



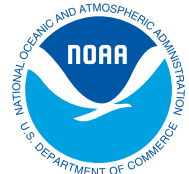
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These fact sheets for the off-bottom oyster aquaculture industry in the Gulf of Mexico provide guidelines and suggested safety procedures in preparing for tropical storms and hurricanes:

- **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

### Introductory Planning Guide

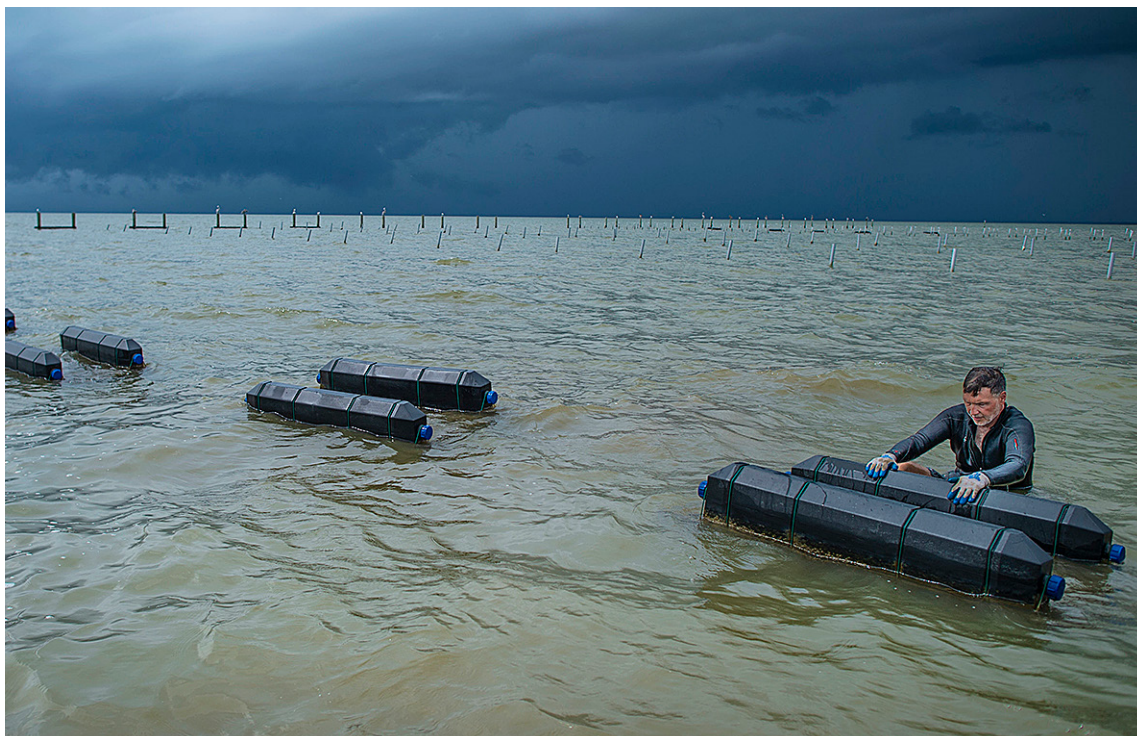
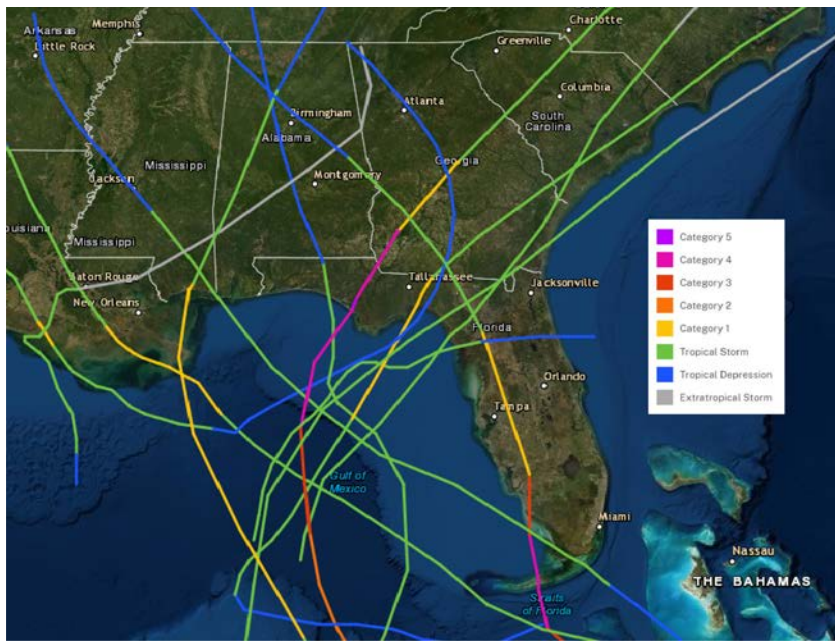


