

Your Boat and Hurricanes

Recommendations to protect your boat against hurricane damage

The Southeastern US coastlines are precariously positioned for hurricane onslaught because of their proximity to the shallow Gulf of Mexico and the Gulfstream waters, their inland waterways and profusion of land slightly above sea level. Hurricanes approaching from the south, west, and east pose great danger because of storm surge. The ravaging wind and torrential rain combined with rapidly rising waters can devastate these low lying areas.

Boats are especially vulnerable as the geography offers little protection. Vessels are lifted above their docks by high water, immersed in the muck of the floor of a waterway by vanished water, flooded by drenching rainfall, have their seams and hatches opened by relentless wind, and are tossed around on their mooring lines by driving, shifting gales. After the hurricane, looters find boats are prime targets, and protecting boats has low priority by law enforcement officials when lives are at risk. Preparing your boat for severe weather requires attention in three stages: when you buy your boat, when securing your boat before returning north in the Spring, or before the hurricane season begins in June, and prior to the arrival of a hurricane. Also, certain procedures are necessary subsequent to the visit of a hurricane. These recommendations are detailed below.

While hurricanes may have winds up to 200 mph they also may cloak tornadoes, ten to twenty foot storm surges, rising sea levels, increased tides, towering waves, and rain falling over two or three inches per hour. All of these elements threaten boats.

When a severe storm approaches, boaters should monitor weather reports to determine the extent of threat to local areas. The right side of a hurricane is its most potentially dangerous section, thus the path of the eye of the hurricane is of critical importance. Also the distance from the center of the hurricane and the category of the storm are vitally important. A nearly direct impact of a severe storm will bring extremes of water levels.

The best protection for boats is a well prepared hurricane plan. Marine facilities, marine-related service organizations and insurance companies expect boat owners to take the time and effort to plan necessary actions to secure and protect their vessels. This publication is a guide to assist boaters in developing a plan for their boats. Thoughtful preparation and delivery of a good plan for boats in a hurricane will allow boaters to attend to all the other details necessary to protect their family and property during a hurricane.

This guide is divided into four parts: Stage One addresses the needs of the new boat buyer considering aspects of the boat in hurricane preparedness. Stage Two addresses specific needs of the boat owner in preparing his boat for storage when he returns north, or prior to the hurricane season. Stage Three addresses specific needs just prior to the arrival of a hurricane. Stage Four outlines what to do with your boat after a hurricane.

STAGE ONE: Inspecting your boat when you buy it

When buying a boat a wise customer will examine the vessel for potential problems during a hurricane. A little extra time spent inspecting the proposed purchase will bring more satisfaction after ownership is transferred to the happy boater. Consider the following items when examining the boat you want to buy.

Anchors

___ Be sure your anchors are of the proper size and type for your boat.

Lines

___ Lines for your boat should be of proper size, in good condition, and with sufficient chafing gear.

Cleats

___ Examine the cleats for size. Small cleats may pinch lines. If cleats are small, ensure adequate backup cleats.

___ Check how the cleat is attached. Are the plates on the under-side adequate in size? Fiberglass or aluminum are good materials for back up plates. Bolts should be stainless steel.

Pulpits

___ Examine pulpits for sharp edges on the underside. Sharp edges should be rounded over to avoid having lines sliced under stress of hurricane conditions.

Dock mooring chocks

___ Examine mooring chocks for sharp edges that can quickly separate lines.

___ Check how the mooring chocks are attached. They should be bolted through back plates.

Trailers

___ Be sure your tow vehicle is capable of properly and safely moving your trailer.

___ Tires, bearings and axles should be in good condition on your trailer.

___ Check the wiring for the brake and running lights.

Insurance

___ Obtain or update your insurance policy to cover the new boat.

___ Ask your insurance agent of the insurance company's procedure for handling a claim.

Identify local emergency frequencies

National Weather Service frequency _____

Weather Channel, Cable Chan. _____ NOAA Weather Channel, Cable Chan. _____

STAGE TWO: Preparing your boat before the hurricane season

Many boaters are not resident during the hurricane season. These boaters should take the following precautions before leaving for their northern homes. Year-round residents should follow the suggestions below prior to the arrival of the hurricane season in June.

Obtain county "Reentry Decal" to enter area

After a hurricane access to the stricken areas will be limited for safety and security purposes. To gain access to your boat visit your local law enforcement sub-station to obtain reentry decals which will allow you to enter the area where your boat is secured. Follow instructions as to the placement and use of the identification on your vehicle.

