



ENHANCE ★ PROTECT ★ CONSERVE

# Mississippi Department of Marine Resources

Jason Rider  
Shellfish Bureau Director

# Off-Bottom Oyster Aquaculture

## Acreage for Commercial Aquaculture

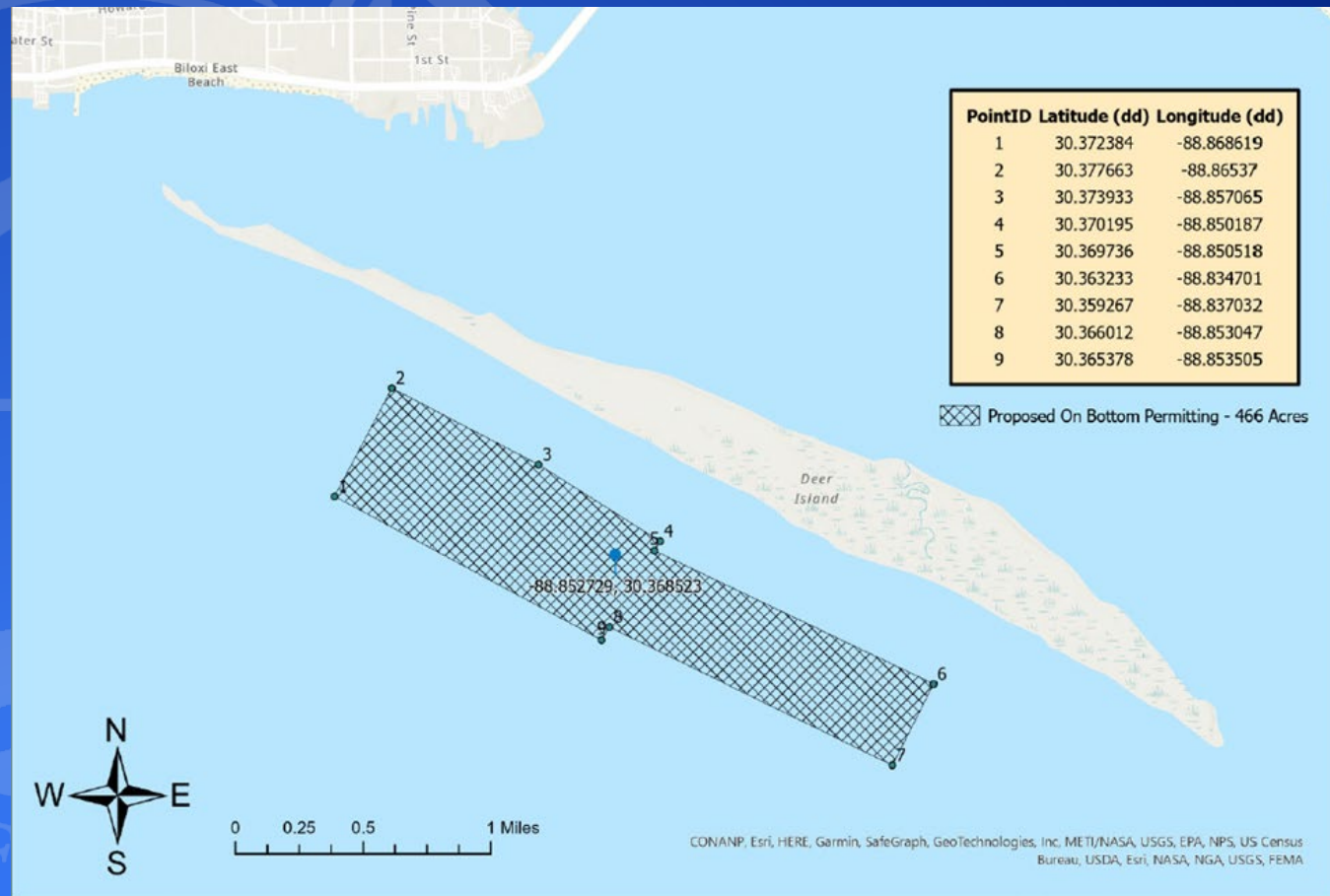
- 466 acres currently permitted for commercial farming
- Approved for on-bottom cage culture in 2023
- 70 acres currently leased by 40 farmers