Photo courtesy of USDA Risk Management Agency

#### INTRODUCTION

Offbottom oyster aquaculture is relatively new in the Gulf of Mexico region. Since 2010, over 200 farms have become established in Alabama, Florida, Louisiana, and Mississippi. Oyster aquaculture, like any agriculture operation, has inherent risks with perils beyond growers' control. However, coastal waters present challenges for oyster farmers, beyond the traditional farm setting, in the form of tropical storms and hurricanes. Extreme conditions associated with these events can result in severe impacts to oyster farms. Damages related to wind, storm surge, and decreased salinity due to flooding include oyster mortality, loss of gear and equipment, and increased labor costs.

The Gulf of Mexico region has a long history of storms that have devastated many coastal communities. The official hurricane season is from June 1 through November 30. As the season progresses, the threat of major hurricanes increases from west to east across the region. As such, Texas and Louisiana are the prime targets for early season hurricanes, while the west coast of Florida is more likely to be impacted in mid-September to October. According to the National Oceanic and Atmospheric Administration (NOAA) National Hurricane Center, the four oyster-producing states (AL, FL, LA, MS) have experienced five hurricanes and seven tropical storms from



**FIGURE 1.** Paths of each tropical storm and hurricane from 2011 to 2019 that made landfall in Florida’s Big Bend and Panhandle, Alabama, Mississippi, and Louisiana since off-bottom oyster culture began in the Gulf of Mexico. Storm tracks were obtained through the NOAA Historical Hurricane Tracks Database ([bit.ly/37Fhc5l](https://bit.ly/37Fhc5l)).

2010 (when off-bottom oyster culture began in the Gulf) to 2019 (Figure 1, Table 1). In 2018, Hurricane Michael made landfall in Florida’s Panhandle as a Category 5 hurricane affecting oyster farms in four coastal counties. The perpetual threat of hurricanes in the Gulf of Mexico emphasizes the importance of business planning and storm preparedness as an essential part of any oyster culture operation, including seed production facilities, farms, and processing plants.

While a hurricane or tropical storm has the potential to inflict damage on oyster farms, growers who have developed storm plans have a better chance of minimizing losses. Planning enables growers to make sound decisions before a storm and increases chances for rapid recovery after the storm. When a storm is approaching, growers need to be able to activate a plan instead of trying to obtain supplies and deciding how to protect their operations. Problems recognized by growers who have not had a plan in place include insufficient training to execute storm preparations, inadequate workforce to prepare for and recover from storms, and lack of proper equipment and supplies on hand.

Information included in this guide was obtained from workshops held in Alabama and Florida, where growers discussed how different preparation strategies and gear types fared during severe weather events. In addition, knowledge on management practices for disaster responses was shared by aquaculture extension specialists at a regional meeting (2018 Oyster South Symposium). This introductory fact sheet focuses on storm plan development, pre-storm preparations, and post-storm recovery. Additional fact sheets in this series provide specific information pertaining to water-based operations for different oyster culture methods (adjustable long-lines, floating cages, floating bags) and land-based operations (hatchery, nursery, processing facilities). These and other resources listed at the end of this fact sheet can assist oyster growers in developing individualized storm plans to be better prepared for the hurricane season.