Develop a plan

___ Create a plan of action for securing your boat. Decide whether you will a) remove your boat from the storm area to a previously identified safe haven; b) secure your boat in the marina; c) secure your boat at your dock; d) move your boat to previously identified safe anchorage; e) leave your boat in dry storage.

___ Give a copy of your plan to a friend or family member to complete if you are unavailable.

___ Keep a copy of your plan aboard your boat and at home.

___ Establish an alternate skipper if you are not available to move your boat. Give a copy of your plan to the alternate skipper.

___ Establish when your plan will become effective, i.e. 72 hours before hurricane arrival, 48 hours, etc.

___ Check your lease or storage rental agreement with the marina or storage management. Be familiar with your responsibilities and liabilities as well as those of the marina or storage facility.

___ Determine the plan of adjacent boats. A cooperative plan will benefit all boats.

___ Practice preparing the boat for severe weather so you know how long it will take and how difficult it will be when the emergency is declared. Remember that in an emergency assistance may not be available to help prepare.

Trailers

___ Determine the requirements to load and haul your boat to a safe area.

___ Select a location that will allow your boat and trailer to be secured from all four directions to sturdy objects.

___ Be sure your tow vehicle is capable of properly and safely moving your trailer.

___ Tires, bearings and axles should be in good condition on your trailer.

___ Check the wiring for the brake and running lights.

___ Ensure the trailer's tag is current.

Inspect marina

- ___ Determine if slip width is adequate to allow for tides that may rise or fall 10 ft.
- ___ Pilings should be 6 feet above the gunwale.
- ___ Check that pilings are full-size and driven.
- ___ Check if your boat can be tied facing a westerly wind.
- ___ Check the mooring of adjacent boats for proper placement, size and strength.
- ___ Look for places where your boat can be cross-tied or if anchors will be needed to supplement lines.
- ___ Determine if the marina has a hurricane preparedness plan and what you can expect from the marina in event of an approaching hurricane. Be familiar with your responsibilities and liabilities as well as those of the marina or storage facility.

Develop plan with adjacent canalfront boating neighbors

If your property fronts a canal with other property owners you may want to establish a plan with the other owners for securing your boats.

- ___ Obtain permission from property owners to cross tie your boat across the canal.
- ___ Determine the sequence that crosstyng will be allowed. Boats in the upper ends of canals will need to be cross tied before those in the middle or the exiting end of the canal.
- ___ Learn the safest methods for crosstyng your boat in a canal. Ensure your neighbors are also informed on the best ways to cross-tie, especially those nearest the bay.

Docks and pilings

- ___ Ensure piling height is 6 feet above the gunwale. Short pilings may allow boats to rise above them and become impaled on the pilings.
- ___ If the docks are wooden, look for alternative places to tie your boat (such as large trees).
- ___ Preventers should be installed at the top of pilings so lines cannot slip off the top.
- ___ Ensure cleats on concrete sea walls are well attached.
- ___ Canal docks should have one piling each fore and aft on the water so the boat is between the dock and the outer pilings. These will help fend off boats that have broken loose and will also protect your boat from battering the dock.

Davits and lifts

Boats stored on lifts are especially vulnerable during a hurricane to two factors besides the wind, storm surge and rainfall. Storm surge can be as much as 10 feet, which can be higher than your boat can be raised. Also rain falling at a rate of one to three inches an hour can quickly fill your boat with water causing structural collapse of your lift/davit. It is not recommended to leave your boat in davits or lifts.

Determine if there are alternate refuges available in your area.

___ Look for a well-protected, inland canal, inlet, river with substantial docks or sturdy objects (like palm trees or large rocks) to which you can tie your boat.

___ Consider how far inland you want to go, how long it will take to go there, and obstacles or restrictions to getting there. Consider tidal restrictions to navigation.

___ Plan your move well in advance of hurricane season.

___ Rehearse the move to your alternate refuge. Time how long it takes to arrive.

___ Obtain permission of the property owner to use their property for tying up.

Collecting records

___ Collect all the records your boat will need and place them in a waterproof container.

___ Inventory and assemble all records pertaining to your vessel, including insurance policies, vessel registration, lease or rental agreement with the marina or storage facility, equipment inventory, and telephone numbers of marine authorities such as the harbor master, U.S. Coast Guard, insurance agent, National Weather Service, and emergency phone number distanced from the storm area. Keep these records in your possession as they may be needed to return and check your boat.

___ Inventory items on board your boat. Valuable items should be identified with your social security number. Update the inventory as items are added or removed from the boat.

