



North Carolina Shellfish Lease Application

Version 2.0 | Revised: February 2025



IMPORTANT

- Complete this application fully, accurately, and legibly.
- Use black or blue ink.
- Double-check all information for completeness and clarity.
- Missing or illegible details may lead to application denial.

Contact Information

North Carolina Department of Environmental Quality

Division of Marine Fisheries

Mailing Address: PO Box 769, Morehead City, NC 28557-0769

Phone: (252) 515-5480

Email: dmf.leasingshellfish@deq.nc.gov

Website: deq.nc.gov/shellfish-lease

Application Period

March 1, 2025 – August 1, 2025

Purpose Statement

The Shellfish Lease and Aquaculture Program encourages responsible, sustainable shellfish farming by offering leasing opportunities in North Carolina’s coastal waters.

Who Should Apply?

Individuals or businesses seeking to lease coastal waters for shellfish aquaculture, including oyster and clam farming.

Legal Disclaimer

Submitting this application **does not** guarantee approval. Every submission is reviewed according to North Carolina General Statutes and Division of Marine Fisheries (DMF) regulations. Incomplete applications may be rejected.

Applicant Initials _____

Checklist

Section 1 & 2

Primary Applicant Information

- Applicant/Business Agent and Co-Applicant:** Provide complete information (if applicable).
- Businesses:** Complete Section 2 and attach the business's Articles of Organization.
- Physical & Mailing Addresses:** Both are required.
- Photo ID:** Attach a clear photocopy of your NC Driver's License or other acceptable photo identification.


Section 3

Applicant Qualifications

- Qualifying Information:** Complete the entire section accurately.

Section 4

Shellfish Lease Site Information

- Application Fee:** Enclose a fee payable to NC DMF. (Do not include lease rent with your application).
- Coordinates in Decimal Degrees:**
 - Example: 35.12345678° N, -76.12345678° W
 - List coordinates in a **clockwise** rotation  starting from the northernmost point.
 - Verify that the coordinates match both your maps and the actual intended lease site.

Section 5

Shellfish Lease Management Plan

- Completion:** Provide detailed responses. Inadequate information may cause delays or denial.
- Storm Preparedness Plan:** Answer all questions thoroughly. Contact Shellfish Lease Program staff if you need guidance.

Section 6

Shellfish Lease Cleanup Provisions

- Acknowledgment:** Sign to confirm you understand the Shellfish Lease Cleanup Provisions.

Section 7

Site Diagrams

- Location Map
- Top View Diagram
- Side View Diagram

Ensure clarity and accuracy in each diagram.

Applicant Initials _____

Section 8

Final Signature

- Review & Notarize:** Check all parts of the application, then sign it in the presence of a notary public.

Appendix I

Shellfish Lease Application Process

- Read Completely:** Ensure you understand every step of the entire application process.

Appendix II

Shellfish Lease Siting Requirements & Restrictions

- Review Thoroughly:** You must be aware of all leasing requirements and restrictions.

Appendix III

Shellfish Lease Management Plan & Technical Assistance

- Familiarize Yourself:** Follow all guidelines for creating a valid management plan.

Appendix IV

Shellfish Lease Production Requirements

- Review Production Standards:** Understand these requirements to avoid future noncompliance.

Appendix V

Public Health Information

- Stay Informed:**
 - Time-to-temperature harvest and handling restrictions can affect business operations.
 - Review the most recent Shellfish Sanitation proclamations (SS-1 and SS-2).
 - Be aware of re-submergence requirements and Vibrio control measures.
 - **Contact Shellfish Sanitation** for questions.
 - **Your Responsibility:** Know and follow **all** public health rules for your lease.

Appendix VI

Aquaculture Permits

- Required Permits:** Identify and obtain the necessary permits for your proposed activities.

Appendix VII

Consent Form from Riparian Property Owners / Submerged Land Claims

- Developed Shoreline:** If lease boundaries lie within 250 feet of a developed shoreline, submit the notarized form on page 27.
- Existing Submerged Land Claim:** If your lease overlaps such a claim, submit the owner's notarized permission using the form on page 27.

Applicant Initials _____

Appendix VIII

Storm Preparedness & Gear Management Plan

- Read Carefully:** Learn all storm preparedness and gear management requirements.
- Complete Template:** Use the form in Section 5 to detail your storm plan.

- Mail the completed application and non-refundable fee (postmarked by August 1, 2025) to:**

NC Division of Marine Fisheries

Attn: Shellfish Lease and Aquaculture Program

PO Box 769

Morehead City, NC 28557-0769

Applicant Initials _____

Application

Section 1

Primary Applicant Information

If applying as a business, list business agent information in this section.

First Name	MI	Last Name	Suffix		
Mailing Address		PO Box	City	State	Zip
Physical Address		PO Box	City	State	Zip
Day Phone:			Alt Phone:		
Email Address:			<input type="checkbox"/> Check to opt-in for email receipt of all paperwork		
Race:	Height:	Weight:			
Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female	Eye Color:	Hair Color:			
Have you been a legal resident of the state of North Carolina for at least 6 months? <input type="checkbox"/> No <input type="checkbox"/> Yes					
Type of Photo Identification (Include a photocopy)					
Check One: <input type="checkbox"/> Driver's License <input type="checkbox"/> State I.D. <input type="checkbox"/> Military I.D. <input type="checkbox"/> Resident Alien I.D. <input type="checkbox"/> Passport					
Number:			Expiration Date:		
Are you related by blood or marriage to any person now working for DMF? <input type="checkbox"/> No <input type="checkbox"/> Yes*					
*If yes, name and relationship: _____					
Do you have four or more convictions of DMF fisheries violations in the past three years? <input type="checkbox"/> No <input type="checkbox"/> Yes*					
<i>* If yes, you will not be approved for permits to work a shellfish lease, other than cultch on bottom.</i>					
Do you, anyone in your household, or any business you are a part of, currently have or hold any other shellfish leases or subleases? <input type="checkbox"/> No <input type="checkbox"/> Yes*					
*If yes, list the lease numbers of leases you are associated with: _____					
[G.S. 113-202 (c): no person, family or business may hold more than 50 acres of leased public bottom]					