## OBOA Graduates

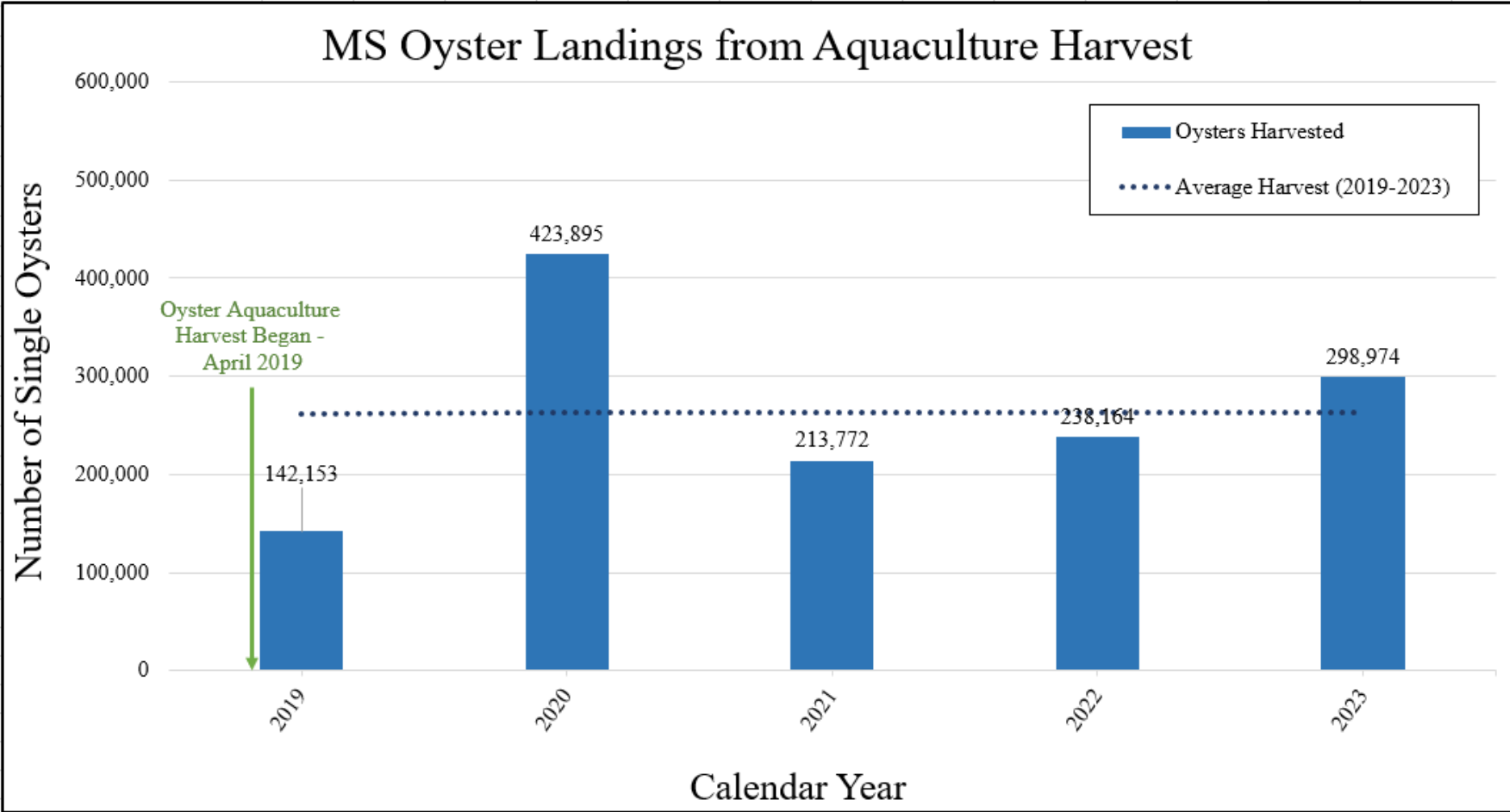
- 85 farmers have graduated from the Off-Bottom Oyster Aquaculture Training Program

## Over a Million Oysters Harvested

- Off-bottom oyster aquaculture commercial operations have harvested 1.3 million oysters



