

SEVERE WEATHER AND EMERGENCY PLAN

Boating Safety Control Board Approved 8/15/07

Introduction

East Carolina University (ECU) currently operates and maintains eleven pooled research vessels in the university boat pool and seven research vessels assigned to specific campus units. Because activities related to the ECU research fleet take place on and off campus, this document outlines required actions that must be taken during Severe Weather and Emergencies.

Objective

The Severe Weather and Emergency Plan outlines specific requirements and actions required by ECU employees who have responsibility for one or more university owned research vessels. As of January 2020, responsible units include: Diving and Water Safety (DWS); Department of Coastal Studies; and Coastal Studies Institute (CSI).

Scope

This plan establishes procedures and organizational structure for response(s) to Hurricane, High and Low Water, Fire, and Explosion. The plan does **not** cover training requirements for captains and operators facing at-sea emergencies nor is it intended to limit the use of good judgment in matters not covered in this document.

Hurricanes

Hurricane season in the North Atlantic, Caribbean and the Gulf of Mexico normally extends from June through the end of November. Hurricane damage, personal injury, loss of life and loss of access to critical facilities can result from high winds, localized flooding due to heavy rains, and especially from higher than normal tides called “storm surge”.

Based on reports from the National Hurricane Center and NC Emergency Management, emergency actions will be taken by East Carolina University (ECU) officials to ensure the safety of all vessels in the ECU boat fleet.

Pre-Season Planning and Preparedness:

Between January and April of each year DWS will review the storm readiness of all vessels in the ECU boat fleet in preparation for the upcoming Hurricane Season. This review will at a minimum include:

1. Reassessing and updating ECU’s Severe Weather and Emergency Preparedness Plan.
2. Inventorying/pre-staging all equipment necessary to secure vessels during a hurricane. In lieu of a file for each boat, a chart or spreadsheet covering all vessels will be created and distributed that contains appropriate columns for specific actions and inspections. Selected items for inspection include but are not limited to:

Non-trailerable Vessels

1. Currently all of the vessels in the ECU fleet are trailerable. However, if a situation arises where it is not possible to place a vessel on its trailer (e.g. due to the non-availability of a suitable ramp) complete the following safety procedures:
 - a) Completely fill vessel fuel tanks and fill potable water tanks to at least 75%. This procedure adds to the stability of the vessel during high winds events.
 - b) Test all systems including bilge pumps and associated portable pumps. Fully charge all onboard battery banks and ensure that they have sufficient capacity to pump for the duration of a hurricane event. Install fresh batteries or supplement existing battery bank if necessary.
 - c) Ensure all watertight compartments on vessels are secure.
 - d) Where practical, remove all non-essential sensitive portable scientific and navigational equipment from vessels.
 - e) Secure all loose external canvas, gear, and equipment on the vessels and in the boat yard with particular attention to wind driven hazards, floatable items and hazardous materials.
 - f) Secure power to all nonessential electrical circuits, machinery, and equipment to minimize potential damage, shock and fire hazards to the pier side shore power connections.
- 2) Recommended hurricane anchorages in the local area include: Adams Creek between the Neuse River and the Turning Basin, and Blount's Bay just east of the Washington, NC RR Bridge. In the event that a vessel is being utilized in other geographic areas (South Carolina, Virginia, etc.), the vessel operator is required to include hurricane planning as part of the float plan in the event that a hurricane threatens the area in which the vessel is operating. In these instances, prearrangements with a marina to haul and block the boat (out of the water) in advance of a hurricane may be desirable.
- 3) Anchor vessels away from the dock utilizing storm mooring equipment and double all mooring lines.
 - a) If possible, move the vessel out of the marina.
 - b) Select a hurricane mooring location where the vessel can be tied to both sides (banks) of a waterway with multiple lines long enough to allow the boat to ride-out a substantial storm surge without hitting shore, other boats, or structures.
 - c) If the vessel is moored in a creek or canal, it should be moored far enough inside that waterway to avoid interfering with the navigation of other vessels, especially when mooring lines extend to both sides of the waterway.
 - d) The vessel should be moored with bow pointed toward the greatest fetch, i.e. that line of sight with the greatest over-water distance.
 - e) If anchors are used, select a location that provides solid mooring points. In addition, anchors should be oversized, multiple, have good chafe gear, and sufficient chain to securely moor the vessel.
 - f) At the anchorage, ensure that your vessel is not obstructed by other objects, vessels, etc. through a 360 degree swing around your anchor.

