



NCDMF Shellfish Programs Policy

Department of Environmental Quality

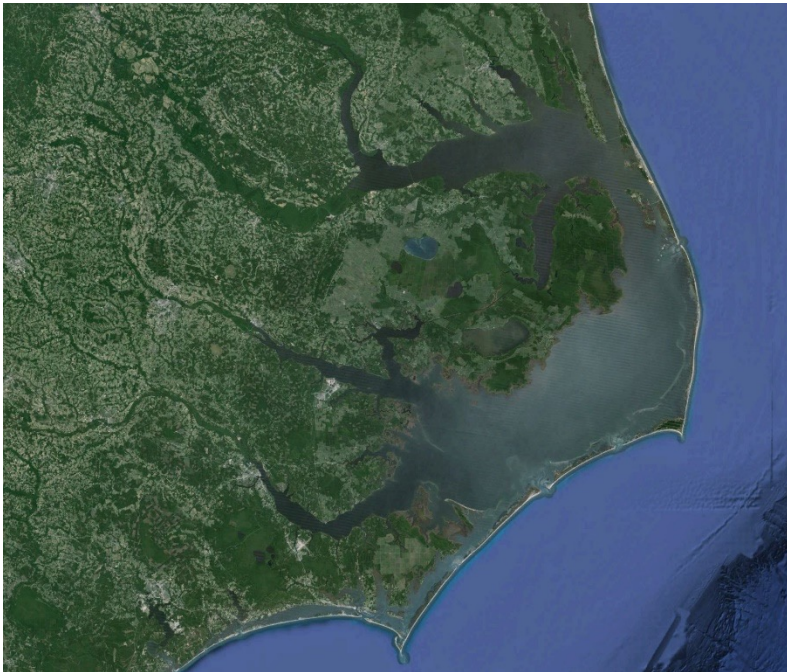
Division of Marine Fisheries

Environmental Review Commission | March 6, 2024



Why are Shellfish Important to NC?

- Albemarle-Pamlico Estuarine System 2nd Largest in US
- Oysters are Keystone Species
- \$31.7 Million in 2022
- Ecosystem Services



Shellfish Programs

- Shellfish Rehabilitation – Cultch Planting
- Oyster Sanctuaries
- Utilization of the R/V Oyster Creek
- Shellfish Leases and Aquaculture



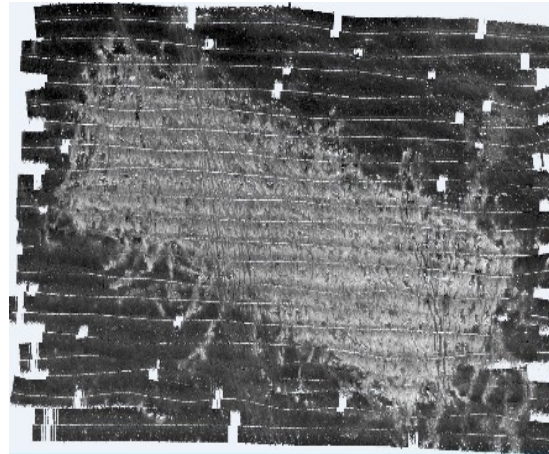
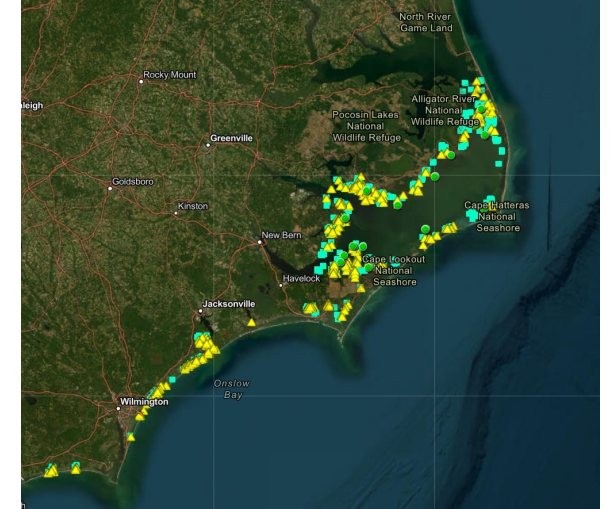
DEQ's DMF Management of Shellfish

- Sustain, Protect, Preserve, and Manage Shellfish
 - Healthy Environment and Healthy Economy
 - Restoration Through **Cultch Planting** and **Oyster Sanctuaries**
 - Cultch Planting – Reduce Natural Oyster Rock Harvest
 - Oyster Sanctuary – Provide Brood Stock that are Protected
 - Protect Shellfish Resources and Grow Economy Through **Shellfish Leasing and Aquaculture**



What is Cultch Planting?

- Small Rock Reefs Coast-Wide
- Made to be Harvested
 - Take Pressure Off Natural Reefs



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Cultch Planting Program

- Enhance Availability of Public Oyster Bottom
- Small Design Enables More Reefs to be Built
- 6 Research Vessels
 - R/V Oyster Creek
 - 2 New Positions



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Cultch Planting Accomplishments