Applicant Initials _____

Co-Applicant Information

If Applicable

First Name	MI	Last Name	Suffix		
Mailing Address		PO Box	City	State	Zip
Physical Address		PO Box	City	State	Zip
Day Phone:			Alt Phone:		
Email Address:			<input type="checkbox"/> Check to opt-in for email receipt of all paperwork		
Type of Photo Identification (Include a photocopy)					
Check One: <input type="checkbox"/> Driver's License <input type="checkbox"/> State I.D. <input type="checkbox"/> Military I.D. <input type="checkbox"/> Resident Alien I.D. <input type="checkbox"/> Passport					
Number:			Expiration Date:		
Are you related by blood or marriage to any person now working for DMF? <input type="checkbox"/> No <input type="checkbox"/> Yes* <i>*If yes, name and relationship: _____</i>					
Do you have four or more convictions of DMF fisheries violations in the past three years? <input type="checkbox"/> No <input type="checkbox"/> Yes* <i>*If yes, you will not be approved for permits to work a shellfish lease other than cultch on bottom</i>					
Do you currently have or hold an interest in any other shellfish leases? <input type="checkbox"/> No <input type="checkbox"/> Yes* <i>*If yes, list the lease numbers of leases you are associated with:</i> <hr/>					
[G.S. 113-202 (c): no person or business may hold more than 50 acres of leased public bottom]					

Applicant Initials _____

Section 4 Shellfish Lease Site Information

Check the box(es) for the type of lease(s) you are applying for (The **non-refundable and non-transferable**, application fee must accompany each application.) If you are applying for a Water Column and there is no existing bottom lease footprint, then you **MUST APPLY FOR BOTH** on this application for a total fee of \$300.00:

- Bottom Shellfish Lease (\$200.00):** A bottom lease primarily uses cultch, or low-profile structures to cultivate shellfish. Cages and gear are limited to a maximum height of 18 inches above the bottom.
Rent: \$10/acre per year

Your first rent payment will be due upon receipt of the lease contract for to sign.

- Water Column Shellfish Lease/Amendment (\$100.00):** A water column lease **is an amendment to all or part of an existing bottom lease footprint.** Floating bags/cages greater than 18 inches above the bottom or any other use of the water column will require this type of lease.
Rent: \$100/acre per year

Your first rent payment will be due upon receipt of your lease contract.

Shellfish Lease County:	Closest Town:	Waterbody:
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Estimated acreage:

Note: Only acreages that are consistent with the Shellfish Lease Management Plan, prior lease production history, public trust use of the area, etc. will be allowed. **Single lease acreage is limited to between 0.5 and 10 acres.** If you currently hold more than 5 acres of leases, they must meet production before a new application may be accepted (15A NCAC 03O .0207).

Does the shellfish lease site contain known sea grasses or Submerged Aquatic Vegetation (SAV)?

- No Yes

(Leases must comply with USACE regional conditions. Leases in mapped SAV areas or where any SAV samples exceed 'Very Sparse' density are not permitted.)

Approximate closest distance to any existing shellfish beds or oyster rocks? _____ft.

Shellfish leases may not be located on or within 10 ft. of existing natural shellfish beds (with a density >10 bushels of shellfish/acre).

Approximate distance of the proposed shellfish lease from the closest shoreline? _____ft.

Does the applicant or co-applicant own all the shoreline adjacent to the proposed shellfish lease?

- No Yes

*Shellfish leases must be at least **250 feet** from a developed shoreline unless: a) the applicant or co- applicant are the sole riparian owner, or b) a signed and notarized riparian owner consent form has been completed and attached (see Appendix VII).*

Approximate distance of the proposed lease from the closest existing shellfish lease? _____ft.


*Shellfish leases must be at least **250 feet** from any existing or proposed shellfish leases.*

Applicant Initials _____

Approximate distance of the proposed lease from the closest vegetated marsh? _____ ft.
Leases must comply with USACE regional conditions Shellfish leases must not be within 20 feet of a wetland area such as vegetated marsh.

Approximate distance of the proposed shellfish lease to any marked or unmarked navigational channel? _____ ft.
Shellfish leases cannot be located within marked or unmarked established navigation channels.

Please list between three and eight coordinates for the proposed shellfish lease. It is **highly recommended** that you use a handheld GPS receiver with Wide Area Augmentation System (WAAS) corrections enabled to obtain these coordinates. Cell phones are not accurate GPS receivers. Locations taken using boat GPS receivers will have an offset based on the location of the receiver on the boat. When collecting GPS points, be mindful of your device's placement (e.g., bow vs. stern of the boat) to ensure accuracy. For assistance, contact DMF staff. Inaccurate coordinates will result in your application being delayed. The shellfish lease site must be as compact as possible.

Please use decimal degrees:
 (E.g., 34.72334896° N, -76.75634128° W) **and list coordinates in clockwise rotation**  **starting with northernmost point:**

N	W		N	W
N	W		N	W
N	W		N	W
N	W		N	W

Section 5

Shellfish Lease Management Plan

Shellfish Species to be Grown

Diploid Oysters Triploid Oysters Northern Quahog / Hard Clams (*Mercenaria mercenaria*)
 Bay Scallops Other: _____

Capital Investment
 Year 1: \$ _____ Year 2-10: \$ _____

Vessel Availability
 Vessel: No Yes Length: _____ Power: _____ Traveled? No Yes

If other vessels will be used, please list here:

Types of harvest gears you will use:

Will you require the use of mechanical harvest gear (dredge, power rake, etc.)?
 No Yes
Mechanical gears are not allowed on shellfish leases located in Primary Nursery Areas

Applicant Initials _____

Shellfish Grow-out Methods

Please check the grow-out method(s) you propose to use on your shellfish lease and the estimated amount of equipment and effort. *Poles or pilings over 12 inches in diameter require a permit from the Division of Coastal Management (DCM). The applicant is responsible for obtaining this permit if it is required. Floating Upweller Systems (FLUPSYs) are not permitted on shellfish lease sites.*

Bottom Methods	Year 1 Planned	Years 2-10 Projected
<input type="checkbox"/> Cultch/Seed Application Bushels per Acre	Bushels/Acre	Bushels/Acre
<input type="checkbox"/> Predator Netting Number of Units		
<input type="checkbox"/> Bottom Bags Number of Bags		
<input type="checkbox"/> Bottom Cages Number of Cages		
<input type="checkbox"/> Other Specify Method & Equipment Type (E.g., Trays, Bottom Racks)		
Water Column Methods	Year 1 Planned	Years 2-10 Projected
<input type="checkbox"/> Floating Bags Number of Units		
<input type="checkbox"/> Floating Cages Number of Units		
<input type="checkbox"/> Suspended Longline System Number of Systems		
<input type="checkbox"/> Bottom Cage/Bag System (> 18" above Bottom) Number of Cages/Bags/Racks		
<input type="checkbox"/> Anchor Type Specify: Screw Anchors, Rods, etc.		
<input type="checkbox"/> Number of Anchors		
<input type="checkbox"/> Other Specify Method & Equipment Type		

Grow out methods will be specific to the contract. If you plan on changing methods, you must notify DMF for prior approval and complete another Shellfish Lease Management Plan.