- g) Anchors should be set with long lines in the direction of the fetch, if secure mooring points are not available in that direction.
- h) Anchor lines should be long enough to allow at least a 10 to 1 scope (anchor line length to water depth ratio, i.e. 80' line is required for 8' water depth).
- i) Lines to solid mooring points such as trees should be at least 30 feet long, preferably more, allowing the vessel to be positioned so that potential damage from trees is minimized.
- j) The vessel may be left at home location only if above criteria can be met at that location.

Hurricane Warning or Winter Storm Warning:

When the National Hurricane Center upgrades their notification to a Hurricane Warning or Winter Storm Warning [expected landfall within 48 hours (2 days)], **all activities describe above (under Hurricane or Winter Storm Advisory) including the three items listed below must be completed within 24 hrs.**

- 1) All vessel operations are to be assumed canceled unless notified otherwise.
- 2) Ensure that all elements of the Hurricane or Winter Storm Advisory plan (noted above) have been fully implemented.
- 3) Notify the Diving and Water Safety office (252-328-4041) that all Hurricane or Winter Storm Advisory plan preparations have been completed.

After Storm Passes:

Initiate when storm has passed and sustained wind speeds are below 40 mph.

- 1) Render assistance to campus and local authorities as necessary to save human life, prevent suffering, and mitigate destruction and further damage to property.
- 2) Compile a damage assessment, with particular attention to major safety and pollution concerns.
- 3) Use extreme caution when entering vessels or buildings due to possible shifting of equipment and other hazards created by the passing of the storm.
- 4) Commence clean up operations as needed and as safety permits.
- 5) See "ECU Spill Prevention, Control and Countermeasure Plan Based on Best Management Practices".

High & Low Water (All Vessels to Remain in the Water)

Higher or lower than normal water levels can and do occur in eastern North Carolina. This is caused by prolonged winds "pushing" water into or out of an area within the sound. Prolonged wind driven swells and seas caused by the effect of fetch can also lead to localized flooding in low-lying areas.

Particular attention must be given to equipment and items that can either be damaged by submersion or that might float away causing hazards or pollution. Low water situations can cause extensive damage to vessels propellers, shafts, rudders and hulls. Depending on the

forecasted high or low water predictions, extra precautions may be necessary to abate possible damage to the vessels, the docks and surrounding facilities.

- ✦ Vessels that must remain in the water during these periods of low water must be moved to locations where there is sufficient draft for the vessel to prevent damage.

It is the responsibility of the employee(s) designated as “in charge of a particular vessel” to monitor these situations and take appropriate action.

Other Natural Disasters

1. See ECU Office of Environmental Health and Safety web page for further information. <http://www.ecu.edu/oehs/EmergencyProcedures/severeweather.htm#police>
2. In the event of a “Tornado Warning” all staff and crews will seek refuge in the nearest available shelter.
3. Actions after a tornado will be in accordance with those prescribed for hurricanes.

Fire and Explosions

The basic watchword for fires and explosions is PREVENTION. At the boatyard, dock, and onboard vessels numerous ignition sources and various types of combustibles are present that could start a fire that spreads out of control.

1. Fire science has shown that a fire can double in size every one minute. Good housekeeping is the single best method of prevention. Good housekeeping practices include:
 - a) Store flammable materials in proper and sealed containers.
 - b) Secure all portable fuel tanks and fuel containers onboard vessels.
 - c) Store previously opened flammables in flammable storage lockers.
 - d) Store all used waste oil, paints, solvents, thinners, filters, absorbent pads and oily rags in properly labeled and sealed metal containers both onboard and at the dock.
 - e) Be cautious and cognizant of open flames, sparks and heat from torches, welders, grinders, saws and drills and of open and running motors and all other ignition sources when handling flammable liquids.
 - f) Know where fire extinguishers and onboard fire suppression systems are located and how to use them (in the event of a fire).
2. The US Coast Guard requires that vessel captains are trained in basic maritime fire fighting techniques and in the use of all onboard firefighting equipment. In addition to combating shipboard fires while at sea, this training provides a first responder fire fighting capability.
3. In the event a fire breaks out in a boat yard or storage area on land:
 - a. Immediately sound the alarm, make initial notification to 911 and the University police, and safely attempt initial action to contain and extinguish the fire before it grows or spreads.
 - b. At no time will ECU employees put themselves in a compromising situation that would endanger them or anyone around them. Personal safety will always be paramount over safety of property.