- 2022

- ~ 30 Acres
- ~217,000 Bushels

- 2023

- ~45 Acres
- ~300,000 Bushels

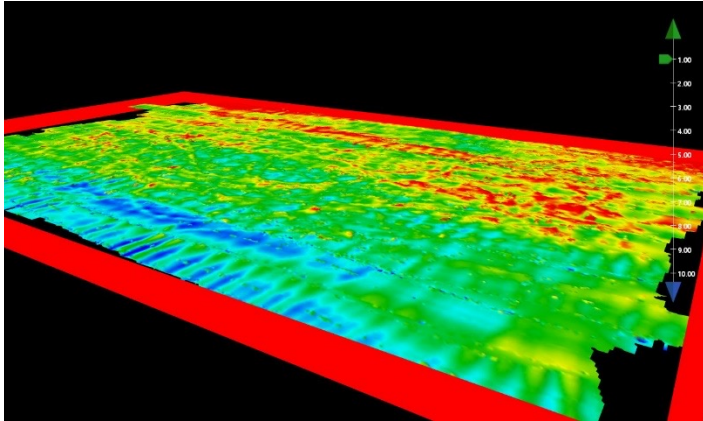
- 2024 Goals

- ~45 Acres
- ~350,000 Bushels

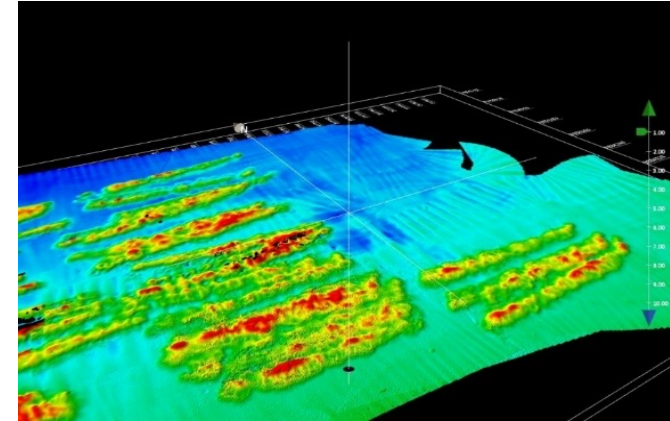


Cultch Planting vs. Oyster Sanctuaries

- Cultch Sites
 - Small Reefs
 - Harvestable

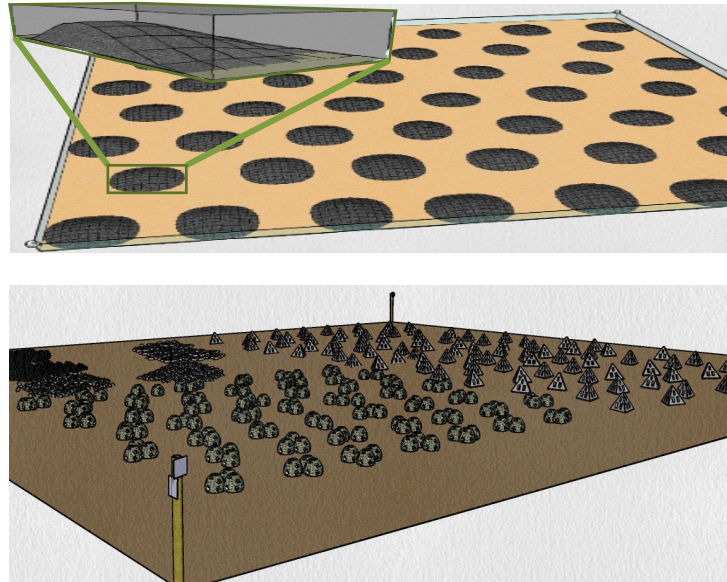


- Oyster Sanctuaries
 - Large Sites
 - Protected



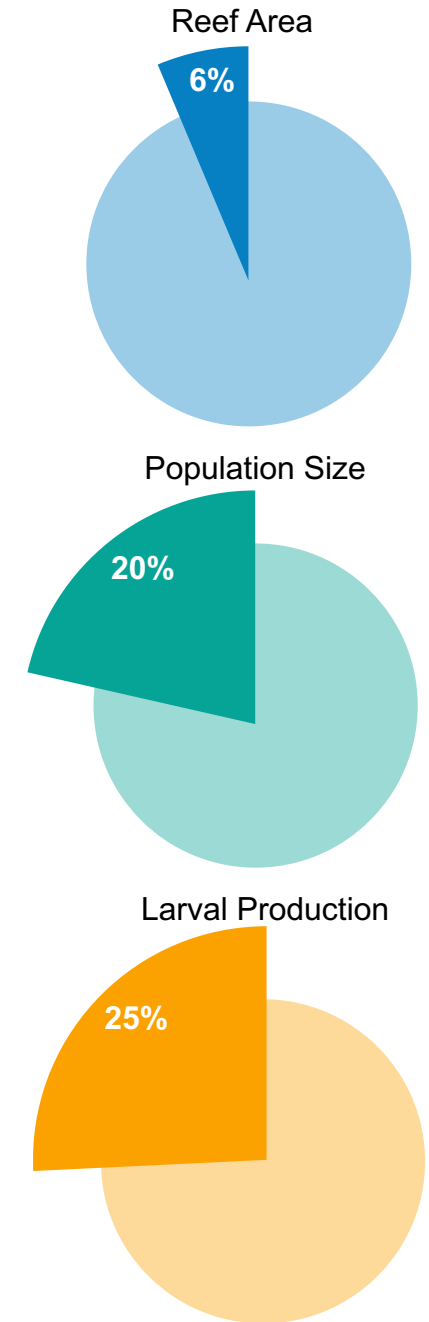
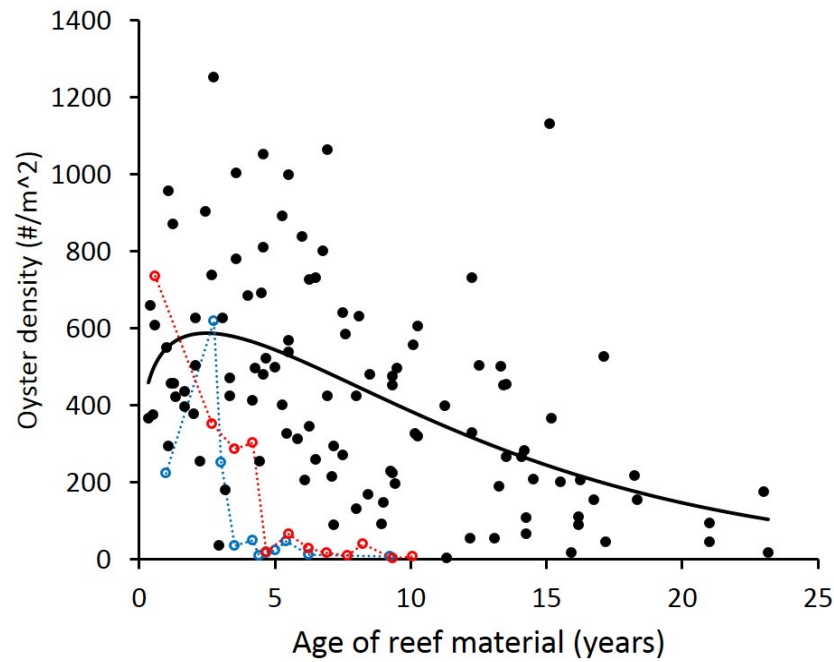
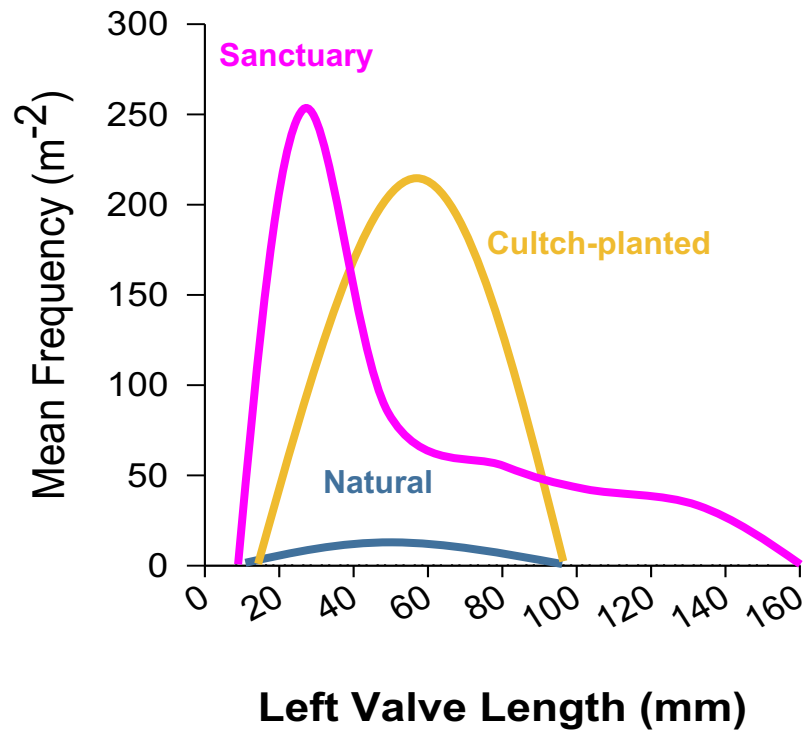
What is an Oyster Sanctuary?