Applicant Initials _____

Do you plan to harvest oysters anytime during April – September? No Yes

Will you operate as a Shellfish Dealer? No Yes*

*Shellfish Dealers must have a certification from Shellfish Sanitation (252) 515-5656, and a DMF Dealer License to operate in that capacity.

Do you plan to move shellfish from your shellfish lease to another lease prior to harvest? No Yes*

Do you plan to conduct pre-harvest activities (e.g., culling) off-site of your lease? No Yes*

*A Commercial Fishing Vessel Registration will be required annually for boats used to harvest or transport seafood. The registration is separate from the NC Wildlife Resource Commission’s registration.

Shellfish Lease Marking

Shellfish leases must be marked **on each corner pole** and with proper durable signage which must include **all lease numbers, the name of the leaseholder, and 12 vertical inches of reflective tape visible from all directions**. Water column leases must also have an additional **Caution or Warning** sign on each corner pole.

Type and number of markers to be used:

Wood Post (3-12 inches): Size: _____ / Number: _____

Plastic / PVC: Diameter: _____ / Number: _____

Other (Composition, size, quantity): _____

- Posts greater than 12 inches by 12 inches or 12 inches in diameter require a permit from DCM

- DMF has no duty to protect any shellfish lease or franchise that is not properly marked

Land/Dock Based Facilities: (Check all that apply) and indicate if these are shellfish lease or land based.

NOTE: These structures, if proposed, may require a permit from DCM.

<input type="checkbox"/> Dock <input type="checkbox"/> Floating Upweller (May not be located within the shellfish lease) <input type="checkbox"/> Tank Upweller or Downweller _____ <input type="checkbox"/> Pumps _____	<input type="checkbox"/> Raceway / Trays _____ <input type="checkbox"/> Graders / Sorters _____ <input type="checkbox"/> Tumblers _____ <input type="checkbox"/> Storage Facilities, Sheds, Etc. _____
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Other (specify):

If you propose floating gear or intertidal gear, describe the mitigation or deterrent measures you will take to minimize the potential pollution impact of birds and/or mammal waste. Please be as specific and detailed as possible.

This section must be completed, or your application will be denied.

Applicant Initials _____

Section 6 Shellfish Lease Cleanup Provisions

Shellfish Lease Cleanup Provisions

If your shellfish lease is terminated for lack of production, failure to pay rent, or you simply choose to relinquish the lease, you will be responsible for removing all markers, posts, and aquaculture gear except planted cultch. **You will be given a 30-day notice to remove all posts, markers, and aquaculture gear and must notify DMF after gear has been removed.** If you do not remove the markers, posts, and gear after the 30-day notification, DMF may pursue legal action to have it removed at your cost. These provisions will be included in the lease contract.

You are also responsible for collecting any gear that is displaced due to storm events. It is highly recommended that all shellfish lease equipment be labeled with your contact information to facilitate collection in case of storm loss.

By signing, I agree that I have read and understand the Shellfish Lease Cleanup Provisions.

Signature:

Date:

Section 7 Proposed Shellfish Lease Site Diagrams

On the following pages, or separate pieces of 8 ½ x 11-inch paper, please provide accurate drawings or maps showing the following three diagrams:

1. **LOCATION MAP:** This map must include a north arrow and show the coordinates of each corner pole, show the proximity of the proposed lease to identifiable markers or landmarks, include markers indicating the corners of the shellfish lease, and show the relationship of the proposed lease to the water body it is within. **The base map may not be hand drawn;** however, your proposed lease location may be hand drawn. Consider using screenshots of Google Earth, the DMF Shellfish Leasing Tool, or NOAA online navigational charts. The map must show the approximate distance to the shoreline.
2. **TOP VIEW DIAGRAM:** Must include a north arrow, show the shellfish lease corners and approximate boundary distance measurements, and show any aquaculture gear’s proposed configuration and alignment such as floating cages or bottom cages. **This diagram may be hand drawn in black or blue ink or made on a computer and printed.**
3. **SIDE VIEW DIAGRAM:** Must indicate minimum and maximum water depth at mean low water; the maximum height in inches for any bottom structure including shell, cages, rack, and bags; show the clearance in feet at mean low water above such structures at the shallowest and deepest part of the lease. **This must be drawn in black or blue ink or made on a computer and printed.**

Diagrams and maps do not have to be drawn to scale but must be clear and easy to understand. Incomplete maps will delay the application process or result in a denied application. **Any modifications to the configuration depicted in the original maps or diagrams will require the applicant to resubmit the diagrams.** These are submitted to the Army Corps as part of the joint process to issue a Prior Construction Notice (PCN).

Applicant Initials _____

Location Map

Insert on a separate piece of paper.