___ Obtain a copy of your insurance for your boat. Check that the policy is current.

___ Obtain the phone number of your insurance agent and his marine surveyor.

___ Copy of your boat's registration.

___ Copy of the agreement with the marina and/or repair facility.

___ Create a list of phone numbers of the marine authorities, the US Coast Guard, the Harbor master, your emergency number out of the area, your alternate skipper.

___ Record the radio frequencies to monitor the National Weather Service or National Hurricane Center, or local emergency management services.

___ Copy the name, address and phone number of person or persons who will be responsible for your boat if you are not in town.

Buying equipment

___ Lines for hurricane use should be 1/4 inch larger than normal size. They should be replaced often to ensure no weaknesses have developed. Use the larger lines as primaries and normal mooring lines as doubles or backups. Nylon line stretches and absorbs shock but this action creates chafing points.

___ Chafe gear is needed at all points where lines may chafe. Wrap with rubber hoses, tape or rags. Some areas may need double or triple layers.

___ Extra cleats with backing plates may be needed.

___ Duct tape should be purchased for sealing holes and seams on your boat.

___ Anchors should be selected that will be appropriate to the bottom of the location where you will secure your boat for the hurricane. Two storm anchors and rode will be needed. The rode should be at least 20:1 ratio length to depth.

___ Chains for anchors should be 5/16 inch thick with 100 to 150 feet of length.

___ Fenders should be purchased to protect your boat from rubbing against the dock, pilings or other boats.

___ Plugs for exhaust pipes should be purchased. Select a repair facility. Establish with a marine repair facility a plan to have your boat examined and/or removed for repairs after a hurricane. If you have an agreement with a repair facility getting your boat seaworthy again will be greatly facilitated.

Checking equipment

___ Bilge pumps should be in good working order and of a size adequate to protect your boat. Check the drain plug to be sure nothing is obstructing the release. The side of this boat was swept away by pounding waves. of water.

___ Batteries to operate the boat should be fully charged. Spare batteries to operate the bilge pump are advisable.

___ Exterior lights should be checked to ensure they are working properly. Replace any old bulbs.

___ Check that your radio antenna will be properly grounded if the radio is removed from the boat.

___ Check to ensure the radio is working properly and that its batteries are fully charged.

STAGE THREE: Securing your boat for hurricanes

The following suggestions are to be taken when a hurricane is forecast to strike near or directly in your area. Implement your emergency marine plan, secure your boat, then remove yourself and your family to safety. If possible, remove your boat from the water and secure it on land.

Listen to weather reports

Listen regularly for updates on approaching hurricanes. You will need to know when the hurricane is near enough to implement your hurricane plan for securing your boat.

Attaching lines

When tying to pilings double all lines.

Rig crossing spring lines fore and aft from a tangential.

Attach lines high on pilings to allow for tidal rise. Make sure lines will not slip off pilings. Wrap lines twice around pilings making sure they do not overlap. Do not use cinch knots or hitches around the piling.

Cover all lines at rough points.

Install fenders to protect the boat from rubbing against the pier, pilings and other boats.

Avoid tying too many lines to a single cleat. This creates too much stress to the cleat. Do not tie lines perpendicular to the cleat; tie at an angle across the face of the cleat.

Anchoring

If you are anchoring your boat away from land, use three anchors set 120 degrees apart which will allow the boat to swing and face the wind. Use anchors suitable for the bottom above which you will secure your boat. Use anchor weights well above ones you normally use.

Rig chafe gear.

Set fenders

Cross-tying in canals

Check with the property owner that is all right to tie your boat to his property across the canal.

Double mooring lines.

Tie to both shores, both port and starboard, fore and aft.

Removing external equipment and attachments

When a hurricane watch is declared strip your boat of all movable equipment such as canvas, outriggers, sails, dinghies, radios, cushions, deck boxes, biminis and roller furling sails. Tie down everything you cannot remove, such as tillers, wheels, booms, etc.

Securing outside cabinets, drawers, windows, equipment

- ___ If possible remove plexiglass windscreen and store in secure area.
- ___ Tape shut all exposed drawers and cabinets.
- ___ Tape the seams of windows and hatches to keep wind from entering the cabin.
- ___ Check pedestal seats to be sure they are locked securely.
- ___ Remove deck furniture if possible or group in a corner and lash it to railings.
- ___ Remove PFDs and rafts.
- ___ Lock and tape windows with duct tape. Tape all joints and seams on windows on the outside. Leave window covers in place.
- ___ Tape around all hatch covers and doors.
- ___ Sail craft should lash rudders.