- Large Protected Reefs
 - Designed for Optimal Natural Oyster Growth
 - Located to Promote Larval Dispersal



Oyster Sanctuaries

- Strengthen and Support the Oyster Population
- Contribute Disproportionately to Reproductive Output
- Last a Long Time



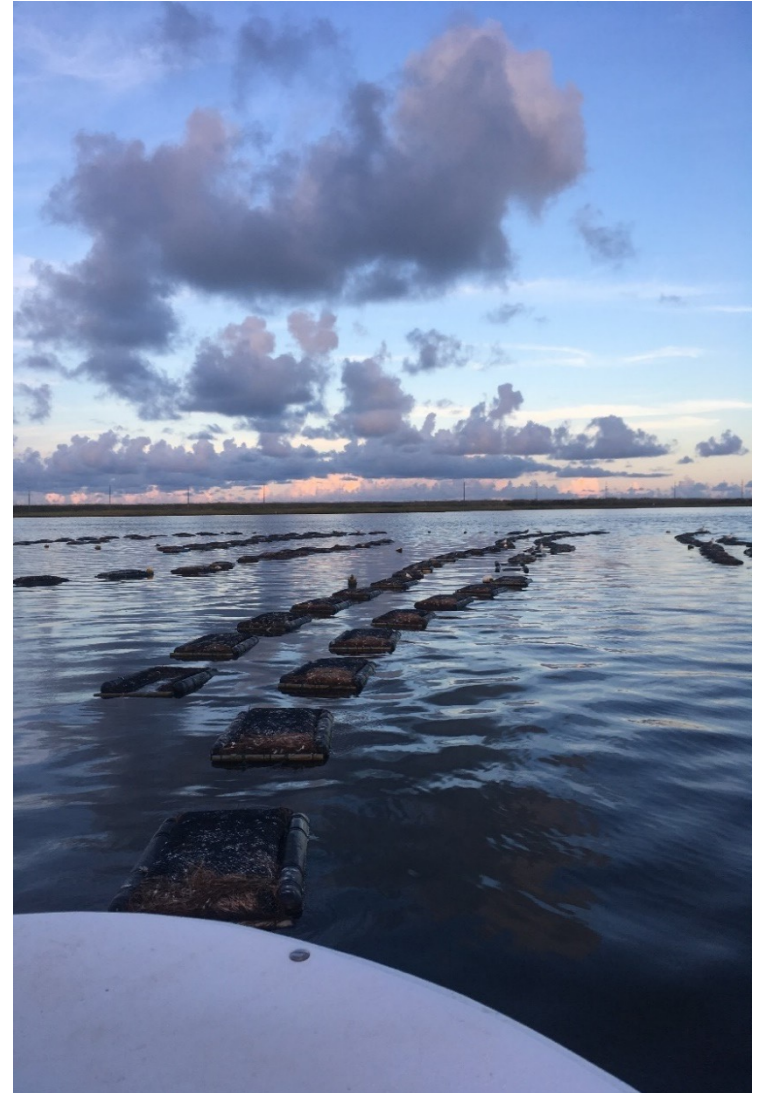
Adapting – R/V Oyster Creek

- Traditional Cultch Planting
- Mothership in Southern Region
- Artificial Reef Deployment



Shellfish Lease Basics

- Public Trust Waters Leased for Shellfish Aquaculture
 - Artificially Propagated Stocks
 - Reared in “Controlled Environment”



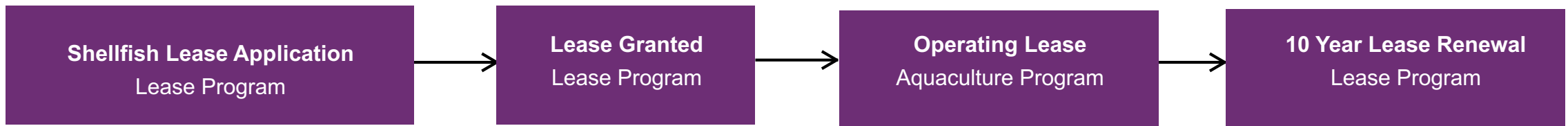
Value of Aquaculture to NC

- Local Oysters
- Enable Market Growth without Natural Depletion
- Ecosystem Services