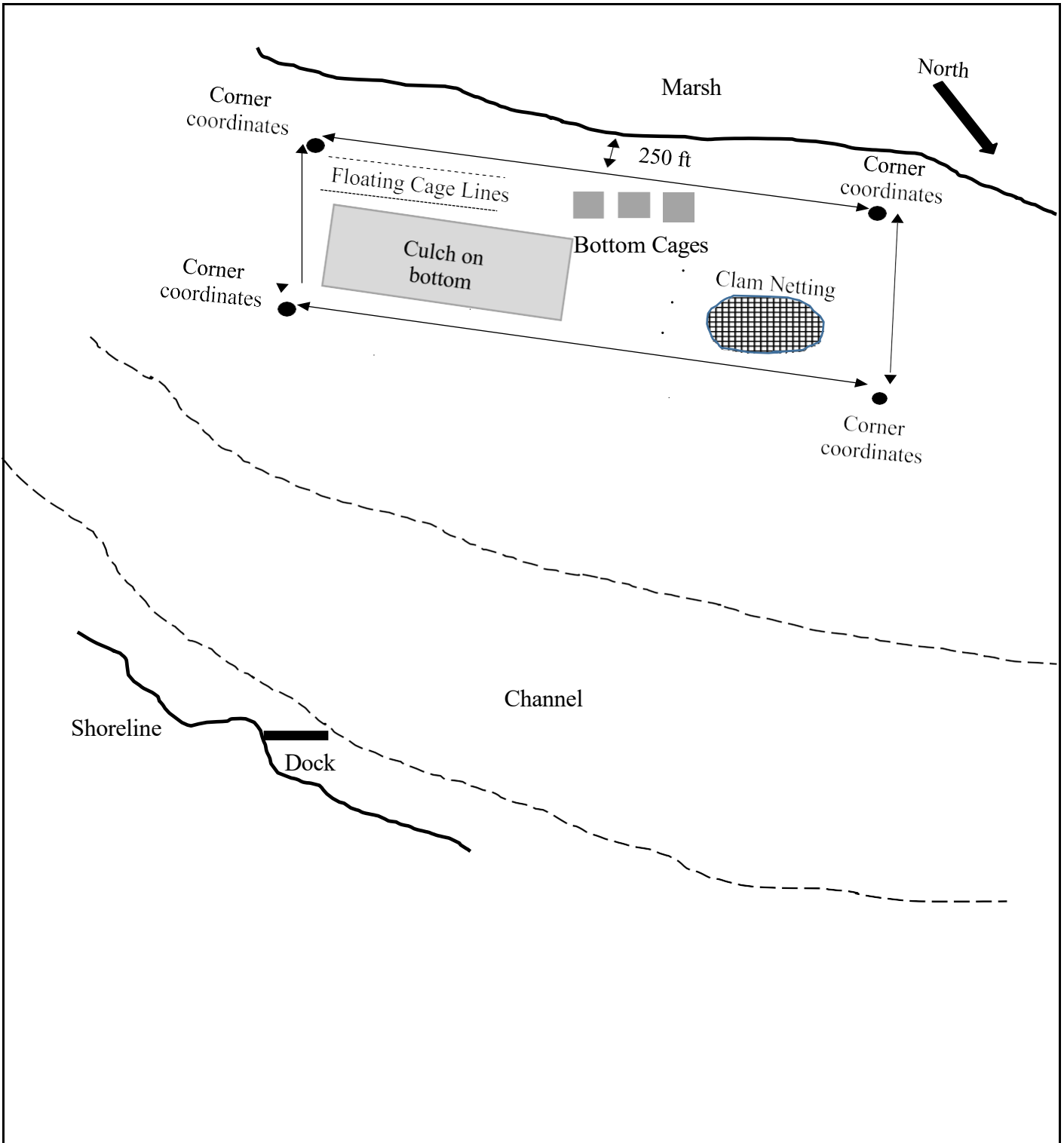


Example shellfish lease site location map using Google Earth.

Applicant Initials _____

Top View Diagram

Insert on a separate piece of paper.
No pencil.

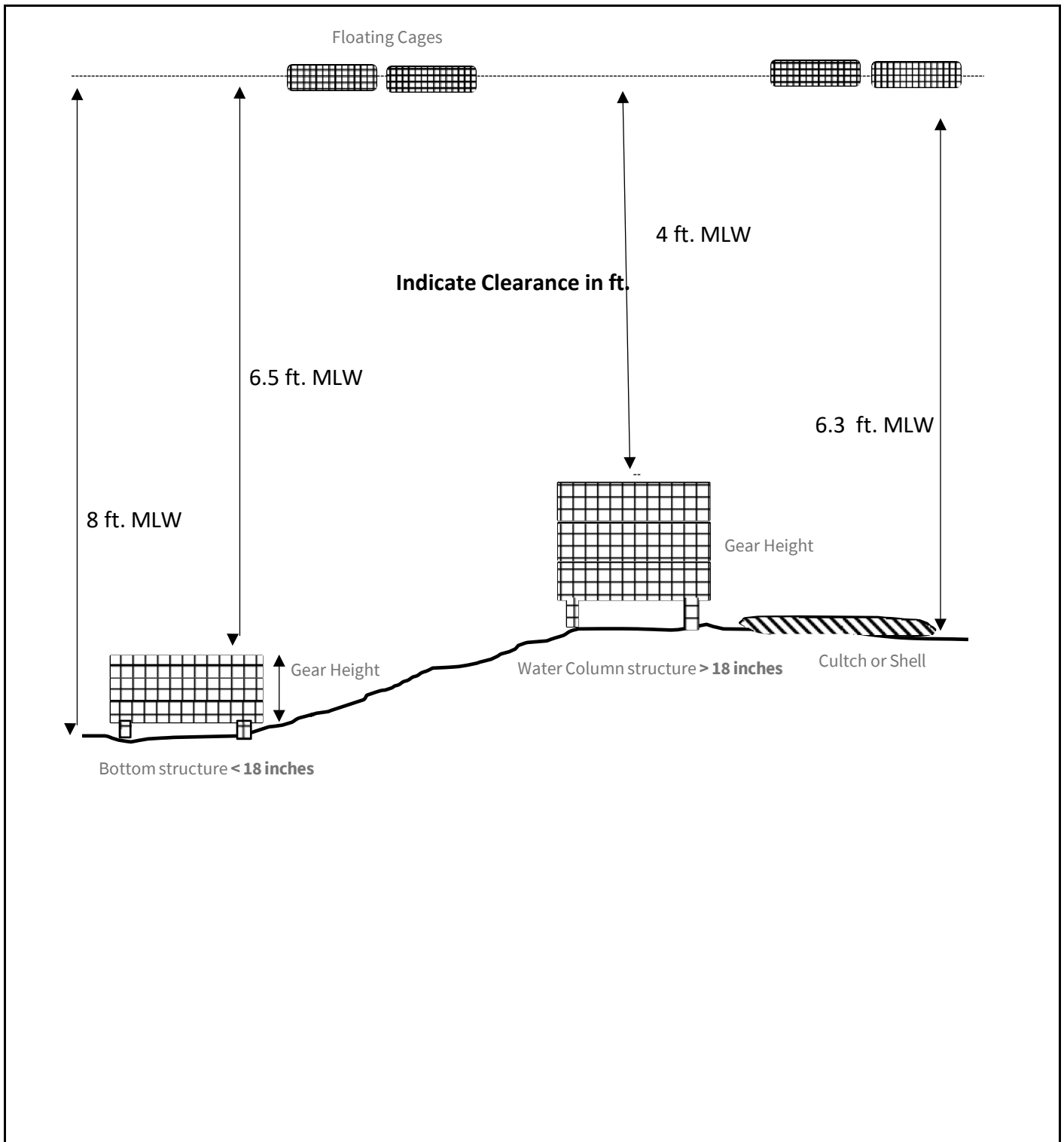


Example Top View Diagram

Applicant Initials _____

Side View Diagram

Insert on a separate piece of paper.
No pencil.



Example Side View Diagram

Applicant Initials _____

Section 8 Final Signature

By signing below, you (the Applicant) confirm that all information in this application is true and accurate, and that you understand and agree to the following:

1. Acceptance of Provisions

You will accept the shellfish lease and comply with all applicable North Carolina Marine Fisheries Commission rules and General Statutes.

2. Annual Rental Fee

- **Bottom Lease:** \$10.00 per acre
- **Water Column Lease:** \$100.00 per acre

The first year’s rent is prorated and payable before lease issuance. Annual rent must be paid in advance by July 1 each year. Late or unpaid rent will result in lease termination.