	STORM EVENT	LANDFALL	
		DATE	LOCATION
<b>TABLE 1.</b> Summary of tropical storms and hurricanes from 2011 to 2019 that have affected Florida’s Big Bend and Panhandle, Alabama, Mississippi, and Louisiana since off-bottom oyster culture began in the Gulf of Mexico. Note there was not a named storm in 2010. Information was obtained through the NOAA National Hurricane Center (NHC), <a href="https://www.nhc.noaa.gov/data/tcr">www.nhc.noaa.gov/data/tcr</a> . Website links for each event provide detailed reports by the NHC.	<a href="#">Tropical Storm Lee</a>	September 4, 2011	Intracoastal City, LA
	<a href="#">Tropical Storm Debby</a>	June 26, 2012	Steinhatchee, FL
	<a href="#">Hurricane Isaac - Cat 1</a>	August 29, 2012	Mississippi River mouth and near Port Fourchon, LA
	<a href="#">Tropical Storm Andrea</a>	June 6, 2013	Steinhatchee, FL
	<a href="#">Tropical Storm Colin</a>	June 7, 2016	Keaton Beach, FL
	<a href="#">Hurricane Hermine - Cat 1</a>	September 2, 2016	East of St. Marks, FL
	<a href="#">Hurricane Irma - Cat 1</a>	September 10, 2017	Multiple FL landfalls: Cudjoe Key, Marco Island, Big Bend/Panhandle
	<a href="#">Tropical Storm Nate</a>	October 8, 2017	Multiple landfalls: Mississippi River mouth and near Biloxi, MS
	<a href="#">Tropical Storm Alberto</a>	May 28, 2018	Bay County/Walton County, FL
	<a href="#">Tropical Storm Gordon</a>	September 3, 2018	Multiple landfalls: Tavernier, FL; Flamingo, FL; AL/MS border
	<a href="#">Hurricane Michael - Cat 5</a>	October 10, 2018	Florida Panhandle near Tyndall Air Force Base
	<a href="#">Hurricane Barry - Cat 1</a>	July 13, 2019	Pecan Island, LA



## DEVELOP A PLAN

To be prepared for hurricanes or tropical storms, oyster growers should develop a comprehensive plan, beginning with site considerations and culture gear installation through post-storm recovery. It is strongly recommended to have a plan developed and in place prior to June of any given year. Both water and land-based operations should be included in the plan. Factors in developing a plan include scale of operation, personnel, equipment, gear type, and other family and personal obligations. Following are some general things to consider in developing a storm plan.

**Risks** A farm's vulnerability to risks, such as wind, storm surge, and flooding, can be assessed by reviewing previous storm trends near the farm's location. The NOAA National Hurricane Center, [www.nhc.noaa.gov](http://www.nhc.noaa.gov), has storm information (wind speed and direction, pressure, landfall) archived since 1900, which can be used to determine prevailing patterns for different growing locations. By reviewing characteristics of previous storms that have made landfall near the farm, growers can consider what they would have done to prepare and what should be included in their plan.

**Business Information** Important information that must be safeguarded should be identified in the plan. A list of insurance policies and financial documents should be kept current along with locations where these documents are stored. Most of this information can be stored electronically; however, hard copies of important documents may be useful in the event of power outages. It may be prudent to duplicate some documents and keep them in different locations.

**Farm Information** Farm information, such as coordinates, maps, and diagrams of layout and gear, should be included in the plan and available immediately after the storm. Timely inventory records (number of culture units and estimated quantity, age, and sizes of oysters) should also be included. Maintaining a spreadsheet with this information is important for record-keeping required by insurance policies, business loans, or crop disaster assistance programs, such as the U.S. Department of Agriculture (USDA), Farm Service Agency's Noninsured Crop Disaster Assistance Program (NAP). Oyster inventory apps, such as Oyster Tracker or SmartOysters, are available and recommended. Inventory records should also include vehicles, boats, and motors, as well as equipment used on farms (tumblers, pressure washers, cranes or winches, etc.), at shore-based seed facilities (tanks, pumps, filtration systems, etc.), or at shellfish processing plants (forklifts, refrigerated units, etc.). Photographs and videos with time stamps of both water and land-based operations can provide timely and critical documentation.