Shellfish Lease and Aquaculture Programs

- Shellfish Lease Program (N.C.G.S. §§ 113-201-202.2, 15A NCAC 03O .0201-.0211)
 - Granting/Denying Shellfish Leases
 - Public Trust, SAV, Navigation, etc.
 - Managing Existing Lease and Franchises
 - Rent and Production Requirements
 - 10 Year Renewals of Lease Contract
- Aquaculture Permits Program (15A NCAC 03I .0101, 03O .0501-.0504)
 - Annual Permitting for Shellfish Leases and Land-Based Aquaculture
 - Aquaculture Operations Permit (AOP) – 15A NCAC 03O .0503(a)
 - Operating and Additional Activities (e.g., Out of State Purchases, Restoration)



Shellfish Leases and Franchises

- Shellfish Lease - N.C.G.S. §§ 113-201-202.2
 - Over public trust waters
 - Cannot be on productive bottom
 - Rent charged
 - Must meet annual production requirements
- Franchise - N.C.G.S. § 113-206
 - Over recognized submerged lands claim
 - Can be on productive bottom
 - No rent charged
 - Must meet annual production requirements
- Research Lease - N.C.G.S. § 113-202.1(i)
 - 5 Year Terms
 - Production Under \$5,000 Annually
 - One Renewal



Shellfish Cultivation Types

- Defined in S.L. 2019-37 (S.B. 648 “Shellfish Aquaculture Bill”)

Bottom/Franchise

Extensive
(spat on shell, cultch)

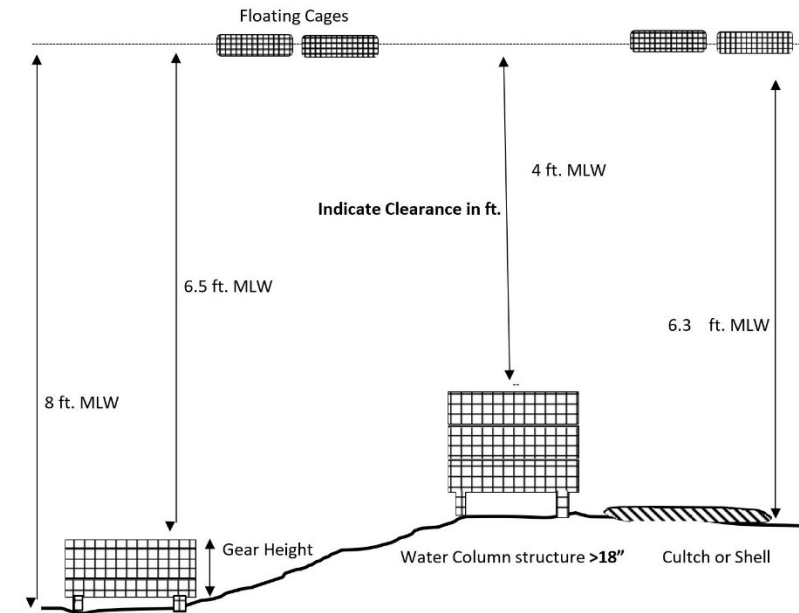


Intensive
(bottom cages)