- c. When the Fire/Rescue Department arrives they will take charge of the fire scene.
4. In the event a fire breaks out on one of the vessels while in the water dockside, the following action should be taken:
 - a. If the vessel is manned:
 1. Immediately begin fire fighting procedures via fire extinguishers and onboard fire suppression systems in the engine room.
 2. Notify the US Coast Guard, 911, the University police, and Director of DWS as appropriate.
 3. If manpower and equipment are available; the shore side fire station will be manned and charged to help cool the perimeter and other vessels provided it can be accomplished safely.
 4. When the Fire/Rescue Department arrives they will take charge of the fire scene and ECU employees will provide support if required.
 5. If a boom is available to prevent oil spills, notify the Fire/Rescue department that this equipment is available and assist with deployment as needed.
 6. **At no time will an ECU employee jeopardize themselves or anyone else.**
 5. If the vessel is unmanned:
 - a. Notify the US Coast Guard, 911, the University police, and Director of Diving and Water Safety.
 - b. If resources are available, shore side fire equipment should be used to cool the perimeter and other vessels - provided that it can be done safely.
 - c. If a boom is available to prevent oil spills, notify the Fire/Rescue department that this equipment is available and assist with deployment as needed.
 - d. At no time will any ECU employees jeopardize themselves or anyone else.
 - e. When the Fire/Rescue Department arrives they will take charge of the fire scene.

FLEET SPILL PREVENTION CONTROL AND CONTAINMENT PLAN

To minimize spill risks all ECU vessels, the preferred option for ships and boats is to fuel at a marina or inland gas station. However, fuel transfers by tank truck are allowed provided it is performed in strict conformance with this spill plan.

A "spill", by regulatory definition, is any amount of oil that produces a visible sheen on the water. Spills of any quantity, on any size vessel, shall be promptly reported to Environmental Health and Safety at (252) 328-6166, contained, and cleaned-up. Spills over 5 gallons shall be reported to NCDENR by EH&S.

BEST MANAGEMENT PRACTICES FOR SMALL VESSELS

THESE PROCEDURES ARE APPLICABLE TO BOTH ONSHORE AND MARINA FUELING OF VESSELS

- a. All fueling should occur onshore when possible or at a controlled marina. Controlled marinas are defined as those marinas that are designed to accept boats for on-water fueling. These marinas would normally have Spill Response capabilities at their location.
- b. If filling portable tanks, remove tanks from vessel and place on the ground to prevent problems from static electricity. Inspect portable tanks for leaks before trip.
- c. Require all passengers to get off gasoline-powered vessels before fueling.
- d. No cell phones or radios are to be used while fueling.
- e. Operators are to know where to access emergency shut off valves before starting fueling procedures.
- f. Instruct boaters to:
 1. Stop all engines and auxiliaries.
 2. Shut off all electricity, open flames, and heat sources.
 3. Extinguish all cigarettes, cigars, and pipes. Additionally, all galley fires and pilot lights must be extinguished before fueling can begin.
 4. Close all doors, hatches, and ports.
 5. Maintain nozzle contact with fill pipe to prevent static spark.
 6. Inspect bilge after fueling for leakage or fuel odors
 7. Ventilate any fuel tank and engine compartments after fueling at least five minutes until vapors have evaporated. The machinery and fuel tanks shall then be checked for the presence of fuel spills and vapors. If a spill or vapor is detected, clean up the spill and continue venting the associated spaces until the vapors are no longer detected.
 8. Have spill containment materials available and insure individuals have training and proper PPE to perform any cleanup tasks that may be necessary.
- g. Know the capacity of your fuel tank prior to filling. Listen to the fill pipe to anticipate when the tank is getting full.
- h. Ensure boat stability to avoid back-splash.
- i. Don't top off tanks.
- j. Stop pumping at first sign of fuel escape.
- k. Use absorbent pads or drip buckets to collect accidental overflow.
- l. Have a fire extinguisher at hand for engine start and know the PASS method for operation of it.

PROCEDURES FOR ON-WATER FUELING

- a. All vessels conducting on-water fueling will have a Spill Response Kit readily available and ready to deploy at the first sign of an oil/fuel spill.
- b. Boom deployment is the responsibility of the vessel receiving or giving off material. Booms are best deployed by using boats or other means as necessary.
- c. The Vessel Captain is responsible for coordinating boom deployment.
- d. Vessel Captains are responsible for coordinating all petroleum transfer operations including bilge water transfers.