Securing engines

- ___ Small engine vents should be covered with duct tape. If the engine vent is larger cover with plywood and tape along edges.
- ___ Exhausts can be secured with wood plugs or larger inflatable balls.
- ___ Generators under open cockpit decks should be covered with plastic sheets.
- ___ Close water intake sea cocks.
- ___ Plug exhaust outlets with bungs.
- ___ Fuel and water tank vents should be taped.

Securing the cabin

- ___ Breakables should be placed in boxes down low.
- ___ Clear out elevated cabinets where the boat's movements will spill contents out.
- ___ Heavy objects in cabinets and drawers should be removed to prevent opening.
- ___ Loose furniture and accessories and cushions should be secured. Raise Venetian blinds and take down drapes. Move furniture from windows if possible.
- ___ Carpeting should be taken up as water may be forced into cabins.
- ___ Duct tape door jambs to reduce water leaks.
- ___ Bedding should be stripped and stored in a safe place. Mattresses should be wedged on end.
- ___ The refrigerator should be cleaned out of all perishables and glass containers. Firmly lock the door. If your refrigerator is AC/DC turn it off to preserve batteries.
- ___ Close sea cocks for heads.
- ___ Close and plug all sink drains.
- ___ Disconnect and stow power cords.
- ___ Circuit breakers should be turned off.

Davits and lifts

Remove your boat from the davit or lift if possible. Else in preparing for a hurricane the following guidelines are offered:

- ___Secure your boat to the lift structure fore and aft.
- ___Turn off the power to your lift.
- ___Remove all canvas, loose gear, cushions and electronics.
- ___Raise the lift as high as possible.
- ___Remove your drain plug, and be sure to check your bilge for any loose debris that could clog your drain
- ___Be sure your battery is fully charged and turn off all electrical systems except your bilge pump.
- ___Cover all deck vents with duct tape.

Trailers

Consult with your trailer's manufacturer prior to performing these procedures.

- ___Take your boat on its trailer to your chosen place for hurricane protection.
- ___Tie your boat to the trailer generously.
- ___Place blocks between the frame members and the axle inside each wheel.
- ___Let about half the air out of the tires.
- ___Fill the boat one-third full of water to help hold it down.
- ___Secure your boat and trailer with heavy lines to fixed objects (such as large trees, utility poles, sturdy buildings). Lines should be tied, if possible, in four directions, for protection against the shifting wind directions. Screw anchors firmly in the ground may be used.

STAGE FOUR: Recovering your boat after hurricanes

Safeguarding human life is more important than protecting or checking on your boat. Driving may not be safe after the storm. Wait to check on your boat until travel hazards are removed and authorities permit travel to the area. Boat owners should be aware of hazards such as dangling wire, fuel leaks, weakened docks, bulkheads, seawalls, bridges, pilings, debris floating under the water, etc. Take your records, including insurance policies, your marina lease agreement, a list of authorities to contact, etc., with you to facilitate any prompt action needed to protect your vessel.

An owner is obligated to take reasonable measures to protect his vessel if it is damaged or in jeopardy, even though the craft is insured. A thorough check for seaworthiness and damages should be made as soon as it can be safely accomplished. Convey your findings immediately to your insurance agent.

Mooring

Other boats may be upriver or up the canal from your mooring position. Modify your mooring if you are blocking passage of other boats.

Security

___ Secure your boat from looters or others who may view your boat as abandoned.

___ Report to law enforcement authorities any vandalism or theft or damage other than storm related.

___ Document the report to the authorities.

Prevent additional damage

___ If your boat is damaged by the storm, take immediate action to prevent further loss or damage.

Record damage

Document any loss or damage to your boat. If possible take photographs of the damage as soon as possible after the storm, before the boat is moved, and after it arrives at the repair facility.

Lifts and Davits

___ Check electrical cabling for shorts or other damage. Watch for severed cables.

___ DO NOT turn on the power to your lift if the motors are suspected of having been under water.

___ DO NOT board your boat if it is full of water. Try to clear the drain plug opening from land. Once the boat is empty have your lift inspected for structural damage.

Inspect

___ Check your boat for storm invaders like snakes and crabs or other dangerous life.

___ Before moving your boat check it thoroughly for seaworthiness, potential damages, leaks or equipment losses. Do not begin repairs other than those necessary to prevent additional damage.

___ Remove any potentially hazardous materials like rotting food, dead animals or fish, cracked batteries, etc. Pollution If your boat has leaked any pollutant contact the authorities immediately.

Repairs

___ Make immediate arrangements with a reputable repair yard when boat damage is repairable to have your boat moved to the repair facility.