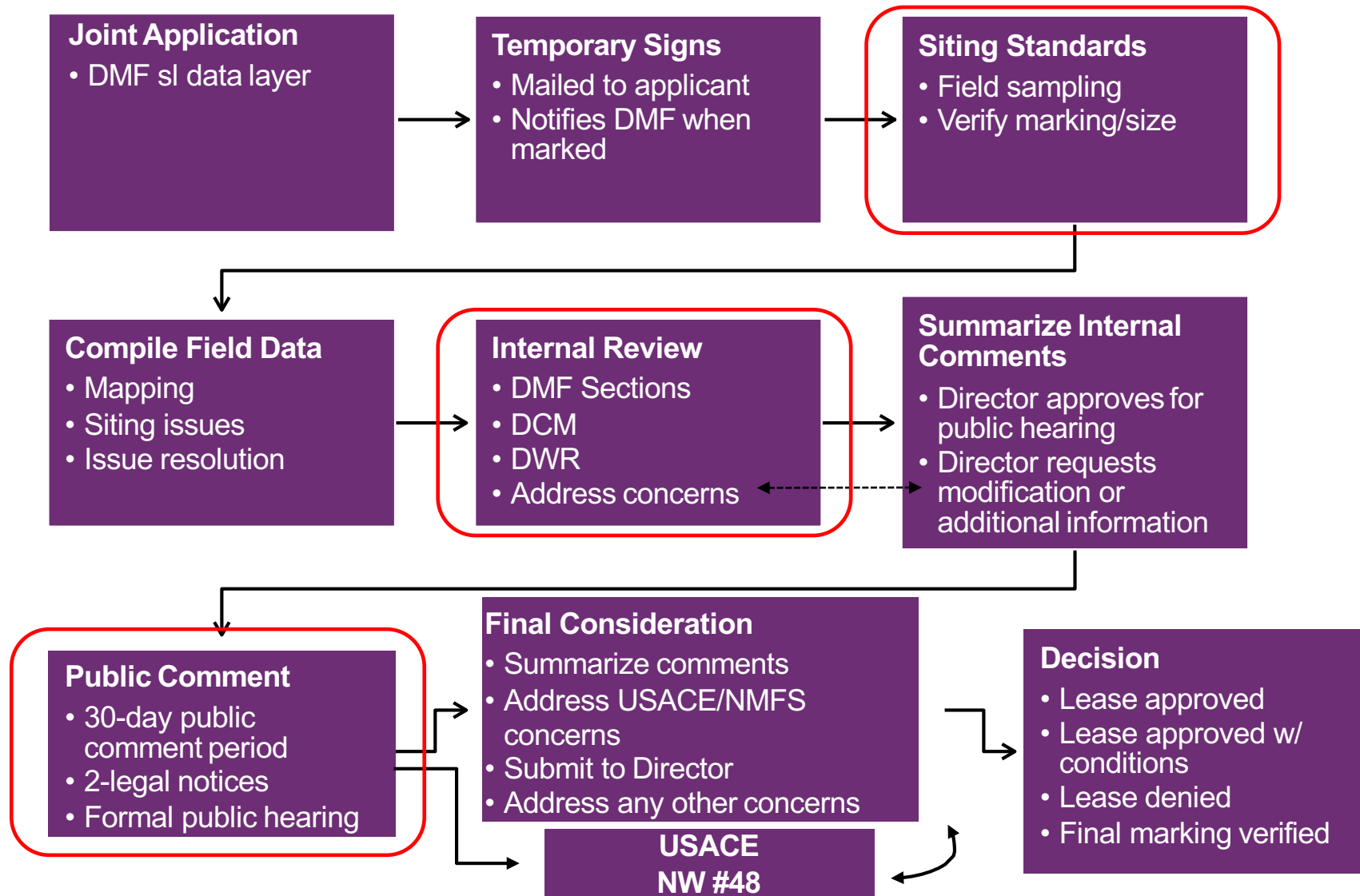


Water Column

Intensive
(floating gear)

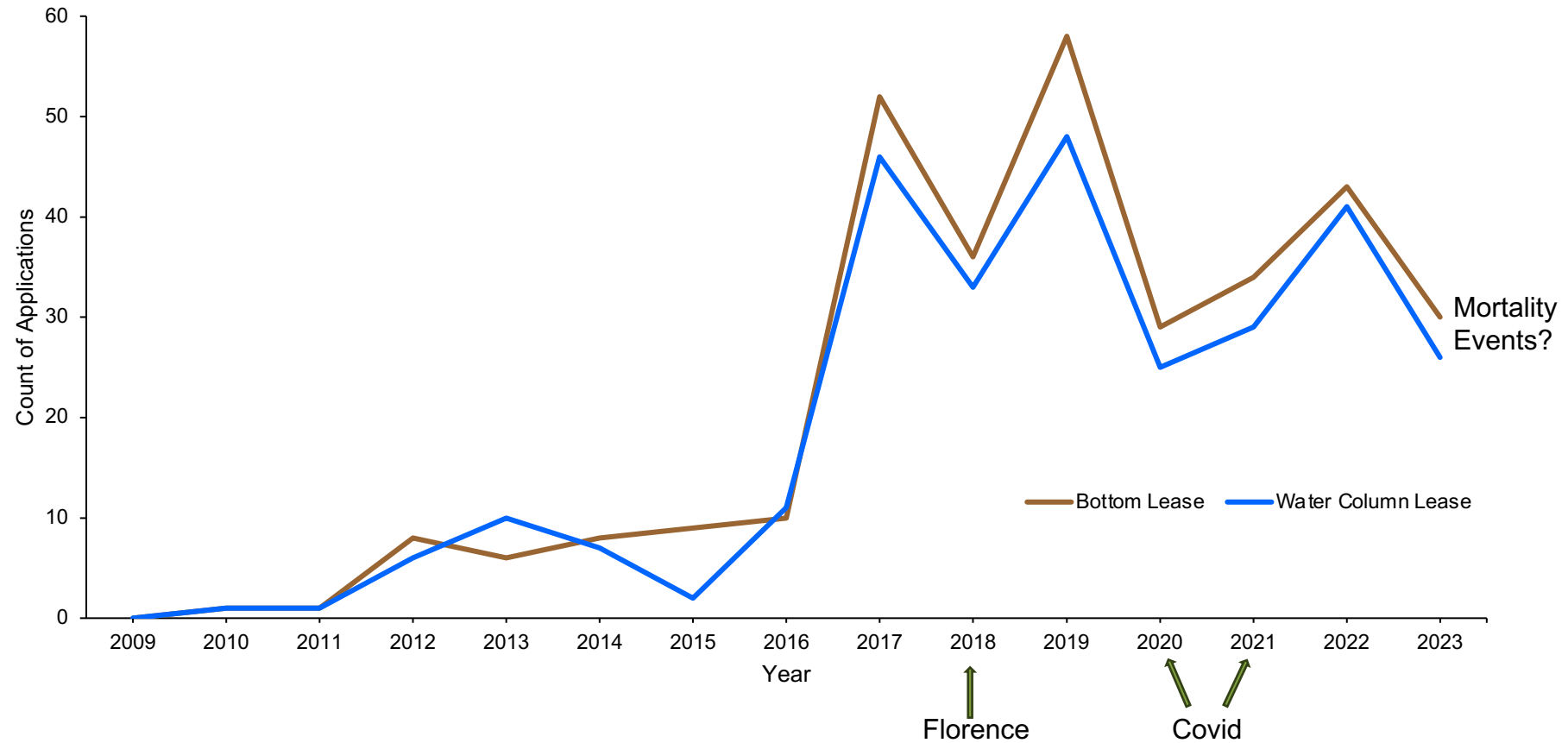


Shellfish Lease Application Process



Shellfish Lease Applications

Number of Annual Shellfish Lease Applications



Shellfish Lease Siting Standards

- Statute Defined
 - No Natural Shellfish Beds
 - Compatible with Public Trust
- MFC Rule Defined
 - Lease Size
 - Renewal Schedule
- USACE Defined (NWP #48 Regional Conditions)
 - Less than 1/3 of Waterbody
 - Less than 15% SAV



Internal Review

- Process Undefined in Statute and MFC Rule
- DMF
 - Fisheries Management Section
 - Impacts on Commercial and Recreational Fishing
 - Marine Patrol
 - Impacts on Public Trust Usage
 - Shellfish Sanitation
 - Current and Expected Water Classification
- Division of Water Resources
 - Water Classification
- Division of Coastal Management
 - Operating Under MOU