**Farm Employees** The plan should have information available for farm employees, such as an operational plan identifying essential personnel, services, and equipment, re-opening

protocols, records storage, and agreements with suppliers and contractors. Information on evacuation routes, re-entry requirements, shelter-in-place plans, and alternative reporting locations could be included. It is important to know how many people will be needed to implement the storm plan and who will help as a storm is approaching. Farm employees should be able to implement the storm plan themselves and be cross-trained in tasks outside their normal job duties to assist with securing gear.

**Communication** An emergency contact list (electronic and hard copies) for key personnel and businesses providing services to the farm and its customers should be developed and phone numbers kept current. Phone numbers for employees to call for information should also be included. Another communication component could be developed for the media, customers, or public with predetermined messages and messaging platforms.

**Insurance Policies** The time to review insurance policies for the business is prior to the hurricane season to ensure there is adequate coverage for flood, wind, fire, theft, general liability, catastrophic loss, loss of income, and product liability. Insurance agents should be contacted to review coverage.

## PREPARE A PLAN

Preparation is essential to successful plan implementation. Oyster growers should consider storm preparedness during farm installation, pre-storm season, active season, and post-storm recovery. In this introductory fact sheet, general advice is provided that an oyster farmer can follow to be better prepared in advance of a hurricane, tropical storm, or other severe weather. Advice specific to certain gear types is provided in additional fact sheets found in this series.

**Water-based Preparation** Growers should allow enough time to prepare their water-based operations. The farm's written plan will provide guidelines on how to secure and recover culture gear. Growers may find it helpful to watch videos provided by gear manufacturers as well as seek their recommendations. Storm plans should be practiced so that gear can be secured under a variety of conditions. Likewise, growers and employees must be comfortable with working in and under water during rough sea conditions. Timed practice drills will allow growers to assess what realistically can be accomplished. For example, growers can determine how long it takes to implement the storm plan for one line of gear and then expand based on the entire farm. As storm drills are conducted, plans can be modified. Knowing how long it may take to get back to the boat ramp or dock from the farm may also be helpful as extreme low (blowout) tides can occur when storms approach, resulting in waters too shallow to return.

**Land-based Preparation** Growers should also allow enough time to prepare their land-based operations. Since many growers work in areas that are low lying, equipment and

## Recommended equipment and supplies to implement an oyster farm's hurricane preparation and recovery plan

- NOAA weather radio and extra batteries
- Mobile communications-cell phones, hand-held portable radios, chargers, extra battery packs
- Camera with date and time stamp
- First aid supplies
- Fire extinguisher
- Flashlights and extra batteries
- Spare battery and battery charger for boat
- Fuel and oil properly stored, fuel filters
- Tool kit
- SCUBA gear (keep tanks full)
- Pump with hoses, winch, crane, or hoist
- Extra anchors, ropes, lines
- Spare caps, clips, baskets, bags, bungee cords, cable ties
- Lumber, shutters, tarps, tie-downs for land-based facilities
- Generator of sufficient size for operational needs (serviced and tested)
- Potable water and storage containers as hurricanes come when it is hot

surplus gear will need to be moved to higher ground. Identifying where to relocate items, knowing how much space will be required, and how much time it will take should be determined in advance. Gear that is bulky, such as floats or silos, may require more space and time to relocate than anticipated. Prior to the start of hurricane season (June 1), growers should begin assessing and preparing farms on the water and facilities on land. Farm maintenance should be kept up with, and farm inventory lists (oysters, gear, equipment, machinery, vehicles, etc.) should be updated as needed. Equipment and supplies should be checked and stockpiled. When severe weather approaches, it may be impossible to obtain items needed (fuel, hardware supplies, etc.) from local stores. These businesses may also be closed in the aftermath of a hurricane.

## IMPLEMENT A PLAN

This introductory fact sheet is part of a series with specific fact sheets developed for different types of operations: floating bag farms, floating cage farms, adjustable long-lines, seed production facilities, and processing plants. It is recommended to seek out the relevant fact sheets for specific guidance in implementing a storm plan for these operations.

