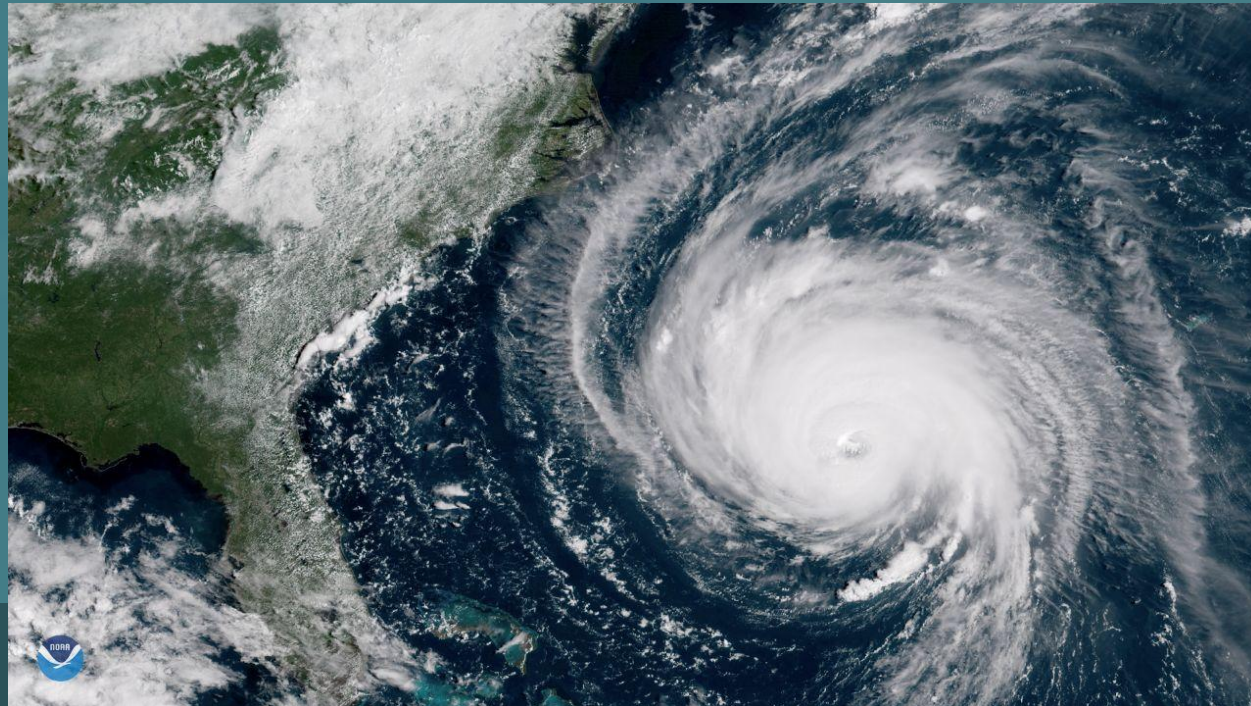


Weathering the Storm

Creating a Storm Plan for a Shellfish Farm



<https://spectrumlocalnews.com/nc/triangle-sandhills/news/2019/03/14/six-months-since-hurricane-florence-hit-north-carolina>

Impacts of Storm Damage

- Creation of marine debris
- Lost and broken gear
- Time and labor to recover
- Loss of product and revenue



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Do You Have a Storm Plan?

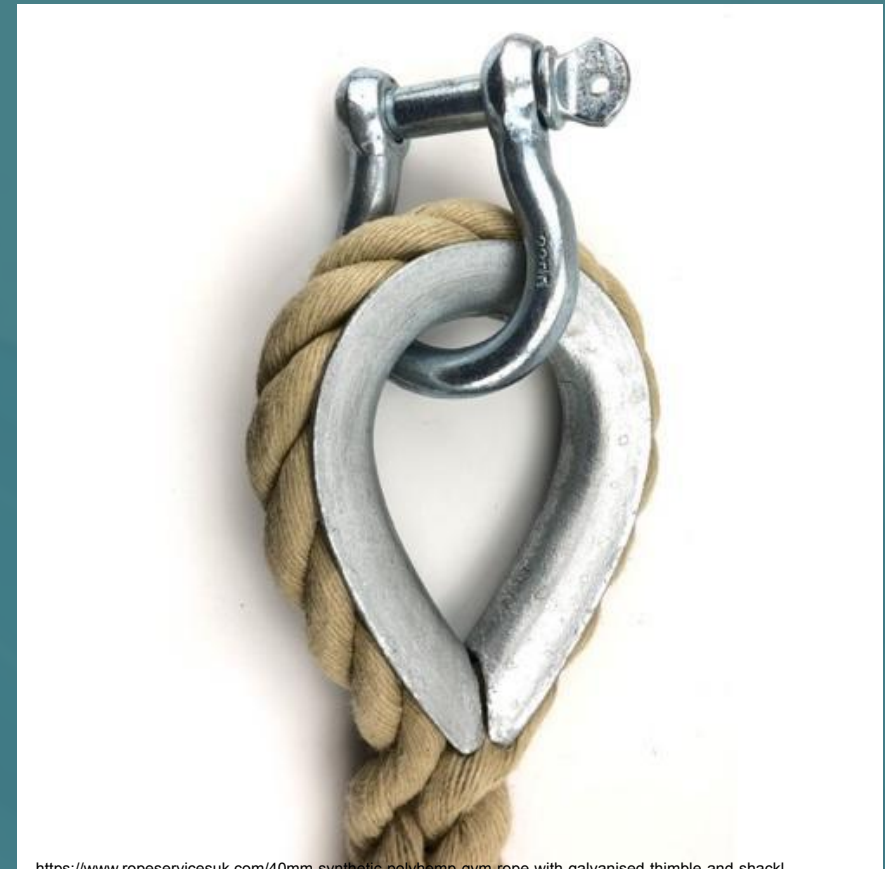
- Yes, an informal storm plan
- Yes, a written storm plan
- No, we wing it