- e. Operation of Oily Water Separators (OWS) is strictly prohibited
- f. Absolutely no full, or partially full, tank trucks or waste fuel buffaloes shall remain on the piers or wharves during non-working hours. These containers must be sent back to the distributor at the end of the workday.
- g. An inspection of the fuel system will be conducted after fueling procedures are complete. This inspection will include checking fuel tanks, lines, and bilges for any signs of leaks.
- h. Vessels taking on or disposing of any petroleum product to/from a tank truck, buffalo, barrel or can in excess of 55 gallons on the pier or wharf shall, as a minimum, take the following measures:
 - 1. Notify the fire department in the local city, if applicable, that you will be conducting fueling procedures. The fire department may wish to send a representative to standby.
 - 2. Inspect all hoses and connections to be used in the operation. Before pumping starts, require the operator to replace any hose that appears damaged or is out of date.
 - 3. Seal the pier or vessel scuppers in the vicinity of the transfer operation. This is defined as an area no less than the length of the truck plus 20 feet on either side. If the hose is outside of this area, the scuppers shall be sealed no less than 20 feet on either side of the hose. Both sides of the pier shall be sealed. Aboard ship, the scuppers shall be sealed for 20 feet on either side of the transfer station. Absorbent pads shall be used to seal scuppers, either firmly stuffed into the scuppers, or otherwise reinforced with waterbags. Rags or any other material are not acceptable. The ship is responsible for these materials and no materials shall be removed from the Spill Response Kit, except for an actual discharge. All other removals will be considered theft.
 - 4. The Marine Dock Master shall make a Spill Kit available for each ECU vessel especially when fueling operations greater than 55 gallons are to occur on water at locations other than controlled marinas. The Spill Kit should be adequate enough to provide minimal coverage with booms around fuel port. At a minimum, oil booms and absorbent pads should be available
 - 5. A bucket-type container of no less than five (5) gallon capacity shall be placed under each manifold or coupling connection.
 - 6. Environmental Health and Safety has the authority to shut down or suspend any operation creating an eminent threat to life or property.
 - 7. The pump operator shall remain at the pump while fuel or waste fuel is being transferred. In addition, a watch shall be maintained at the fuel or waste fuel tank to prevent any overflows. There shall be constant communications between the pump operator and the watch person at the tank. If a leak develops in the hoses, exercise extreme care to secure the pump before closing any isolation valves. Closing valves first will cause a sudden pressure surge that could rupture lines or connections.
- i. The Facilities Services shall maintain all ECU onshore fuel storage tanks and spill response.
- j. Environmental Health and Safety will also conduct the following procedures:
 - 1. Conduct periodic inspections of fuel oil transfer operations for SPCC compliance.
 - 2. Coordinate and direct spill containment and clean-up procedures on ECU Property. Off campus spills will be managed by local cleanup contractors.
 - 3. Report any identified errors or omissions in the spill plan.
 - 4. Update the Marine SPCC every five years or after two reported spills of five (5) gallons or more.

SPILL RESPONSE PROCEDURES.

- a. The first person(s) on scene of an oil/fuel spill shall:
 - (1) If possible, immediately locate and stop the source of the spill.
 - (2) Notify the following personnel:

Vessel Captain
Environmental Health and Safety at (252) 328-6166
If over 5 gallons, EH&S will notify NCDENR at (800) 858-0368
Local Fire Department (**See Appendix A**)
ECU Marine Dock Master at (252) 328-4041
U.S. Coast Guard at (252) 247-4545 – for leaks over 5 gallons
 - (3) Energize any Fire Alarm pull station.
 - (4) Contain the spill, keep it from spreading. On scene personnel shall use the pre-staged spill kit and attempt to contain the spill until help arrives. Special attention should be given to prevent entry into the storm drains, other run-offs that may lead to the water, or the sanitary sewage system.
- b. The Vessel Captain or EH&S will assume the duties of Emergency Coordinator (EC) when they report on scene. If the Fire Department responds to the spill then they will establish an Incident Command. The Emergency Coordinator will report to the Incident Commander for directions. These Emergency Coordinators have the authority to commit any and all resources of the University to direct clean-up activities. The checklist in **Appendix C** will guide spill response activities.
- c. The individual vessel responsible for the spill shall:
 - (1) Assist with clean-up efforts as directed by the Emergency Coordinator.
 - (2) Submit an after-the-fact written report (**Appendix D**), to the Environmental Health and Safety within one working day of the spill.
 - (3) Follow-up as applicable, to correct any mechanical failures that caused the spill, and correct any procedural errors that caused this spill plan to be ineffective.

CONTAINMENT AND DIVERSIONARY STRUCTURES- 40 CFR 112.7 (c) (1)

Booms or other barriers shall be made available by the Marine Dock Master for initial spill response, Hazmat response and local cleanup Contractor. Materials are kept in a “Spill Response Kit”(Appendix J).

Spill Response kits for vessels fueling away from a “controlled marina” shall contain at least a floating containment boom large enough to enclose the area of surface water where a spill may reasonably occur, but with a minimum length of thirty-six (36) feet. “Spill-dry” or other petroleum absorbent materials shall also be available to absorb spills.