Broadly, oyster culture gear should be installed with hurricanes and storms in mind. Experienced growers advise overbuilding in setting up a farm. Additionally, routine farm maintenance is key to being prepared in anticipation of hurricane season. Gear (anchors, lines,

bags, baskets, cages, etc.) should be checked regularly and secured, especially areas where culture units are connected to long-lines. Lines should be replaced as soon as chafing is observed. Culture units should be stocked at densities that minimize line chafing; growers may want to maintain oysters at lower densities during hurricane season. Finally, it is recommended that culture units should be marked with business information. Durable, relatively inexpensive tags are available from several commercial suppliers, such as Top-Me Flat Tags, Nelco Products, and Aqua Bag Tags, and can include such information as the grower's name, phone number, lease number, and license or certification number (Figure 2). Lost gear, which typically can be found on adjacent shorelines to the farm, can be more easily identified and returned to the grower after a disaster if it is tagged.

A major part of the plan implementation is ensuring that all employees know their responsibilities prior to, during, and after a storm. Employees should be trained in the safe operation of unfamiliar equipment they may have to use if a storm hits. To have an adequate workforce, volunteers (non-employees) may need to be identified who are willing to work, and they also must be aware of procedures outlined in the plan. Engaging nearby growers who are willing to work together as a team to secure gear is another option to ensure



**FIGURE 2.** Commercially available tags attached to oyster culture bags. Information provided can include grower's name, phone number, lease number, and license or certification number. Photos courtesy of University of Florida/IFAS Shellfish Aquaculture Extension



a farm's storm plan can be implemented in a timely manner.

Determining when to activate a farm's hurricane plan depends on the individual operation and personal evaluation of the farm's exposure. Other factors that must be taken into consideration include farm size, gear type, available personnel, and other obligations. Further, storms can change paths and increase in size and intensity quickly. Various growing areas and even areas within the same waterbody may be affected differently by prevailing winds and currents. Growers should continually check weather reports and websites of local National Weather Service offices and government/emergency management offices. This information will help in deciding when to implement a hurricane plan.

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 following color codes developed by the authors of these fact sheets address increasing levels of concern and actions. The first steps of the plan should be initiated when a storm is forming in the Gulf of Mexico or Caribbean Sea or is moving through the Florida straits (Code Yellow). The next steps should be taken when the farm is in the predicted storm path and hurricane/tropical storm watches have been issued for the area (Code Orange). When there is high probability of being in the storm's path and hurricane/tropical storm warnings have been issued for the area, the final preparations should be implemented (Code Red).

## RECOVER AFTER THE STORM

After the storm or hurricane passes, personal obligations may take priority. If a farm has been prepared according to the plan, it may not be necessary to inspect it immediately. Most likely, access to a boat ramp and farm may be blocked with downed trees, electrical lines, boats, or other storm debris. As soon as it is safe to do so, the plan for recovery of oyster crops and gear should be implemented. Adequate help, supplies, surplus gear, and equipment will be needed as discussed in previous sections of this fact sheet.

While assessing impacts to a farm's operations, photos and videos with time stamps can document damages. Insurance agents should be notified of damages. A post-storm inventory of oysters and gear should be completed; however, it may be too soon to assess oyster mortalities. Growers may want to wait several weeks to see if additional losses occur due to lower salinities or other factors. If the grower is enrolled in the USDA Farm Service Agency's Noninsured Crop Disaster Assistance Program, the county office will need to be notified of crop losses within 72 hours of the date that they first become apparent, not necessarily when the event occurs.

In addition to cleaning up water and land-based operations, areas adjacent to farms should be inspected for lost gear that may have washed ashore (Figure 3). It is important to show the public that growers are responsible by removing derelict gear from the environment. Recovered gear that is tagged could be placed in a central location for growers to retrieve. Growers and employees will need



**FIGURE 3.** Oyster culture gear and dead oysters strewn along shoreline adjacent to oyster aquaculture farms in Franklin County, Florida, after Hurricane Michael. Photo courtesy of Auburn University Shellfish Lab

to dress appropriately (boots, gloves, etc.) to avoid injury from debris, snakes, chainsaws, or other hazards.