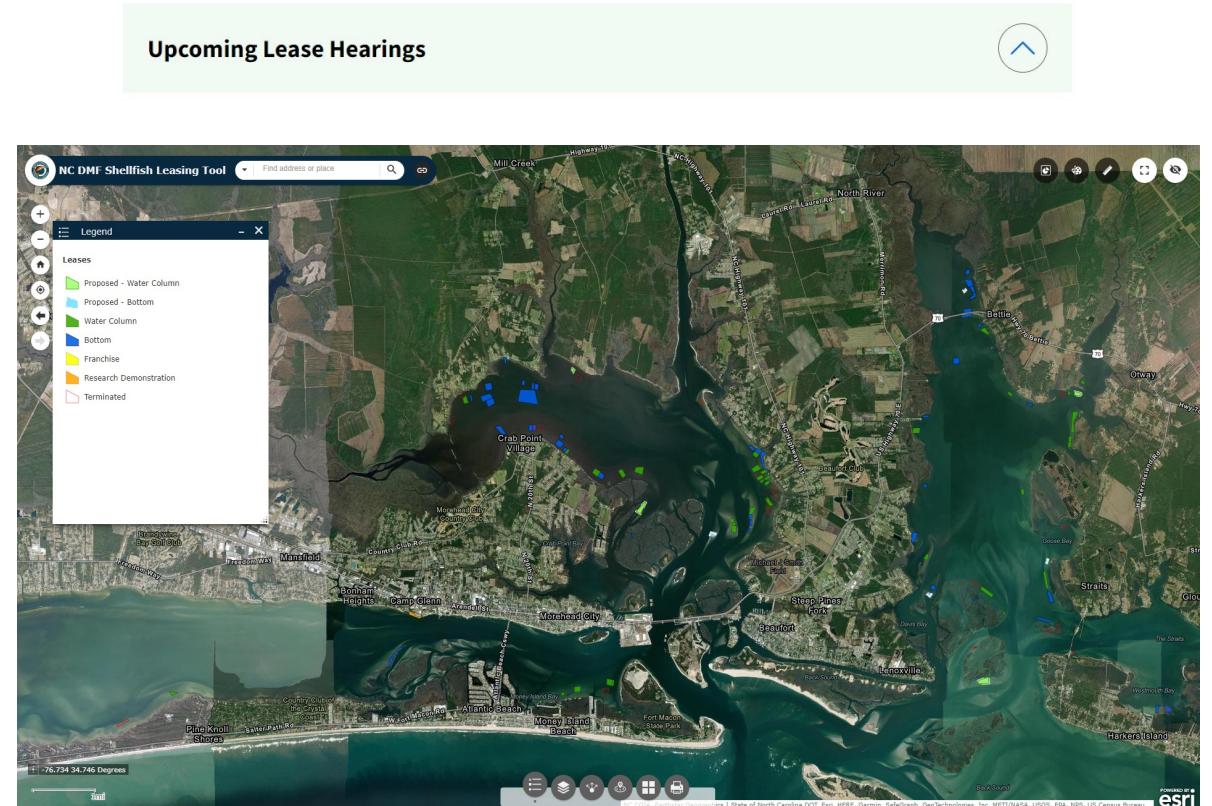


Public Comment

- N.C.G.S. § 113-202(f)
 - 2 Notices in Local Newspaper
 - Public Hearing in County
- Additional Outreach
 - Shellfish Lease Website
 - Shellfish Leasing Tool
 - Press Release
 - Proclamations Mailing/Email List
 - Social Media Posts
- Public Comments Compiled
 - Public Hearing
 - Online/Mailed Comments

Shellfish Lease Hearings

The public hearing/public comment process is a requirement for all proposed shellfish leases in North Carolina. The Upcoming Lease Hearings accordion lists scheduled hearings and includes links to information about proposed shellfish leases. The Previous Lease Hearings accordion contains the hearing minutes and comments received during the public comment period.