# Off-Bottom Oyster Aquaculture



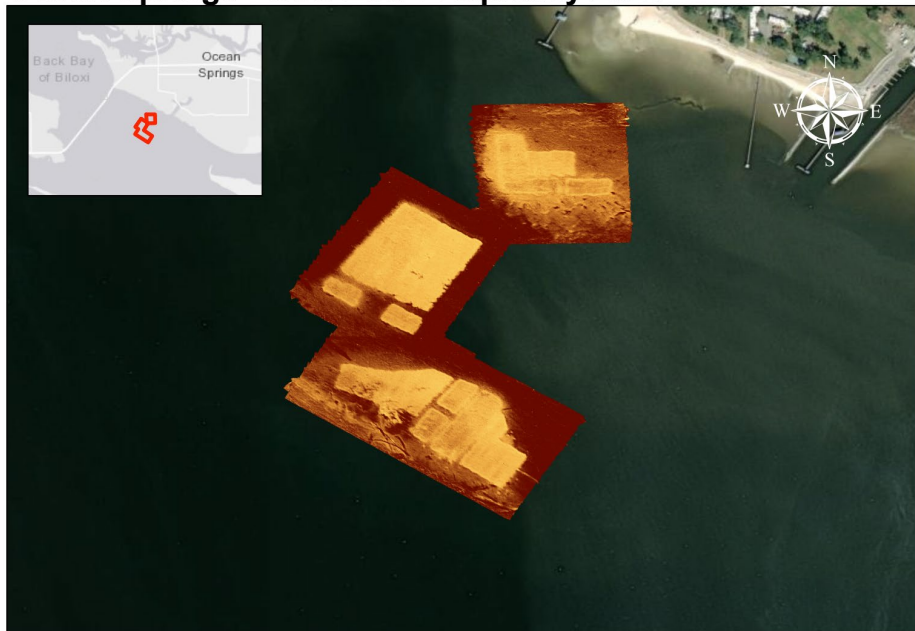


# MDEQ/MDMR

## Experimental Oyster Cultch Project

- MDEQ/MDMR deployed 30 acres of oyster cultch with the goal of comparing material types as well as relief heights
- MDMR is performing monitoring activities
  - #57 limestone vs 1" x 4" stone
  - Reef heights of 3", 6" and 16"

