



# Oyster AQUACULTURE

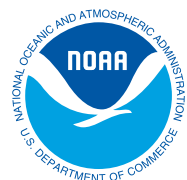
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These fact sheets for the off-bottom oyster aquaculture industry in the Gulf of Mexico provide guidelines and suggested safety procedures in preparing for tropical storms and hurricanes:

- **Introductory Planning Guide**
- **Adjustable Long-Line Farms**
- **Floating Bag Farms**
- **Floating Cage Farms**
- **Land-based Operations**
- **Workboats**

To access all of the fact sheets in this series, visit the National Sea Grant Library at [nsgl.gso.uri.edu](http://nsgl.gso.uri.edu). Using the "search the catalog" function, search "Oyster Aquaculture Hurricane Preparedness Series."

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## Tropical Storm and Hurricane Preparedness for Off-bottom Oyster Aquaculture in the Gulf of Mexico **Workboats Guide**

Boats are one of the most valuable assets belonging to an oyster grower, and protective measures should be taken before, during, and after a hurricane, tropical storm, or severe weather event. This fact sheet provides guidance related to planning and preparation, as well as precautionary suggestions, for boat owners. Following these guidelines does not exempt you from being held responsible should your boat cause damage to another's property. Also, acquisition of safety equipment and following the suggested procedures does not necessarily assure that your boat will not be damaged in a storm. This fact sheet is part of a series, which provides an overview of storm preparation and planning for oyster aquaculture operations in the Gulf of Mexico region.



Photo courtesy of Boonedocks Oyster Company

### **PRIOR TO HURRICANE SEASON**

Develop a plan of action to secure your boat by trailering it from the threatened area. If your boat cannot be trailered, determine in advance whether to secure at a marina, dry storage facility, mooring, or hurricane refuge in a protected cove or upriver. A checklist of equipment and supplies needed for any of these options should be prepared in advance. Following are important considerations.

- Maintain an inventory list of all boat equipment. Note items you will remove from the boat and those you will leave on board. Items of value should be marked so that they can be readily identified.
- Take photographs or video with a time stamp of your boat and its associated gear.
- Consolidate all documents including

insurance policies, boat registration, engine numbers, equipment inventory, lease agreement with marina or storage area, photographs, and telephone numbers of appropriate authorities, such as the harbor master, U.S. Coast Guard, National Weather Service, insurance agent, etc. Keep these documents in your possession in a locked waterproof box.

- Check with marine and law enforcement organizations for local plans.
- Make sure your insurance policy is current. Your policy may contain helpful information relative to what you should and should not do if there is loss or damage to your boat. Understand coverages, exclusions, and your duties as a boat owner.
- Keep your boat in sound condition. This includes the hull, motor, hardware, and electronics.
- Check that lifesaving and firefighting equipment are in good condition and readily accessible.
- Check that radio equipment for receiving weather information is in working order.
- Plan how to remove and/or secure all boat gear, including radios, antennas, deck boxes, bimini tops, davits, booms, winches, tumblers, etc.
- Purchase necessary supplies ahead of time, such as additional mooring lines (preferably nylon for strength and stretch, and minimum size of 5/8”), additional anchors (should be oversize, 25 pounds or heavier), fenders, fender boards, chafing gear, and screw anchors. These items may not be readily available during hurricane season.

- Make sure that fuel tanks are full, fuel filters are clean, batteries are charged, and bilges are clean throughout the season.
- Determine how long it will take to implement your plan so you will have an accurate estimate of time and work involved.

#### **Non-trailerable Boats:**

- Check your lease or rental agreement with the marina or dry storage area. Know your responsibilities and liabilities, as well as those of the marina or dry storage area.
- Locate hurricane moorings in advance and obtain permission from appropriate persons.
- Inspect your boat’s deck hardware and assess the size and structural attachment of the primary cleats and other hardware. These high load/high stress points should have substantial backing plates and be secured with bolts of adequate size.

### **DURING HURRICANE SEASON**

A tiered approach to preparation, which has been adopted in each fact sheet, allows growers to stage tasks based on the storm or hurricane’s track forecast. The authors developed the following color codes to address increasing levels of concern and action.

#### **CODE YELLOW**

Once a hurricane or tropical storm has formed in the Gulf of Mexico or has a chance of entering the Gulf, it is time to begin preparations for securing your boat. Note that the timeline is fluid and will depend on the storm’s speed



Photo courtesy of Alan Youngblood, Gainesville Sun

and track. Because your boat will be needed to implement the storm plan for your oyster farm, it is important to address as many of these activities in advance.

**Trailerable Boats:**

- ❑ Determine the requirements to load and haul your boat to a safe area.
- ❑ Make sure your tow vehicle is capable of properly moving the boat.
- ❑ Check the condition of your trailer, tires, bearings, and axle. Too often a flat tire, frozen bearings, or broken axle can prevent an owner from moving a boat.