3. Commercial Production

You agree to use the lease for **commercial shellfish production** and to submit annual production reports as required by DMF. Failure to meet production standards can lead to lease termination.

4. Riparian Property Owner Notification

If approved for public comment and hearing, you agree to notify (via **certified mail**) any riparian property owners within 250 feet of the proposed lease site. They have 30 days from the letter’s postmarked date to submit comments in writing to DMF. A non-response is interpreted as “no comment.”

Applicant Signatures

Applicant/Business Agent

Name: _____ Date: ____ / ____ / _____

Co-Applicant (if applicable)

Name: _____ Date: ____ / ____ / _____

SWORN to and subscribed before me

This the _____ day of _____, 20__

NOTARY PUBLIC

My Commission Expires:

(Seal)

Applicant Initials _____

Appendix I

Shellfish Lease Application Process

1. Select a Lease Site

- a. Use the **DMF Shellfish Lease Tool**
deq.nc.gov/shellfish-lease
or the **UNCW Shellfish Benthic Siting Tool**
uncw.edu/research/major-programs/shellfish-siting to view existing leases, local regulations, and other factors.
- b. **Visit the location.** Confirm conditions (e.g., water depth, substrate) are suitable for cultivating shellfish, and ensure it meets DMF's minimum standards.
- c. **Talk to your neighbors.** Engaging local riparian landowners or other growers can provide valuable insight and help build goodwill.
- d. **Consult DMF Leasing Staff** for site-related questions or clarifications.

2. Complete the Application

- a. Fill out all pages completely and **initial** each page to confirm you have read the material.
- b. Submit the application with the **non-refundable, non-transferable** fee to DMF.

3. Initial DMF Review

- a. DMF processes your fee, checks for completeness, and performs an initial GIS review to ensure:
 - The site is not historically significant SAV (submerged aquatic vegetation).
 - The application doesn't infringe upon other property interests.

4. Incomplete or Impermissible Applications

- a. If your application is **incomplete, illegible**, or the **location** is not permissible (e.g., within a closed area), DMF will **deny** it.

5. Temporary Lease Signs

- a. DMF mails temporary corner signs and a letter instructing you to **install signs at each corner** of the proposed site. These remain until the lease process concludes.

6. Photographic Confirmation

- a. The applicant **emails photos** of the installed temporary signs to Lease Program staff.
- b. **No further action** (e.g., site visits) occurs until these photos are received.

7. **On-Site Investigation**

- a. Lease Program staff visit the site to check for:
 - Marsh setbacks, channel setbacks, occupancy of the waterbody, shellfish presence/density, and any SAV.

8. **Data Report**

- a. A biologist compiles the site investigation data in a formal report.

9. **Internal / External Review**

- a. The proposed site map, along with the investigation report, is circulated for review by internal DMF staff, DEQ, and other agencies as relevant.

10. **Director’s Preliminary Decision**

- a. After considering comments, the DMF Director may:
 - Approve the application for **public hearing** as submitted.
 - Modify or condition the application **before** public hearing.
 - Deny the application outright.

11. **Public Hearing Notification**

- a. If approved for public hearing, DMF:
 - Sends **certified mail** to riparian owners within 250 feet, giving them 30 calendar days to comment in writing.
 - Runs **two public notices** in a local newspaper, issues a press release, and notifies DMF proclamation lists.
- b. A public hearing in the county of the proposed lease follows the 30-day comment period. Written or verbal testimony is accepted.

12. **Director’s Final Decision**

- a. After the hearing, DMF staff compile comments and submit a summary to the Director.
- b. The Director then:
 - Approves the lease as submitted or modified.
 - Approves with specific conditions.
 - Denies the lease.

13. Contract Preparation

- a. Once approved, DMF drafts a **lease contract**.
- b. Staff will verify corner markers on-site, and you will install required **permanent markers**.
- c. The first year's **rent** is due **before** final approval.

14. Applicant Signature & Rent Payment

- a. The leaseholder **reads, signs, and notarizes** the contract, indicating agreement to all terms.
- b. The signed contract and **rent payment** are returned to DMF.

15. Permanent Signs

- a. The leaseholder installs the permanent signs and **submits photos** to DMF for confirmation.

16. Final Steps

- a. DMF processes the rent and the Director **signs the contract**.
- b. A copy of the fully executed lease is **mailed** to the leaseholder.

Appendix II

Shellfish Lease Siting Requirements & Restrictions

Shellfish leases are a **special use** of public trust submerged lands for **commercial** shellfish aquaculture. To ensure public trust rights remain protected, the DMF Director has broad authority to **approve or deny** leases based on site compatibility.

Essential Siting Tools

- **DMF Shellfish Lease Tool:**
deq.nc.gov/shellfish-lease
- **UNCW Shellfish Benthic Siting Tool:**
uncw.edu/research/major-programs/shellfish-siting

Restricted / Prohibited Areas

Leases **cannot** be sited in or near:

- **Unsuitable** areas for the chosen shellfish species or grow-out method.
- Areas **closed by Shellfish Sanitation** due to pollution.
- **Within 10 feet of a natural shellfish bed** (≥ 10 bushels/acre of shellfish).
- Areas with significant **Submerged Aquatic Vegetation (SAV)** (exceeding USACE NW #48 thresholds).

- Water bodies where the lease exceeds **one-third** the total width, except for bottom-only methods like cultch or clams.
- Areas conflicting with **traditional uses** (fishing, navigation, swimming) or existing enhancement sites.
- Zones **prohibited by law** (e.g., certain management areas).
- Recognized Submerged Land Claims **without** a signed, **notarized** consent form.

Lease Must-Haves

- **Compact Layout** that aligns with the Shellfish Lease Management Plan.
- Must **respect riparian rights**. If **within 250 feet of a developed shoreline**, a notarized property-owner consent form is required.
- Must not be **within 250 feet** of another lease (including those you own).
- Must maintain a **20-foot** marsh setback (or 5 feet for bottom-only methods).
- Must **not exclude** the public from lawful activities such as fishing, swimming, or navigation.
- Must be **marked continuously** at all corners with signage meeting DMF specifications (reflective tape or device covering ≥12 vertical inches).
- **CAMA Permit** required for any structures exceeding DMF authority (e.g., docks, piers, floating raceways, etc.).

Appendix III

Lease Management Plan Information & Technical Assistance

Your **Shellfish Lease Management Plan** documents your intended aquaculture methods. Once approved, it **becomes part of the lease contract**. Any changes (e.g., species, gear) require an updated plan and DMF approval.