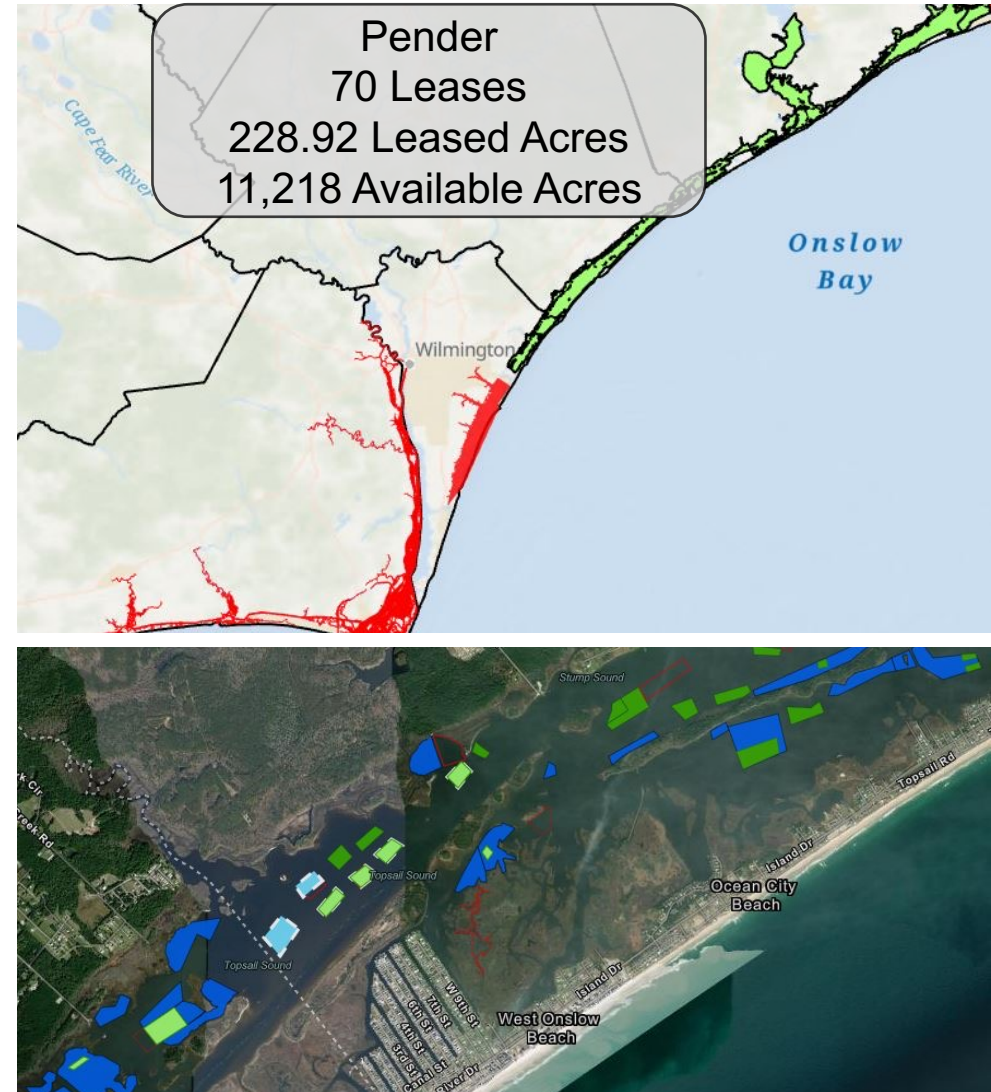
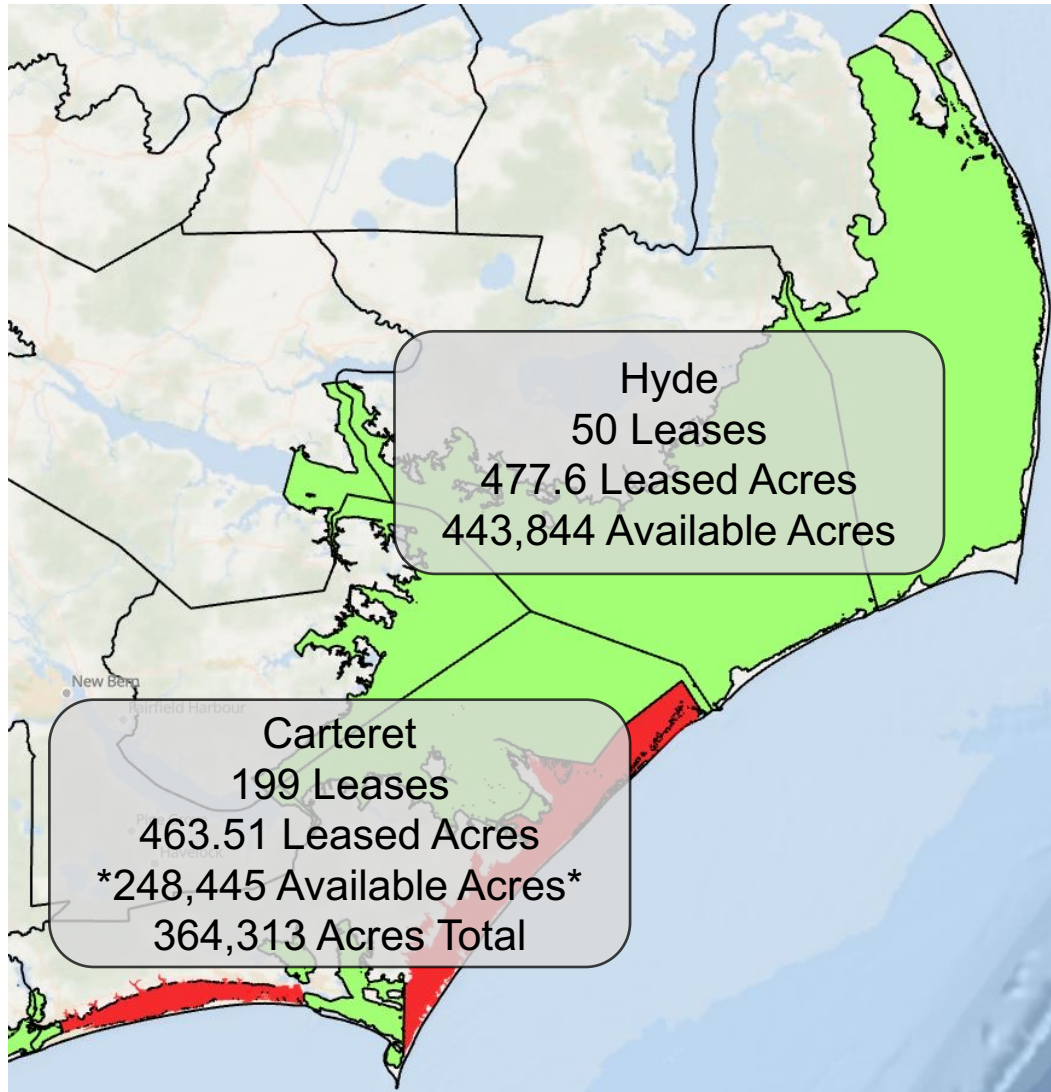


Current Shellfish Leases

Leases By County					
	Bottom	Water Column	Franchise	Research	Total
Beaufort	2	1	0	0	3
Brunswick	1	1	0	0	2
Carteret	128	68	2	1	199
Dare	15	15	0	1	31
Hyde	27	14	9	0	50
New Hanover	4	1	1	1	7
Onslow	55	26	28	0	109
Pamlico	11	10	7	0	28
Pender	51	19	0	0	70

Lease Acres By County							
	Bottom	Water Column	Franchise	Research	Combined	Total	Available Acres
Beaufort	7.24	2.24	0	0	9.48	7.24	26,874
Brunswick	3.39	3.39	0	0	6.78	3.39	0*
Carteret	458.56	212.3	2.38	2.57	675.81	463.51	248,445*
Dare	57.11	57.11	0	1	115.22	58.11	439,171
Hyde	241.11	40.26	236.49	0	517.86	477.6	443,844
New Hanover	4.84	1.05	3.13	2.75	11.77	10.72	3,330*
Onslow	364.1	90.55	203.8	0	658.45	567.9	29,409
Pamlico	65.08	60.61	52.18	0	177.87	117.26	118,346
Pender	228.92	36.77	0	0	265.69	228.92	11,218

Current Shellfish Leases



Adapting – Shellfish Leases and Aquaculture

- User Conflicts Study (2019) and Regulatory Reform
 - 15A NCAC 03O .0201, .0202, .0204
- Develop BMPs and Resource Guides
- Interstate Aquaculture Workgroup
 - DA&CS and WRC
- Shellfish Aquaculture Enterprise Areas (SEAs) Study
 - Meetings Held With Bogue Sound Municipalities and Growers
- Aquaculture Inspector
- Market Changes

North Carolina Aquaculture Gear Management and Storm Preparedness Resource Guide

Quick Reference Guide

The following document is meant to serve as a guide to the resources shared in the North Carolina Aquaculture Gear Management and Storm Preparedness Workshop to help prevent aquaculture debris and help shellfish growers prepare their farms for storm events. The workshop was put together by multiple partners with the goal of bringing together the shellfish aquaculture community to improve aquaculture gear management and storm preparedness on shellfish leases throughout coastal North Carolina.