Demonstration of impracticability – 40 CFR 112.7(d)

The University is committed to the prevention and control of oil spills and will make available manpower, equipment and materials necessary to handle any quantity of oil spilled. When available, localized containment (e.g. double walls and containment boxes) for all parts of the fuel system and on-water booming during fuel transfer may provide an adequate alternative. Whenever possible, all fueling should be conducted at fixed land-based sites prior to launching vessels. Spill absorbent equipment should still be kept on hand for clean ups.

Facility Drainage – CFR 112.7 (e) (1)

See Appendix I

BULK STORAGE TANKS – 40 CFR 112.7 (e) (2)

N/A

TRANSFER OPERATIONS and PROCESSES – 40 CFR 112.7 (e) (3)

TANK TRUCK LOADING / UNLOADING – 40 CFR 112.7 (e) (4)

Fuel Oil/Diesel Loading Procedures

- I. All transfers are attended and are never left unattended. All transfers of product from a tank are visually tracked by an ECU employee, or designate, to observe any spillage.
- II. All fuel truck loading and unloading procedures must meet the minimum requirements of the US DOT Hazardous Materials Regulations.
- III. Fuel Truck Driver will connect the tanker's unloading line to the vessel's tank.
- IV. Fuel Truck Driver will place buckets under pump to catch any leaking fluid due to pump packing leakage. The driver will also place buckets under the fuel pump's discharge valve/hose connections to catch any residual fluid when hose is removed from valve or pump.
- V. Fuel Truck Driver will start the unloading pump and inspect for leaks before speeding the unloading pump.
- VI. Fuel Truck Driver will remain with the truck during unloading in order to insure that the shut-off valve for the compartment being unloaded may be secured quickly should a leak develop.
- VII. Fuel Truck Driver will drain all hoses and buckets after unloading, cut off any stop valve and disconnect from the vessel's tank.
- VIII. ECU operator will monitor the unloading of fluids for any ground or on-water spills. The receiving ticket will be signed after the delivery is complete and there are no spills.
- IX. An interlocked warning light or physical barrier system or warning signs should be provided to prevent vehicular departure before disconnect of the transfer lines.

INSPECTION AND RECORDS – 40 CFR 112.7 (e) (8)

N/A – No bulk storage tanks are utilized

SECURITY – 40 CFR 112.7 (e)(9)

The impound yards are protected by locked gates and are patrolled by ECU Police.

**PERSONNEL, TRAINING, AND SPILL PREVENTION PROCEDURES – 40 112.7 (e)
(10)**

- I. The Marine Dock Master will instruct personnel utilizing the marine fleet in the operations and maintenance of oil pollution prevention equipment and in the basics of the facility's SPCC Plan. This training will occur each time personnel upgrade or change to a different boat size or design.
- II. Eric Diaddorio, Marine Dock Master, has been designated by management as responsible for oil spill prevention.
- III. Instructions and phone numbers regarding the report of a spill to the appropriate federal, state and local entities are listed below and have been provided with the equipment sheet for each person checking out a vessel.
(See Appendix A)
 - a. Notifications are to be made in the following order:
 - Vessel Captain
 - Environmental Health and Safety at (252) 328-6166
 - If over 5 gallons, EH&S will notify NCDENR at (800) 858-0368
 - Local Fire Department (See Appendix A)
 - ECU Marine Dock Master at (252) 328-4041
 - U.S. Coast Guard at (252) 247-4545 – for leaks over 5 gallons

Releases of hazardous substances over CERCLA RQs must also be reported to the NC DENR by EH&S.

- b. Area cleanup Contractors
 1. Clean East Environmental Services, (252) 939-1600 or 1-800-425-6097
Hwy. 258 N., P.O. Box 189, Kinston, NC 28502
 2. INCO Inc., (252) 446-1174; nights & weekends (252) 446-5188
1200 Atlantic Ave., P.O. Box 2705, Rocky Mount, NC 27802
- c. Environmental Health and Safety Office supplies:
(See Appendix B)

Emergency Contact List

ECU Police: 252-328-6787
ECU Environmental Health and Safety: 252-328-6166

Name	Department Cell	Office
Mark Keusenkothen	Diving & Water Safety 252-327-4439	252-328-4041
Eric Diaddorio	Diving & Water Safety 252-531-2936	252-744-1303
Mike Baker	Diving & Water Safety 252-916-9340	252-744-1302
Corey Adams	Coastal Studies Institute	252-475-5400 919-395-1022