Useful Resources

- **North Carolina Sea Grant**
ncseagrant.ncsu.edu/coastal-and-marine-aquaculture
 - Guidance on capital investment, lease sizing, gear choices, seed sourcing.
- **Carteret Community College – Aquaculture Technology Program**
carteret.edu/programs/aquaculture-technology
 - Offers certificates and degrees covering aquaculture, business operations, and finance.
- **NOAA Marine Cadastre**
marinecadastre.gov/nationalviewer

- Contains AIS vessel traffic data (not for personal watercraft).
- **NC Shellfish Growers Association**
ncshellfish.org
 - Industry networking and resources.
- **East Coast Shellfish Growers Association**
ecsga.org
 - Regional association with best practices, research updates, and legislative news.

Appendix IV

Shellfish Lease Production Requirements

As of 2019

Failure to meet production standards is the most common reason for lease termination. Accordingly, **proper lease sizing** and a **solid management plan** are crucial to success. The following standards apply beginning in Year 5 of the lease, and each leaseholder is responsible for documenting and reporting their production to DMF.

Bottom / Franchise (Extensive)

- **Plant:** 15,000 seed per acre **per year**
(Leaseholder must provide annual purchase receipts as proof of seed acquisition.)
OR
- **Harvest:** 20 bushels per acre per year, **averaged over the preceding three-year period**

Bottom (Intensive)

- **Plant:** 23,000 seed per acre **per year**
(Leaseholder must provide annual purchase receipts as proof of seed acquisition.)
OR
- **Harvest:** 20 bushels per acre per year, **averaged over the preceding three-year period**

Water Column (Intensive)

- **Plant:** 23,000 seed per acre **per year**
(Leaseholder must provide annual purchase receipts as proof of seed acquisition.)
OR
- **Harvest:** 50 bushels per acre per year, **averaged over the preceding three-year period**

Seed / Bushel Conversions

For both planting **and** marketing, the DMF Shellfish Lease Program uses:

- **Clams and Scallops:** 1 bushel = **400 count**
- **Oysters:** 1 bushel = **300 count**

(These conversions apply to all sizes, from seed to market.)

Key Takeaways

- **Receipts Required:** Whenever you choose the “planting” option to meet production standards, you must maintain **annual receipts** for all seed purchased.
- **Verified Compliance:** DMF may request these receipts during routine audits or at lease renewal, ensuring the documented planting aligns with your lease records.
- **Harvest Averages:** If you choose the “harvest” option, compliance is measured on a **three-year rolling average**, starting in the fifth year of the lease.

Properly maintaining records for seed purchases and harvest quantities not only proves compliance but also helps you track business performance and ensure the longevity of your shellfish lease.

Appendix V

Shellfish Sanitation & Public Health Information

The following information is to provide awareness of the public health risks with shellfish as well as causes and impacts from temporary and permanent shellfish closures. An illness from your product or growing area closures can have a significant impact on your shellfish aquaculture business. We encourage applicants to review and consider the permanent and temporary closure status where you site your lease and implement safe handling practices.

Because shellfish are filter feeders, they provide valuable water quality benefits by filtering up to 40 gallons of water per day. However, they can also concentrate potential pathogens (bacteria and viruses) that cause illness in consumers, particularly when shellfish are consumed raw or undercooked. The DMF Shellfish Sanitation and Recreational Water Quality Section continuously sample waters to ensure the shellfish harvest areas of the coast are properly classified. Classification maps showing permanent closure areas can be viewed at:

ncdenr.maps.arcgis.com/apps/webappviewer/index.html?id=5759aa19d7484a3b82a8e440fba643aa

In addition to the permanent closures, heavy rainfall and the resultant runoff, or other events such as septic or sewage failures, chemical spills, etc. may cause temporary shellfish water closures. These events result in heavy pollutant loads washing into growing areas and may close growing areas for days to weeks depending upon the event. No shellfish harvest is allowed during this time. An interactive map of current temporary shellfish closures can be viewed at:

ncdenr.maps.arcgis.com/apps/webappviewer/index.html?id=5759aa19d7484a3b82a8e440fba643aa

Not all pathogenic bacteria are associated with polluted waters. The National Shellfish Sanitation Program (NSSP) Model Ordinance and the US Food and Drug Administration require safe harvest and handling practices to reduce illness caused by post-harvest growth of **Vibrio** bacteria. Two species of concern are *Vibrio vulnificus* and *Vibrio parahaemolyticus*.

Vibrio bacteria occur naturally in our warm coastal waters and multiply rapidly once shellfish are removed from the water and exposed to warm ambient air temperatures. To decrease the risk of Vibrio illnesses, which are rare in NC, Shellfish Sanitation and the DMF have developed Time to Temperature limits for harvesting oysters and clams. Lease holders harvesting oysters from shellfish leases outside of the regular oyster season must document time of harvest and follow restrictions set forth in DMF annual proclamations. Shellfish dealers must also document time to temperature for receiving, storage and shipping. Current (Shellfish Sanitation) proclamations specifying time to temperature controls can be viewed on the DMF website: deq.nc.gov/about/divisions/marine-fisheries/rules-proclamations-and-size-and-bag-limits/fisheries-management-proclamations.

In some instances, a portion or the entire lease may be closed when the surrounding growing area is later reclassified and permanently closed by reason of pollution. Staff from DMF Shellfish Sanitation and Resource Enhancement work closely to notify lease holders that are impacted by these reclassification closures so they can relay material off before the closure takes place. At this point, the lease may either be relinquished by the leaseholder, or it will either be terminated for lack of production over time, or automatically expire at the end of the contract period and it may not be renewed. No shellfish harvest is allowed once the permanent closure goes into effect.

Contact the Shellfish Sanitation & Recreational Water Quality Section for up-to-date information at (252) 515-5656. Subscribe to DMF: deq.nc.gov/about/divisions/marine-fisheries/rules-proclamations-and-size-and-bag-limits/fisheries-management-proclamations

Subscribe to Polluted Area proclamations at: deq.nc.gov/about/divisions/marine-fisheries/rules-proclamations-and-size-and-bag-limits/polluted-area-proclamations

Appendix VI

Aquaculture Permits

Certain types of activities associated with shellfish aquaculture require additional permits. These permits provide leaseholders with tools to access public resources and produce and market shellfish while ensuring protection of public health, native species, and habitats. Permits are available at no cost, and it is unlawful to conduct these activities without the proper permit. For more detailed information, please visit the Aquaculture Permits website at deq.nc.gov/aquaculture-permits

Aquaculture Operation Permit (AOP)

An AOP is required for the operation of any shellfish leases. An AOP also gives you the ability to harvest product under the size limit for natural wild harvest stock if your product is properly identified with your AOP number. This is an annual permit expiring on December 31.