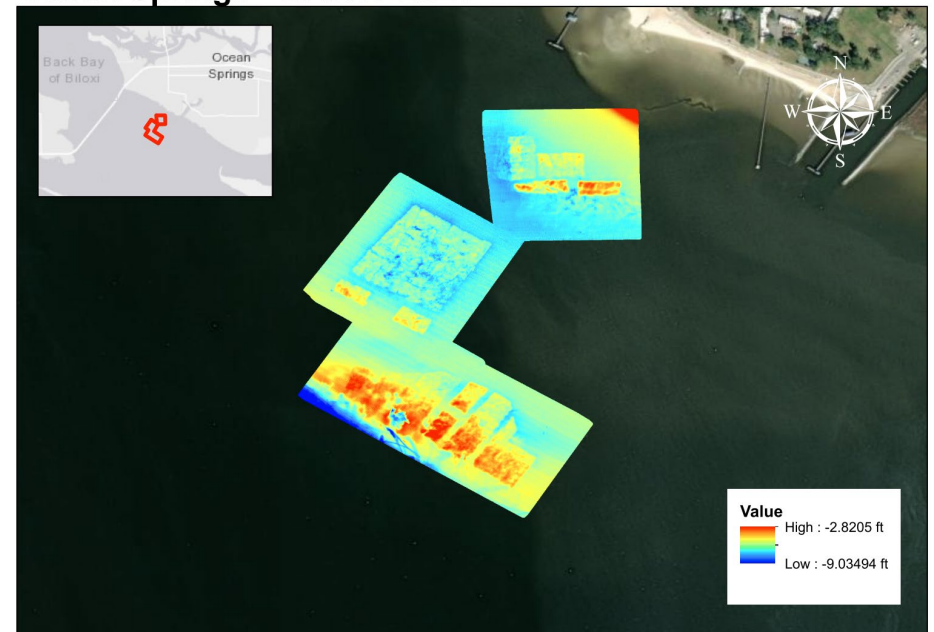
Ocean Springs - SSS Low Frequency 2024



0 0.125 0.25 0.5 0.75 Miles



Ocean Springs - BATHY 2024



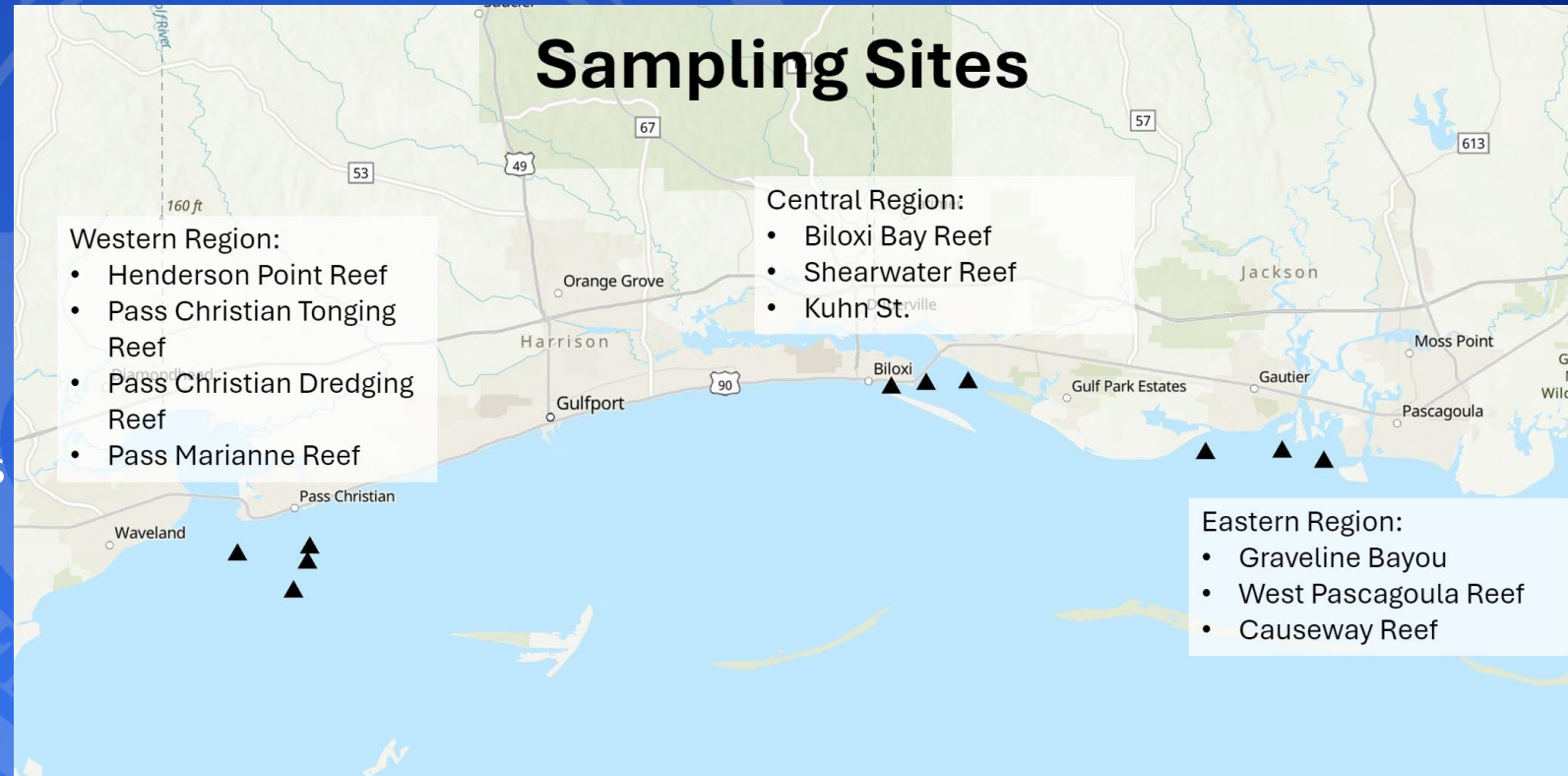
Value  
High : -2.8205 ft  
Low : -9.03494 ft