Why you need a storm plan

- A written guideline to use in preparations
- Inform farm workers
- Verify that key components are checked and prepared
- Ensure that documentation occurs
- Mental fatigue associated with multiple storms

Planning Begins Before Installation

- Assess your farms exposure
 - Take storms into consideration when selecting a site
 - Wave energy, wind direction, and fetch
- Size anchors, lines, and fasteners for the worst case
- Overbuild weak gear components
- Install anchors as deep as possible
- Use like-to like attachments to avoid line chafing



<https://www.ropeservicesuk.com/40mm-synthetic-polyhemp-gym-rope-with-galvanised-thimble-and-shackle>

Anchoring Options

Helical Auger (Screw) Anchors



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Driven Earth Anchors



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Components of a Plan

- Guidelines for installation of new gear
- Inspections schedule for gear
 - Prior to storm season
 - As storms are forecast
- Accurate farm inventory
- Tiered approach to prepare when storms are forecast
 - Tier 1
 - Tier 2
 - Tier 3

Creating an Inspection Schedule

- Follow a regular inspection schedule to find worn out gear before it breaks
 - Before hurricane season
 - After storms
 - Periodically throughout year
- Document the inspection
 - Checklist format
- Replace or reinforce gear and lines as damage is noted

Farm Inventory

- Keeping an accurate farm inventory will make recovery after storms easier
- Crop insurance will require documentation of what was on the farm
- Commercial applications or build your own

Storm Drills

- Do not need to conduct drills on entire farm
- Timed drills of portions of farm
- Best to practice in poor weather



<http://www.oystergro.com/how-to-oystergro/>

Do You Conduct Storm Drills to Determine How Long You Need to Prepare for Storm Impacts?

- Yes, yearly.
- Yes, when changes are made to the farm.
- No, we prepare when a storm is forecast.

Onshore Activities and Boats

- Low lying areas are prone to damage as well
- Plan to secure any gear ashore
- Move work boats to safe areas



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Tier 1 – Tropical System Forms

- Perform a farm inspection
- Replace/repair and damaged gear
- Consider reinforcing weak points or anchoring
- Ensure stocking densities are optimal
- Follow through with gear cleaning/biofouling removal
- Verify inventory is up to date
- Document state of farm

Tier 2 – Tropical System Watch

- Continue to track storms forecast
- Keep in mind how long preparing the farm may take
- Finalize plans to prepare farm and workboats
- Sell product as you are able




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Tier 3 – Tropical System Warning

- Implement the preparedness plan
 - Reinforce gear
 - Sink cages
- Document preparations with photos
- Remove any unused gear
- Get work boats to a secure area

Use available resources

- NOAA and NWS data
- Local Forecast
- Storm plan guides
- Other growers



Oyster
AQUACULTURE

Bill Walton
Leslie Sturmer
Brian Callam
Erik Lovstrand
Natalie Simon
Rusty Grice

Tropical Storm and Hurricane Preparedness for
Off-bottom Oyster Aquaculture in the Gulf of Mexico
Floating Bag Farms Guide

Many oyster growers in the Gulf of Mexico region use the floating bag system, an off-bottom culture gear. This fact sheet provides guidance related to storm preparation and planning for this gear type. It is part of a series providing an overview of storm preparation and planning for other

These fact sheets for the

Post Storm Recovery

- Only return to the farm once it is safe to do so
 - Make note of debris in the surrounding area
- Document state of the farm upon returning
- Inspect for lost or damaged gear
- Refloat or return gear to operational normal
- Assess mortality of crop

Questions?

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