take care when traveling with your small boat on your vehicle. Use the right racks for your vehicle and secure the boat properly.
- Consider carrying a spare paddle if appropriate.

UNLV BUSINESS AFFAIRS
Risk Management & Safety

Appendix A

Pre-Season Checklist

- ✓ Verify that all the proper paperwork is onboard and current.
- ✓ Perform a Bow to Stern inspection of the hull, deck and engine/transmission. Check all through hull fittings, motor/transmission mounts, fasteners, hoses and electrical connections for tightness and sealing. Check for corrosion and electrolysis and replace zincs if needed.
- ✓ Check the fuel tank/s for leaks and proper venting. Check hoses for cracks and tightness.
- ✓ Check oil, cooling, transmission and outdrive fluid levels.
- ✓ Check and replace all filters and drive belts as needed.
- ✓ Check the batteries for proper fluid levels and clean tight connections and that it is properly fastened down.
- ✓ Tune up engine.
- ✓ Check steering and transmission linkages.
- ✓ Clean bilge and verify bilge pump operation. Have a bailer or bucket as backup.
- ✓ Check navigation lights and have spares on hand.
- ✓ Check all lines, anchors and fenders for wear. Replace as needed.
- ✓ Check all electronics and have spare fuses on hand.
- ✓ Check Tool Kit for missing or rusted items and replace as needed.
- ✓ Check all Safety/Emergency equipment for operation, expiration dates and condition and replace as needed.
- ✓ Check that the throwable floatation device is in good condition and readily available.
- ✓ Check trailer for loose fasteners, cracked tires, proper tie downs and that the lights are working.
- ✓ Lube the wheel bearings and verify that the lug nuts are tight.

UNLV BUSINESS AFFAIRS
Risk Management & Safety

Appendix B

Daily Trip Checklist

- ✓ Check that the trailer lug nuts are tight and that the lights work and the hitch is locked down and safety-chained.
- ✓ Fuel tanks full.
- ✓ Proper fitting personal flotation device (PFD) for each person on board. You might want to keep them all in one bag that can be grabbed in a hurry "just in case".
- ✓ Each person on board has been instructed on the location of the PFDs and other safety equipment and their proper use. All are instructed on Person Overboard, foul weather, fire and communication procedures. All passengers are required to be swimmers.
- ✓ Float plan is filled out and filed with a reliable person.
- ✓ Bilge is free of fuel vapors and water. Operate bilge blower if the boat is equipped with one. Follow ALL manufacturers' recommendations before starting engine.
- ✓ Each person on board has the proper clothing for the predicted weather and possibly a "Duffel Bag" (see Appendix D) on board for emergencies.
- ✓ Have the proper charts for the areas of your research and also some of the surrounding areas in case of an emergency.

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Risk Management & Safety

Appendix C

Sample Float Plan

Complete this form and leave it with someone reliable BEFORE going boating. Inform them of the latest check in time and be sure to call them if you are delayed to prevent unnecessary search or rescue.

1. **Operator of boat:**

2. **Contact information:**

3. **Boat description**
   - ☐ Type/Make:
   - ☐ Color:
   - ☐ Length:
   - ☐ Registration Number:
   - ☐ Engine Type:

4. **Other persons on board**
   - ☐ Name:
   - ☐ Age:
   - ☐ Contact info:

5. **Survival Equipment on Board**
   - ☐ PFDs:
   - ☐ Signaling Devices:
   - ☐ Communications:
   - ☐ Food/Water:
   - ☐ Anchors:
   - ☐ Emergency Position Indicating Radio Beacon (EPIRB):
   - ☐ Raft or Dinghy:
   - ☐ Flashlight:

6. **Communication Devices**
   - ☐ Radio:
   - ☐ Cell phone #:
   - ☐ Satellite communication device (type, serial #):

7. **Departure**
   - ☐ Date:
   - ☐ Location:
   - ☐ Time:

8. **Vehicle Description:**

9. **Expected Destination:**

10. **Returning Date/Time:**

11. **If Operator Has Not Returned or Checked In By**
    Date:
    Time:
    Contact local authorities at
        U.S. Coast Guard:
        Other:

12. **Additional Information:**

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Risk Management & Safety

Appendix D

Personal Duffel Bag Items

- ✓ Personal Protective Equipment/Exposure suit
- ✓ Extra warm clothes
- ✓ Warm hat
- ✓ Socks
- ✓ Shoes
- ✓ Wind/rain jacket and pants
- ✓ Sun hat/ sunscreen
- ✓ Your own PFD
- ✓ Sunglasses
- ✓ Water/food
- ✓ Battery powered radio
- ✓ Signaling devices
- ✓ Flashlight
- ✓ Extra batteries
- ✓ First aid kit
- ✓ Extra medications and any other personal items you might need

This bag can be used on any boat as you never know how prepared the operator might be.

UNLV BUSINESS AFFAIRS
Risk Management & Safety

Appendix E

Disaster Bag

- ✓ PFDs
- ✓ Signaling devices
- ✓ First aid kit
- ✓ Raft/paddle
- ✓ Water/food
- ✓ Battery powered radio
- ✓ Flashlight
- ✓ Extra batteries
- ✓ Large trash bags (can be used to gather water, provide shelter and warmth)

UNLV BUSINESS AFFAIRS
Risk Management & Safety

Appendix F

Small Boat Equipment List

This list is for kayaks, john boats, float tubes, canoes, and any other very small boat. Modify this list as space and requirements dictate.

- ✓ Clothing appropriate for the weather/water conditions you expect to encounter.
- ✓ Plenty of secure buoyancy
- ✓ Spare paddle if appropriate
- ✓ Paddle leash
- ✓ Proper fitting spray skirt
- ✓ PFD
- ✓ Bailing device
- ✓ Signaling devices
- ✓ Rescue/tow line
- ✓ Self-rescue aids
- ✓ Water/ food
- ✓ Multi-purpose tool
- ✓ Sun protection
- ✓ First aid kit
- ✓ Radio or cell/sat phone
- ✓ Flashlight
- ✓ Shoes
- ✓ Whistle
- ✓ Mechanical Advantage (Z-drag) kit