___ Obtain estimates before proceeding with repairs.

Report to your insurance company

___ Contact your insurance agent promptly to report any damage.

___ Estimate the percentage of damage (cosmetic, water damage, hull integrity, etc.) An adjuster, insurance company surveyor or independent surveyor will survey your damaged boat. You should accompany the surveyor on his initial damage survey.

___ Have your inventory list, receipts, inventory pictures, pictures of damages and repair estimates ready for inspection by the adjuster/surveyor.

___ You will need to provide both a "proof of loss" and "release/payment order." After the survey the surveyor files a damage report with the insurance company, and sends a copy to you.

___ You will file a statement of loss with your insurance company explaining what happened, when, where and why. Your statement should include lists of known damages along with sketches or drawings or photographs.

Massive loss

___ If your boat is not repairable make arrangements to have the boat removed to a yard or salvage facility storage area.

___ If salvage is required screen the salvage contractor for competence and cost. Read the contract, know where your boat is going, and the level of security provided at the location.

___ Save as much equipment from your boat as possible.

Boat Owners Hurricane Worksheet

Name of boat _____ Length _____ Model _____
 Owner's Name _____
 Address _____
 City _____ State _____ Zip _____
 Phone Day _____ Night _____

Responsible Person (if not owner)
 Name _____
 Address _____
 City _____ State _____ Zip _____
 Phone Day _____ Night _____
 Has Boat keys? _____ Access to equipment? _____

Alternate Name for Responsibility
 Name _____
 Address _____
 City _____ State _____ Zip _____
 Phone Day _____ Night _____
 Has Boat keys? _____ Access to equipment? _____

Equipment needed aboard to prepare boat

<i>Equipment</i>	<i>Storage location</i>
1. Extra lines	_____
2. Chafe protectors	_____
3. Fenders	_____
4. Anchors	_____
5. Swivels	_____
6. Shackles	_____
7. Duct tape	_____
8. Plugs	_____
9. _____	_____
10. _____	_____

Equipment to be removed from boat

<i>Equipment</i>	<i>Storage location</i>
1. Electronics	_____
2. Dinghy	_____
3. Outboard/fuel	_____
4. Sails	_____
5. Bimini	_____
6. Galley fuel	_____
7. Boat's papers	_____
8. _____	_____
9. _____	_____
10. _____	_____

Hurricane Plan Final Checklist

- | | |
|---|--|
| <input type="checkbox"/> Arrange Dock/Anchor lines | <input type="checkbox"/> Strip Bimini, sails, life rings |
| <input type="checkbox"/> Add chafe protection | <input type="checkbox"/> Disconnect shore power |
| <input type="checkbox"/> Use extra fenders/fenderboards as needed | <input type="checkbox"/> Close fuel valves |
| <input type="checkbox"/> Put duct taped on windows and hatches | <input type="checkbox"/> Close all but cockpit seacocks |
| <input type="checkbox"/> Insert plugs in engine ports | <input type="checkbox"/> Lock boat |
| <input type="checkbox"/> Notify marina manager | |

Boat's Current Location _____

Planned Location During Hurricane _____

If at a dock: Slip # _____
 Additional lines No. _____ Length _____ Size _____
 Chafe Gear _____ Fenders _____

If at a Hurricane Hole

Travel Time by Water from Present Location _____
 Are There Any Bridges _____
 If yes, when will they be closed prior to hurricane _____
 Has Owner of Surrounding Land been Contacted? _____
 When _____
 How Will the Skipper Get Ashore _____
 Type of Bottom _____ Depth _____
 Additional Anchor(s) No. _____ Size(s) _____
 Types _____
 Additional lines No. _____ Length _____ Size _____
 Additional Chain No. _____ Length _____ Size _____
 Chafe Gear _____ Swivel _____ Shackle _____

If at a Mooring/Anchorage

Last mooring inspection date _____
 How will skipper get ashore _____
 Type of bottom _____ Depth _____
 Mooring line should be extended _____ feet
 Additional anchors No. _____ Size _____
 Type(s) _____
 Additional lines No. _____ Length _____ Size _____
 Additional chain No. _____ Length _____ Size _____
 Chafe Gear _____ Swivel _____ Shackle _____

Diagram of Proposed Hurricane/ Mooring Arrangement



If Stored Ashore

Is Boat already stored ashore? Yes _____ No _____
 If no, what arrangements have been made for hauling? _____
 Storage location _____
 Contact Name (Marina/property owner) _____
 Phone No. _____