In anticipation of storm surge, flooding, and power outages, shellfish areas will be temporarily closed to harvesting. The state regulatory agency responsible for managing these areas should be contacted to find out the status of the harvest areas and if water samples and shellfish meats must be tested in order to reopen. At some point, suppliers and customers should be notified of the farm's status. When waters do reopen for harvesting, a social media



Tangled floating culture bags after Hurricane Michael devastated oyster farms in the Florida Panhandle in October 2018. Photo courtesy of Auburn University Shellfish Lab

campaign could be implemented to inform customers. Local news media could also be contacted as human-interest stories are important for informing the public.

If the county is declared a disaster, the farm may be eligible for certain federal programs. The U.S. Federal Emergency Management Agency (FEMA) should be contacted to find out what programs may be available to help in recovery efforts. Several low-interest loan programs may be offered through the U.S. Small Business Administration and the USDA Farm Service Agency for refinancing, repairs, replacement of damaged property, or production losses. Information in the Resources section of this guide provides website links to these federal and state agencies.

In the aftermath of the storm, growers should take the time to review their farm's plan and determine what went right and what could be done differently in the

future. The plan should be modified based on lessons learned. Growers should also assess their farm's economic situation and recovery options, such as replanting, repairing, and/or replacing gear and equipment.

## FACT SHEETS

FDACS Gear Management: [shellfish.ifas.ufl.edu/wp-content/uploads/Media\\_Files\\_Aquaculture-Files\\_FDACS-P-01914-Aquaculture-Gear-Management\\_2019.pdf](https://shellfish.ifas.ufl.edu/wp-content/uploads/Media_Files_Aquaculture-Files_FDACS-P-01914-Aquaculture-Gear-Management_2019.pdf)

FDACS Preparation and Recovery from Hurricanes: [shellfish.ifas.ufl.edu/wp-content/uploads/FDACS-P-01461-Preparation-and-Recovery-from-Hurricanes\\_2019.pdf](https://shellfish.ifas.ufl.edu/wp-content/uploads/FDACS-P-01461-Preparation-and-Recovery-from-Hurricanes_2019.pdf)

University of Florida/IFAS Hurricane Manual for Marine Interests: [sfyl.ifas.ufl.edu/media/sfylifasufledu/miami-dade/documents/disaster-preparation/hurricane-and-disaster/HurricaneManual1-\(2\).pd](https://sfyl.ifas.ufl.edu/media/sfylifasufledu/miami-dade/documents/disaster-preparation/hurricane-and-disaster/HurricaneManual1-(2).pd)

## RESOURCES

### National Information

American Red Cross: 1-800-RED-CROSS (800-733-2767), [www.redcross.org](http://www.redcross.org)  
 American Red Cross Food, Shelter, and Financial Assistance: 866-GET-INFO (866-438-4636)  
 Centers for Disease Control and Prevention (CDC): [www.cdc.gov](http://www.cdc.gov)  
 Environmental Protection Agency (EPA): [www.epa.gov](http://www.epa.gov)  
 Federal Emergency Management Agency (FEMA): 800-621-FEMA (3362), [www.fema.gov](http://www.fema.gov)  
 FEMA Agencia Federal para el Manejo de Emergencias: [www.fema.gov/es](http://www.fema.gov/es)  
 FEMA Disaster Assistance: [www.DisasterAssistance.gov](http://www.DisasterAssistance.gov)  
 FEMA Hurricane Ready Business Toolkit: [https://www.ready.gov/sites/default/files/2020-04/ready\\_business\\_hurricane-toolkit.pdf](https://www.ready.gov/sites/default/files/2020-04/ready_business_hurricane-toolkit.pdf)  
 National Oceanic and Atmospheric Administration (NOAA): [www.noaa.gov](http://www.noaa.gov)  
 NOAA Extreme Weather Information Sheet (NEWIS) App (only for Apple devices): [apps.apple.com/us/app/newis/id669225819](https://apps.apple.com/us/app/newis/id669225819)  
 NOAA Gulf of Mexico Disaster Response Center: [oceanservice.noaa.gov/hazards/drc](http://oceanservice.noaa.gov/hazards/drc)  
 NOAA National Centers for Environmental Information: [www.ncei.noaa.gov](http://www.ncei.noaa.gov)  
 NOAA National Data Buoy Center: [www.ndbc.noaa.gov](http://www.ndbc.noaa.gov)  
 NOAA National Environmental Satellite, Data, and Information Service: <https://www.nesdis.noaa.gov/>  
 NOAA National Hurricane Center: [www.nhc.noaa.gov](http://www.nhc.noaa.gov)  
 National Weather Service: [www.weather.gov](http://www.weather.gov)  
 Ready Home and Business Storm Preparation: [www.ready.gov](http://www.ready.gov)  
 Ready Business: [www.ready.gov/business](http://www.ready.gov/business)  
 Ready 36-hour pre-landfall timeline for coastal residents: [www.ready.gov/hurricanes](http://www.ready.gov/hurricanes)  
 Salvation Army (donation hotline): 800-SAL-ARMY (800-725-2769)  
 US Department of Agriculture, Farm Service Agency (FSA): [www.fsa.usda.gov](http://www.fsa.usda.gov)  
 USDA FSA state offices: [www.fsa.usda.gov/state-offices/index](http://www.fsa.usda.gov/state-offices/index)  
 US Department of Homeland Security: [www.dhs.gov](http://www.dhs.gov)  
 US Small Business Administration: [www.sba.gov](http://www.sba.gov)