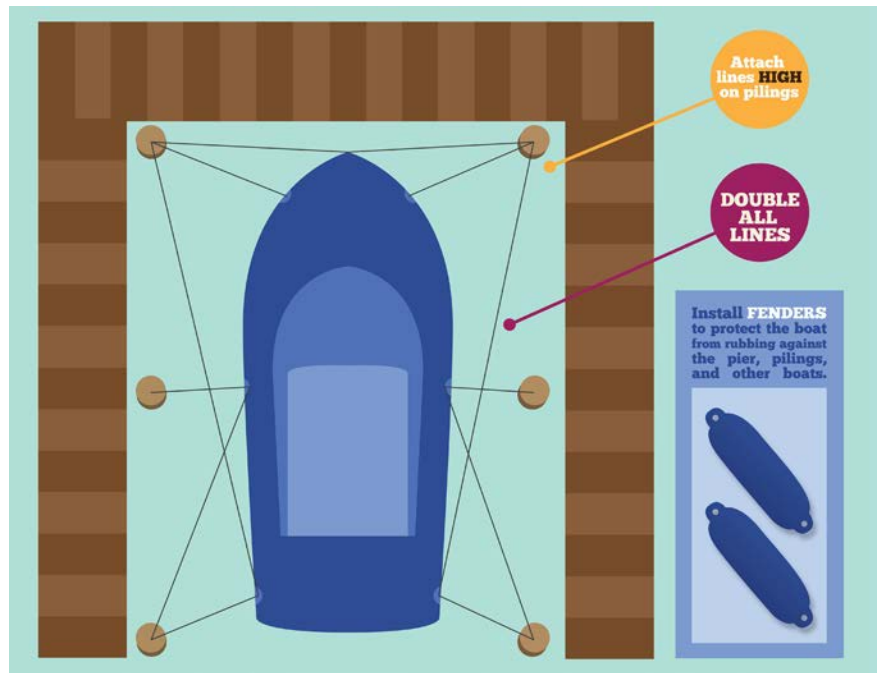
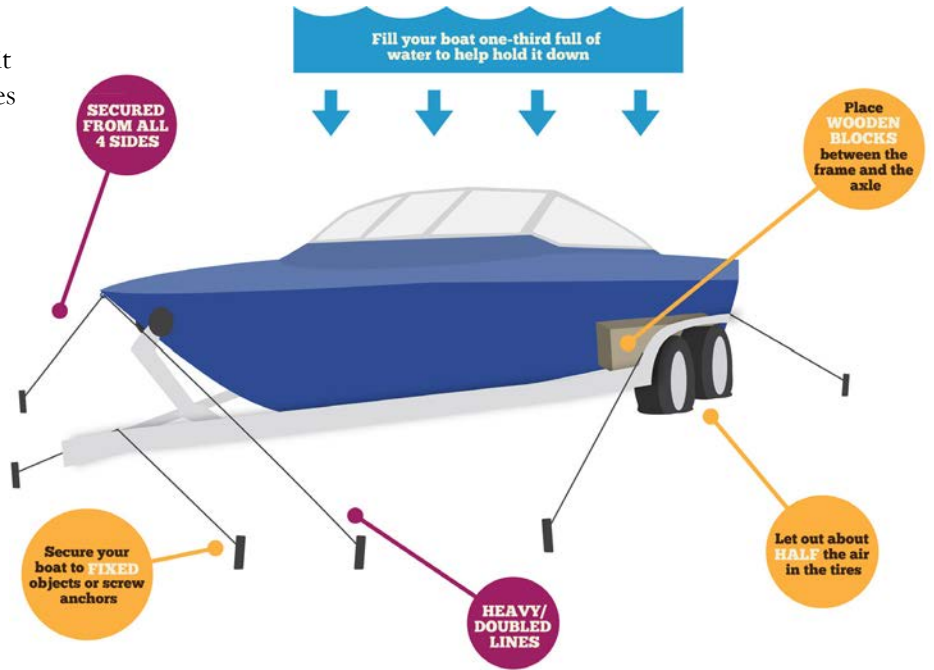
**Non-trailerable Boats:**

If your boat will be moored at a dock or in a marina, a storm surge could cause your boat to bang against the dock or become impaled on the pilings.

- ❑ Install heavy-duty fender boards (2"x6") on a bare wood center piling to prevent damage if your boat must remain dockside at a private dock or marina. In addition, acquire fenders of adequate size and strength (for example, old tires are good) to secure to your boat for protection.
- ❑ Put some type of preventer at the top of pilings so lines cannot slip off; for example, attach a 2" by 4" wooden board perpendicularly to the piling.
- ❑ Have adequate rope available for storm moorings, whether at dock or otherwise. Use double lines. The second set of lines should be at least one size larger than the normal lines, including spring lines at a dock. Note that nylon line will stretch 5-10% of its length.
- ❑ Have adequate materials on hand, such as tape, rags, rubber or vinyl hoses, to cover all lines at rough points and prevent chafing of mooring lines.
- ❑ Check bilge pumps to be sure they are in working order.