Aquaculture Collection Permit (ACP)

This permit is rarely issued and is for collection of small numbers of organisms from state waters for aquaculture purposes, typically brood stock, or breeding. You must have an AOP prior to applying for an ACP.

Aquaculture Seed Transplant Permit (ASTP)

This permit allows the transfer of seed from a permitted nursery or hatchery using waters that are classified as Restricted or Conditionally Approved Closed by Shellfish Sanitation. With this permit oysters must be 25 mm or less and clams must be 12.5 mm or less.

Introduction and Transfer Permit (Intro)

This permit allows introduction and transfer of organisms such as seed clams or oysters into North Carolina from another state. Only native shellfish species may be transferred for placement into state waters. The transfer of organisms is carefully monitored to ensure no unwanted shellfish diseases or pests are introduced into North Carolina waters. A pathological report on the lot to be shipped is required for issuance of a permit by DMF. Intro permits are good from 30 days from the sample date found on the pathology report.

Mechanical Harvest Permit (Mech)

This permit allows lease holders to use select mechanical gears on leases in mechanical prohibited areas. If your lease is in a Primary Nursery Area (PNA) you are not allowed to use bottom disturbing gear, but you may use a winch and davit system or similar to lift and place cages or bags.

Seed Oyster Management Area Permit (SOMA)

This permit allows leaseholders to go into designated seed oyster management areas open to relay seed to their leases. This activity takes place outside of the regular oyster season and is limited to 100 bushels per acre of lease.

Shellfish Lease Restoration Permit (SLRP)

Allows the transportation of oysters or other shellfish to restoration sites from an individual's shellfish lease or franchise for restoration purposes not related to human consumption.

**N.C. DIVISION OF MARINE FISHERIES
SHELLFISH LEASE RIPARIAN PROPERTY OWNER WAIVER FORM
(Top portion to be completed by Leaseholder)**

Name of Lease Applicant: _____
Waterbody and County of Lease: _____
Mailing Address of Applicant: _____
Applicant email: _____ Applicant Phone#: _____

**RIPARIAN PROPERTY OWNER'S CERTIFICATION
(Bottom portion to be completed by the Property Owner)**

Name of Riparian Landowner: _____
Property Address: _____
Mailing Address (If different than Property Address): _____
Landowner email: _____ Landowner Phone#: _____

I hereby certify that I own property within 250 feet of the above-described proposed shellfish lease. The shellfish lease applicant has provided me a copy of the proposed lease area map described in 15A NCAC 30 .0202(a) and has provided me a copy of their proposed management plan, including species, cultivation methods, gears, and marine debris mitigation measures.

I understand that 15A NCAC 30 .0201(a)(2) requires that any proposed shellfish lease area shall not be closer than 250 feet from a developed shoreline or a water-dependent shore-based structure, except no minimum setback is required when the riparian owners (me) have consented in this notarized statement.

I understand that by signing this form I waive any of my riparian rights which fall within the shellfish lease as shown on the map described in 15A NCAC 30 .0202 for the lifetime of the shellfish lease (10 years, with the possibility of unlimited 10-year renewals). This form does not waive the right to construct a water dependent shore-based structure which would require the lease, if approved, to be modified to allow use and access to and from a dock extending from my riparian property.

I understand that if I chose to sell or place under contract the above property, I shall notify both the Lease Applicant and Division of Marine Fisheries staff within 10 days and understand that this form will be void and a new waiver from the new owner will be required.

With the understanding of the information recited above, I wish to waive some/all of the 250' setback requirement and allow this shellfish lease application within 250' of my riparian shoreline.

STATE OF NORTH CAROLINA _____
Signature of Riparian Property Owner Date
COUNTY OF _____

I, _____, Notary Public, do hereby certify that _____, personally appeared before me this day and acknowledged to me that they voluntarily signed the foregoing document for the purpose stated therein, and in the capacity indicated.

WITNESS my hand and seal, this the _____ day of _____, 20_____.

NOTARY PUBLIC SIGNATURE (Seal)

My Commission expires: _____

Applicant Initials _____

Appendix VIII

Storm Preparedness & Gear Management Best Practices

NC Shellfish Lease and Aquaculture Program
Adapted from FDACS and UF Resource Guides

- Relocating gear and product off lease into public waters is illegal and will result in product confiscation, permit revocations, and fines.
- Relocating gear or product to another lease outside of the growing area requires resubmergence for 21 days and proper resubmergence tagging (please refer to SS1/SS2 for guidance). The receiving lease must be permitted properly to accommodate any additional gear.
- Relocating shellfish greater than seed size (clams 12mm in length, oysters 25mm in length) to another lease in a different growing area requires resubmergence for 21 days, proper resubmergence tagging, and recording of resubmergence activities in a logbook (please refer to proclamations SS-1/SS-2)
- When relocating gear to another lease, the receiving lease must be permitted properly to accommodate any additional gear.
- Moving product to a land-based cold or wet storage is only allowed by prior approval and permitting by Shellfish Sanitation as a certified shellfish dealer with wet storage permit (as applicable).

Assessing 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, 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.

Preserving 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.

Maintaining Farm Records

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, reentry 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.

Maintaining Communication

An emergency contact list (electronic and hard copies) for key personnel and businesses providing services to the farm and its

Applicant Initials _____

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.

Maintain 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.

Storm Preparedness Plan Blueprint

Items in yellow apply to **floating bags**, items in blue apply to **floating cages**. Items in white apply to all intensive gear types.

Installation

During installation of the farm, there are several important considerations.

1. Assess the site's exposure to storms as a primary factor in site selection.
2. Orient main lines parallel to prevailing winds and waves.
3. Choose an anchoring system suitable to the bottom type.
4. Install substantial, durable anchors (buried to at least 5 feet depth) that will hold in the farm's bottom substrate in the strongest storms (see Figure 1 for some options).
5. Bury anchors (typically helical metal screw anchors) fully in the sediment to reduce projection above the sea floor, corrosion, and tangling hazard.
6. Invest in durable main line that meets the supplier's recommendation with some protection from chafing at friction points (e.g., anchor attachment).
7. Allow sufficient spacing between lines to ensure bags do not collide in bad weather.
8. Use a system that will reinforce the bag to reduce chafing at friction points (see Figure 2 for one example).
9. If floats have removable caps, invest in and practice with a system, such as a mechanical davit or a compressor to fill floats with air (with a back-up system in place), that allows for safe and efficient sinking and re-floating of bags.
10. Invest in and practice with a system, such as a mechanical davit or a compressor to fill the floats with air (with a back-up system in place), that allows for safe and efficient sinking and re-floating of cages. (Figure 2)
11. Place identifying tags on each bag

Prior to Hurricane Season

Prior to the onset of hurricane season, oyster farmers should take these steps to reduce the risk of losses.