### NOAA Extreme Weather Information Sheets

Visit <https://www.ncei.noaa.gov/resources/newis> to download the latest versions of the NOAA Extreme Weather Information Sheets. Fact sheets include pertinent state, county, and national contact information, radio stations, NOAA weather radio, and Department of Transportation information.

### Alabama Information

AL Emergency Management Agency: [ema.alabama.gov](http://ema.alabama.gov)  
 AL Department of Conservation and Natural Resources (ADCNR): [outdooralabama.com](http://outdooralabama.com)  
 ADCNR Marine Resources Division: Dauphin Island (251-861-2882) or Gulf Shores (251-968-7576)  
 AL Department of Environmental Management: 334-271-7700, [www.adem.state.al.us](http://www.adem.state.al.us)  
 AL Department of Insurance: 334-269-3550, [www.aldoi.gov](http://www.aldoi.gov)  
 AL Department of Public Health (ADPH)\*: 334-206-5300, [www.alabamapublichealth.gov](http://www.alabamapublichealth.gov)  
 ADPH Environmental Services\*: 334-206-5373  
 AL Department of Transportation: 334-353-6554, [www.dot.state.al.us](http://www.dot.state.al.us)  
 AL Official State Website: [www.alabama.gov](http://www.alabama.gov)  
 AL Oyster Aquaculture: [alaquaculture.com](http://alaquaculture.com), [info@alaquaculture.com](mailto:info@alaquaculture.com) (email)  
 Ready Alabama: [www.readyalabama.gov](http://www.readyalabama.gov)

### Florida Information

FL Agency for Workforce Innovation (unemployment claims): 800-204-2418, [www.floridajobs.org/job-seekers](http://www.floridajobs.org/job-seekers)  
 FL Construction Industry Licensing Board: 850-487-1395, [www.myfloridalicense.com/DBPR](http://www.myfloridalicense.com/DBPR)  
 FL Department of Agriculture and Consumer Services (FDACS): [www.fdacs.gov](http://www.fdacs.gov)  
 FDACS Division of Aquaculture\*: [www.fdacs.gov/Divisions-Offices/Aquaculture](http://www.fdacs.gov/Divisions-Offices/Aquaculture)  
 FDACS Division of Consumer Services (price gouging and fraud): 800-HELP-FLA (800-435-7352), [www.fdacs.gov/Divisions-Offices/Consumer-Services](http://www.fdacs.gov/Divisions-Offices/Consumer-Services)  
 FDACS Mosquito Control Directory: [www.fdacs.gov/Business-Services/Mosquito-Control](http://www.fdacs.gov/Business-Services/Mosquito-Control)  
 FL Department of Children and Families (disaster food stamp hotline), 800-342-9274: [www.myflfamilies.com](http://www.myflfamilies.com)  
 FL Department of Financial Services (insurance complaints and assistance): 800-22-STORM (800-227-8676), [www.myfloridacfo.com](http://www.myfloridacfo.com)  
 FL Department of Transportation: 866-374-FDOT (3368), [www.fdot.gov](http://www.fdot.gov)  
 FL Division of Emergency Management: 850-815-4000, [www.FloridaDisaster.org](http://www.FloridaDisaster.org)  
 FL Emergency Information Hotline: 800-342-3557  
 FL Official State Website: [www.myflorida.com](http://www.myflorida.com)  
 FL STORMS App: [floridastorms.org/app](http://floridastorms.org/app)