**CODE ORANGE**

Once a hurricane or tropical storm watch has been issued and gear on your oyster farm has been secured, it is time to implement your plan to secure your boat. If your plan calls for trailering your boat, move it at least 36 hours before the hurricane is estimated to strike the area as there may be possible road closures. In the case of a fast-moving storm, it is recommended that you proceed with tasks associated with final stages of preparation.



**FIGURE 1.** Diagrams illustrating how to secure a boat and trailer on land (top) and a non-trailerable boat at a marina or dock (bottom). Images courtesy of Florida Sea Grant.

**Trailerable Boats:**

- ❑ Store your boat in a garage or building if you can. If not, place your boat in a location away from power lines, trees, or other objects that can fall on it.
- ❑ Lash your boat to the trailer, and place blocks between the frame members and the axle inside each wheel (Figure 1).
- ❑ Secure your boat with heavy lines to fixed objects. Because hurricane winds rotate and change direction, try to pick a location that allows you to secure the boat from four directions. It can be tied down to screw anchors secured in the ground (Figure 1).

- Remove the battery to eliminate the risk of fire or other damage.
- Consider letting out about half the air in the tires for lightweight boats and fill your boat one-third full of water to help hold it down. You may also install drain plugs so rainwater can accumulate in the boat.

**Non-trailerable Boats:**

- Secure your boat at a marina by doubling all lines and rig spring lines to cross fore and aft (Figure 1).
- Attach lines high on pilings to allow for tidal rise or surge, and make sure lines will not slip off pilings. Inspect pilings, and choose those that seem strongest and tallest and are properly installed.
- Provide chafing protection for all lines to protect them from wear at contact points.
- Check that batteries are fully charged and can run automatic bilge pumps for the duration of the storm. Consider backup batteries, and turn off all other devices consuming electricity.
- Remove all movable equipment, and lash down everything that cannot be removed.
- Do not raft boats together at moorings or docks, especially if larger and smaller boats are involved. The probability of damage to boats is greater if they are rafted together.
- If placing your boat in dry storage, lash your boat to its cradle with heavy lines. Remove drain plugs so accumulated water will drain and prevent the lift from collapsing. Never leave a boat in davits or on a hydro-lift.

**CODE RED**

When a hurricane or tropical storm warning has been issued, you must finalize your preparations if, and only if, you can accomplish them safely. Growers and employees must make a series of personal risk assessments. If a final inspection of your oyster farm is necessary, there will be limited time to secure your boat.

- Make sure all preparations are in place, and immediately take measures to secure your boat after checking the farm.

This information was modified from *The Disaster Handbook* published by the University of Florida/ Institute of Food and Agricultural Sciences, IFAS publications DPR-0718, DPR-0719, and DPR-0726, August 2005. To learn more about how to secure your boat during a hurricane, browse the following resources used in this fact sheet:

- **The BoatU.S. Guide to Preparing Boats & Marinas for Hurricanes**  
[www.boatus.com/hurricanes/HurricaneWarning.pdf](http://www.boatus.com/hurricanes/HurricaneWarning.pdf)
- **Hurricane Preparedness for Boat Owners, University of Florida/IFAS**  
[www.flseagrant.org/wp-content/uploads/DPR-0718-web.pdf](http://www.flseagrant.org/wp-content/uploads/DPR-0718-web.pdf)

- Do not stay aboard any boat during a hurricane or tropical storm. If you have taken all the precautions previously outlined, you have done all that can be done in anticipation of the storm.
- Stay in a protected and safe place. Stay tuned to news broadcasts and weather advisories concerning the storm so that you will know when the danger has passed.

**POST-STORM RECOVERY**

Oyster growers must be ready to take care of their farms as soon as it is safe and reasonable to do so. After a storm has passed, the following tasks should be considered.

- Check the condition and security of your boat before attempting to move, start, or operate it. If damage has occurred, document with photographs and contact your insurance agent.
- Check with local information sources regarding access to boat ramps in the vicinity of your farm. Authorities may limit access in heavily damaged areas.
- Assess the risks of inspecting your oyster farm, and proceed when safe. Watch carefully for obstructions and loose debris in the water. Markers and other aids to navigation may be missing.

This fact sheet is the result of a collaborative effort among shellfish aquaculture extension specialists in the Sea Grant programs of Florida, Mississippi-Alabama, and Louisiana. For further information, contact:

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The views expressed herein do not necessarily reflect the views of any of these organizations.

The information and checklists provided in this series of fact sheets are meant as guides only. Following these guidelines and suggested safety procedures does not assure that damages will not occur to oyster crops, gear, or facilities.