1. Check stocking densities and reduce as necessary (though some farmers have had success by overstocking bags to achieve neutral buoyancy just prior to a storm).
2. Check biofouling and control on a routine basis.

Applicant Initials _____

3. Check all lines for chafing (especially near the clips) and repair as needed.
4. Check all bag clips are secured and in good condition at attachment points.
5. Have crew conduct timed practices to gauge time needed per line to prepare for a storm.
6. For shoreside operations, pick up loose pieces of equipment and secure bags to reduce loss from flooding and wind.
7. Review storm plan with crew and family so they can account for personal preparations alongside farm preparations.
8. Maintain appropriate stocking densities so that cages are not crowded and heavy.
9. Air dry cages to control biofouling on a routine basis.
10. Make it a habit to check bridles and lines when flipping to ensure lines do not get tangled.
11. Check all door closures to ensure that the attachments are secure and not worn.
12. Have extra caps on hand in workboat.
13. Remove empty cages from the line, as these are prone to come off the line in bad weather.

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 actions.

CODE YELLOW

Once a hurricane or tropical storm is projected to impact North Carolina, it is time to begin preparations according to the farm's plan. Note that the timeline is fluid and will depend on the storm's speed and track.

1. Re-check stocking densities and reduce as necessary. If opting to overstock bags to achieve slightly positive buoyancy, ensure stocking is appropriate.
2. Farmers opting to sink their bags below the surface but still float off the bottom by overstocking bags should consider taking this step now.
3. Re-check all lines for chafing (especially near the clips) and repair as needed.
4. Ensure all bag clips are secured and in good condition.
5. Secure any empty bags on shore or on lines.
6. Document the condition of the farm with dated photographs and notes.
7. Document the numbers of various sizes of oysters.
8. Review workboat(s) plan.
9. Re-check that all bridles and pucks are in good condition.
10. Re-check that all bag and cage closures are in good condition.
11. Consider consolidating all small seed (e.g., seed held in 2 mm bags) to one section of cages so that you can re-float those cages first once the threat has passed.

CODE ORANGE

Once a hurricane or tropical storm watch has been issued, final preparations should begin. In the case of a fast-moving storm, proceed with tasks associated with final stages of preparation.

1. Sell product as market allows.
2. Track the storm's progress frequently and carefully. When assessing whether to sink bags, keep in mind the amount of time necessary to carry out the sinking operation. Farmers should also weigh the risks of bags and oysters being buried in the substrate.
3. Remember that the day before the storm is to make landfall, farmers should not plan to be on the water. They will need that day for other preparations and the weather will likely not allow for it.
4. If weather conditions do not warrant sinking bags, consider adding slack to anchor lines to allow for storm surge. Alternatively, some farmers opt to tighten their mainlines to pull bags under the water surface.
5. If weather conditions warrant sinking bags, remove both floats from bags and allow them to rest on the bottom or remove one float or alternate floats to partially or completely submerge the bags to keep them just above the bottom. Store floats safely onshore.
6. For systems that have floats with caps, remove caps from floats or alternate floats and ensure all air from floats is removed when sinking.
7. Some growers suggest replacing caps on floats (once all air is removed) to prevent sediment from filling the floats (though this may depend on sediment type). This adds considerable time to preparations.
8. Prepare to implement workboat(s) plan.
9. Ensure all air from floats is removed when sinking and walk or dive over the cages to be sure the pontoons are down, with adjustments made as needed.

*Reminder- it is illegal to relocate gear and product outside the boundaries of your shellfish lease unless they are being relocated to another, properly permitted shellfish lease

CODE RED

When a hurricane or tropical storm warning has been issued and there is a high probability of being in the path of the storm, farmers must conclude final preparations if and only if they can be accomplished safely. Farmers will make a series of personal risk assessments.

1. Conduct last check of farm.
2. Implement workboat(s) plan.
3. Get to safety.

Post-Storm Recovery

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

1. Assess risk of returning to farm and proceed only when safe.
2. Patrol the area upstream and downstream of the farm for significant debris that could entangle or dislodge gear once it is raised and remove or secure debris.
3. Document the condition of the farm with dated photographs and notes.
4. For shellfish product that has been transported off the lease as a result of the storm, contact DMF Shellfish Sanitation Section staff for guidance.
5. Refloat bags as soon as practically possible by adding flotation and/or reducing stocking densities.
6. If caps were removed from floats, use systems designed for this task, with bags lifted from reinforced points, allowing water to drain out the end caps and being careful to work any bags out of the sea floor if necessary.
7. If necessary, use an on-board washdown hose to rinse sediment off the bags or out of floats and recap once washed down.
8. Assess and document oyster survival, gear condition, and losses.
9. Once mortality risk has passed, resume normal biofouling regimen.
10. Communicate with public agencies about closures and effects of the storm.
11. Communicate with buyers and suppliers to provide situation and outlook reports.

Applicant Initials _____

Additional Resource Links

NCDMF Contacts and Resources

- **Shellfish Lease and Franchise**
deq.nc.gov/shellfish-lease
- **Shellfish Sanitation and Recreational Water Quality**
deq.nc.gov/about/divisions/marine-fisheries/shellfish-sanitation-and-recreational-water-quality
- **Polluted Area Proclamations**
deq.nc.gov/about/divisions/marine-fisheries/rules-proclamations-and-size-and-bag-limits/polluted-area-proclamations
- **Fisheries Management Proclamations**
deq.nc.gov/about/divisions/marine-fisheries/rules-proclamations-and-size-and-bag-limits/fisheries-management-proclamations

University of Florida Storm Prep Resource Guides

(While some of this information is specific to Florida, much of it can be adapted for North Carolina shellfish farms.)

- **Introductory Planning Guide**
shellfish.ifas.ufl.edu/wp-content/uploads/oyster.aquaculture.introductory.pdf
- **Land Based Operations**
shellfish.ifas.ufl.edu/wp-content/uploads/oyster.aquaculture.LBO.pdf
- **Workboats**
shellfish.ifas.ufl.edu/wp-content/uploads/oyster.aquaculture.workboats.pdf
- **Adjustable Longline Guide**
shellfish.ifas.ufl.edu/wp-content/uploads/oyster.aquaculture.ALf.pdf
- **Floating Cage Farms Guide**
shellfish.ifas.ufl.edu/wp-content/uploads/oyster.aquaculture.cages.pdf
- **Floating Bag Farm Guide**
shellfish.ifas.ufl.edu/wp-content/uploads/oyster.aquaculture.bags.pdf