### Louisiana Information

LA Department of Agriculture and Forestry: 866-927-2476, [www.la.gov](http://www.la.gov)  
 LA Department of Children and Family Services: 888-LAHELP-U (524-3578), [www.dss.state.la.us](http://www.dss.state.la.us)  
 LA Department of Environmental Quality: 866-896-LDEQ (5337), [deq.louisiana.gov](http://deq.louisiana.gov)  
 LA Department of Health (DOH): 225-342-9500, [ldh.la.gov](http://ldh.la.gov)  
 LA DOH Molluscan Shellfish Central Office\*: 225-342-7653, [ldh.la.gov/index.cfm/page/629](http://ldh.la.gov/index.cfm/page/629)  
 LA Department of Transportation: 877-4LA-DOT (452-3683), [wwwsp.dotd.la.gov](http://wwwsp.dotd.la.gov)  
 LA Department of Wildlife and Fisheries: 225-765-2800, [www.wlf.louisiana.gov](http://www.wlf.louisiana.gov)  
 LA Get a Game Plan: [www.getagameplan.org](http://www.getagameplan.org)  
 LA Office of Homeland Security and Emergency Preparedness: 225-925-7500, [www.gohsep.la.gov](http://www.gohsep.la.gov)  
 LA Official State Website: [www.louisiana.gov](http://www.louisiana.gov)  
 LA Seafood Marketing and Promotions Board: [www.louisianaseafood.com](http://www.louisianaseafood.com)  
 LA Workforce Commission (unemployment claims): 225-342-3111, [www.laworks.net](http://www.laworks.net)  
 LSU Agricultural Research Station: [www.lsuagcenter.com/portals/our\\_offices/research\\_stations/aquaculture](http://www.lsuagcenter.com/portals/our_offices/research_stations/aquaculture)

### Mississippi Information

MS Board of Animal Health: 888-722-3106, [www.mbah.state.ms.us](http://www.mbah.state.ms.us)  
 MS Department of Environmental Quality: 888-786-0661, [www.mdeq.ms.gov](http://www.mdeq.ms.gov)  
 MS Department of Marine Resources (MDMR): 800-374-3449, [dmr.ms.gov](http://dmr.ms.gov)  
 MDMR Shellfish Bureau\*: 228-374-5167 | 800-385-5902, [dmr.ms.gov/shellfish](http://dmr.ms.gov/shellfish)  
 MS Department of Public Safety: 601-987-1212, [www.dps.ms.gov](http://www.dps.ms.gov)  
 MS Department of Transportation: 601-359-7001, [mdot.ms.gov](http://mdot.ms.gov)  
 MS Emergency Management Agency (MEMA): 866-519-6362, [www.msema.org](http://www.msema.org)  
 MEMA Smart Phone App: [www.msema.org/about/mema-mobile-application](http://www.msema.org/about/mema-mobile-application)  
 MEMA Hurricane Preparedness: [www.msema.org/preparedness-2/hurricanes](http://www.msema.org/preparedness-2/hurricanes)  
 MS Official State Website: [www.ms.gov](http://www.ms.gov)  
 MS Ready.gov: [www.ready.gov/mississippi](http://www.ready.gov/mississippi)

\* These state agencies monitor and manage shellfish harvesting areas and regulate and inspect shellfish processing facilities.

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.