National Weather Service Resources

Access to accurate forecasts in the days and weeks ahead of a tropical storm, hurricane, or other severe weather event can be critical in making decisions about preparing a shellfish aquaculture operation for storm impacts. The National Weather Service provides both short and long-term forecasts for specific geographic areas. An extremely detailed hourly forecast (out to 48 hrs), combined with a comprehensive 7-day forecast, and additional coverage of incoming storms can be valuable resources for shellfish growers to optimize their storm preparations.

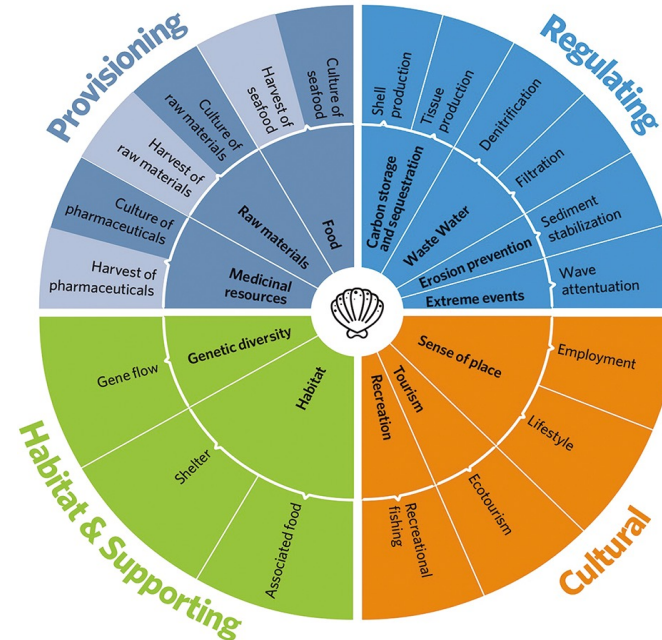
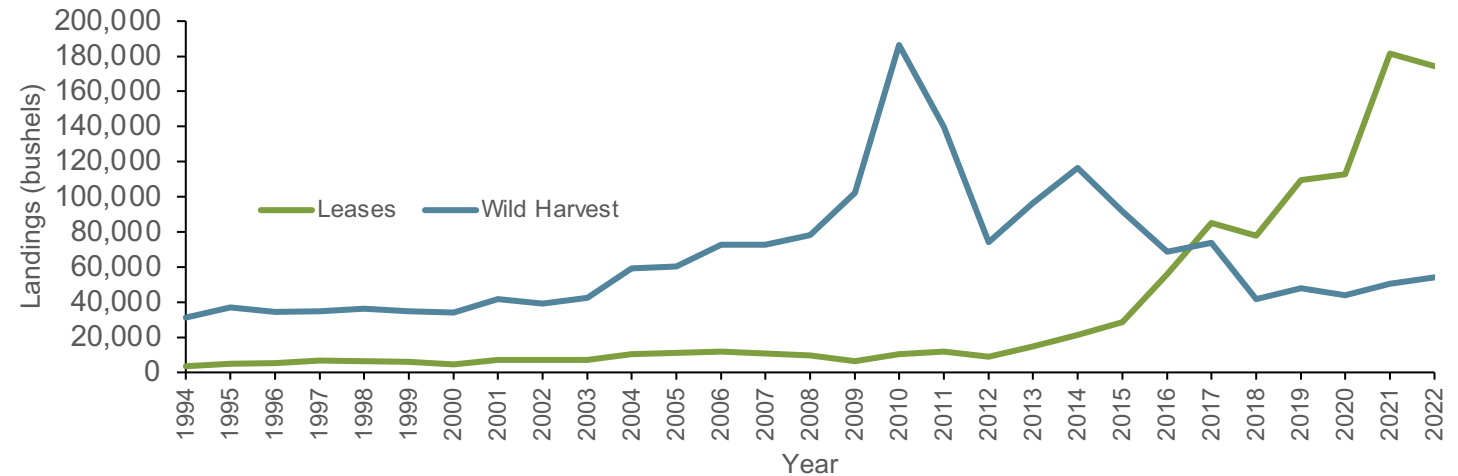
<https://weather.gov/moreheadcity>



Figure 1. International Space Station view of Hurricane Florence.
Photo courtesy of The European Space Agency

Aquaculture Economics

- Leases vs. Wild Harvest
- Ecosystem Services
- Direct Economic Stimulus
- Indirect Economic Benefits



Shellfish ecosystems

Shellfish ecosystems are productive reefs, "beds" and populations that provide a wide range of important ecosystem services in marine, coastal and estuarine areas. Globally, more than 85% of shellfish ecosystems have been impacted by human activity and their capacity to naturally support a range of goods and services has been greatly reduced. Protection of shellfish ecosystems is critical (for example, harvesting from these areas should be limited or not occur), and restoration can be effective but require substantial time and cost.



Shellfish mariculture

Ideally shellfish mariculture would support many of the goods and services provided by shellfish ecosystems. Because of widespread human impacts on shellfish ecosystems there may be instances in which mariculture is an effective method for supporting and restoring these functions, such as the provision of shellfish for food or the introduction of a large mass of filter feeders to increase water filtration. More research is needed to understand how shellfish mariculture can be best designed, to maximise positive ecosystem effects.

Questions?



Zach Harrison

Habitat & Enhancement Section Chief

Zach.Harrison@deq.nc.gov

252-515-5485