0 0.125 0.25 0.5 0.75 Miles



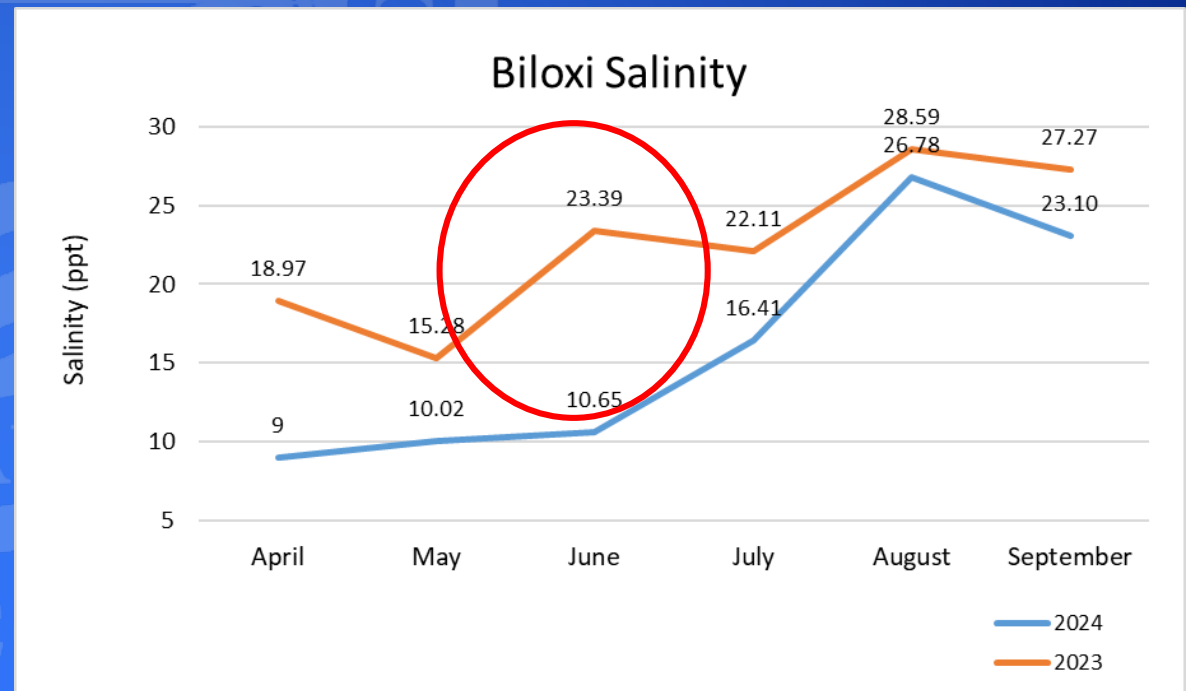
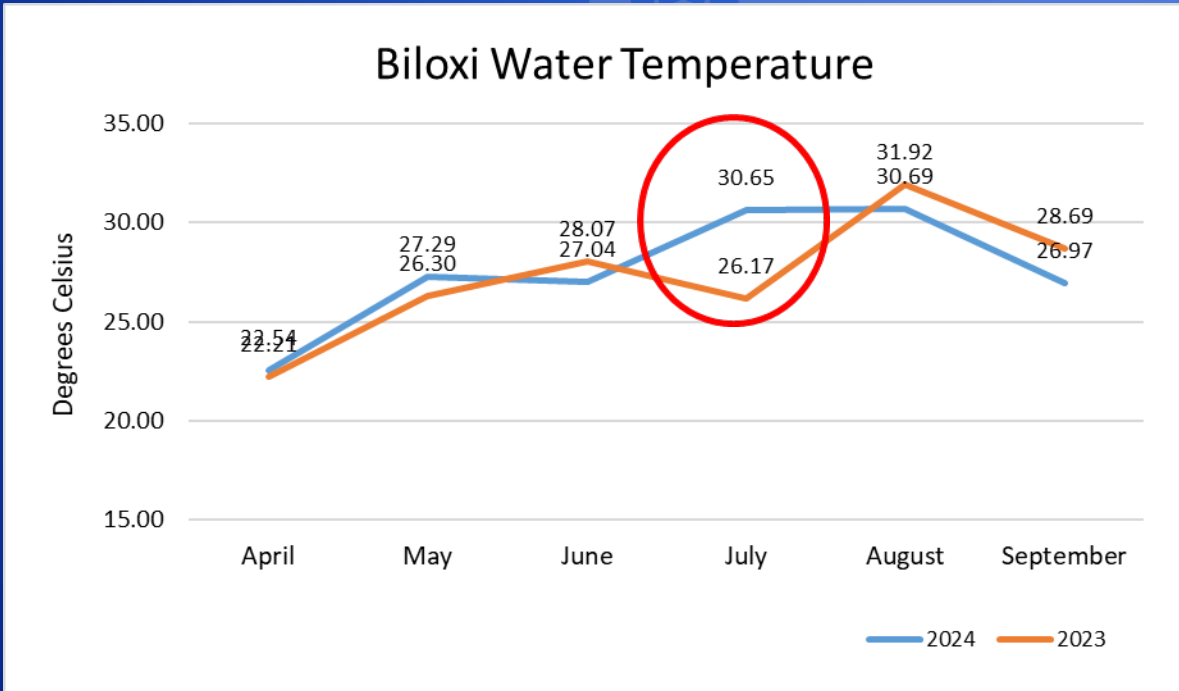
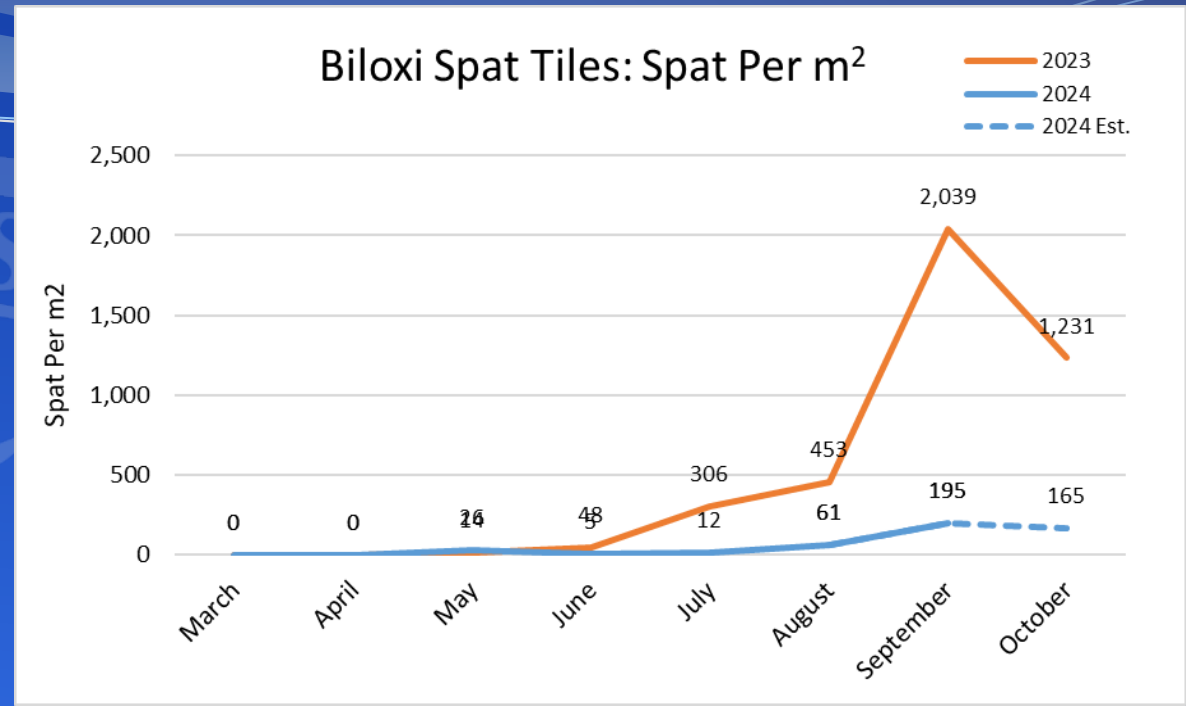
# Oyster Spat Settlement and Reef Recruitment

- Purpose – monitor the natural settlement of *Crassostrea virginica* on historical reefs after the 2019 openings
- 10 sites across the Mississippi Sound
- Represent major bays and river outputs of the coast
- Sites were chosen based off historic settlement numbers and represent varying depths, wave action, and salinity ranges



# Oyster Spat Settlement and Reef Recruitment

- Compare to 2023 data where we saw a healthy spat recruitment
- 2024 Early low salinity
- 2024 Early affect temperatures
- Both can affect broodstock/gonadal development and larval survival which can be the cause for low spat recruitment.

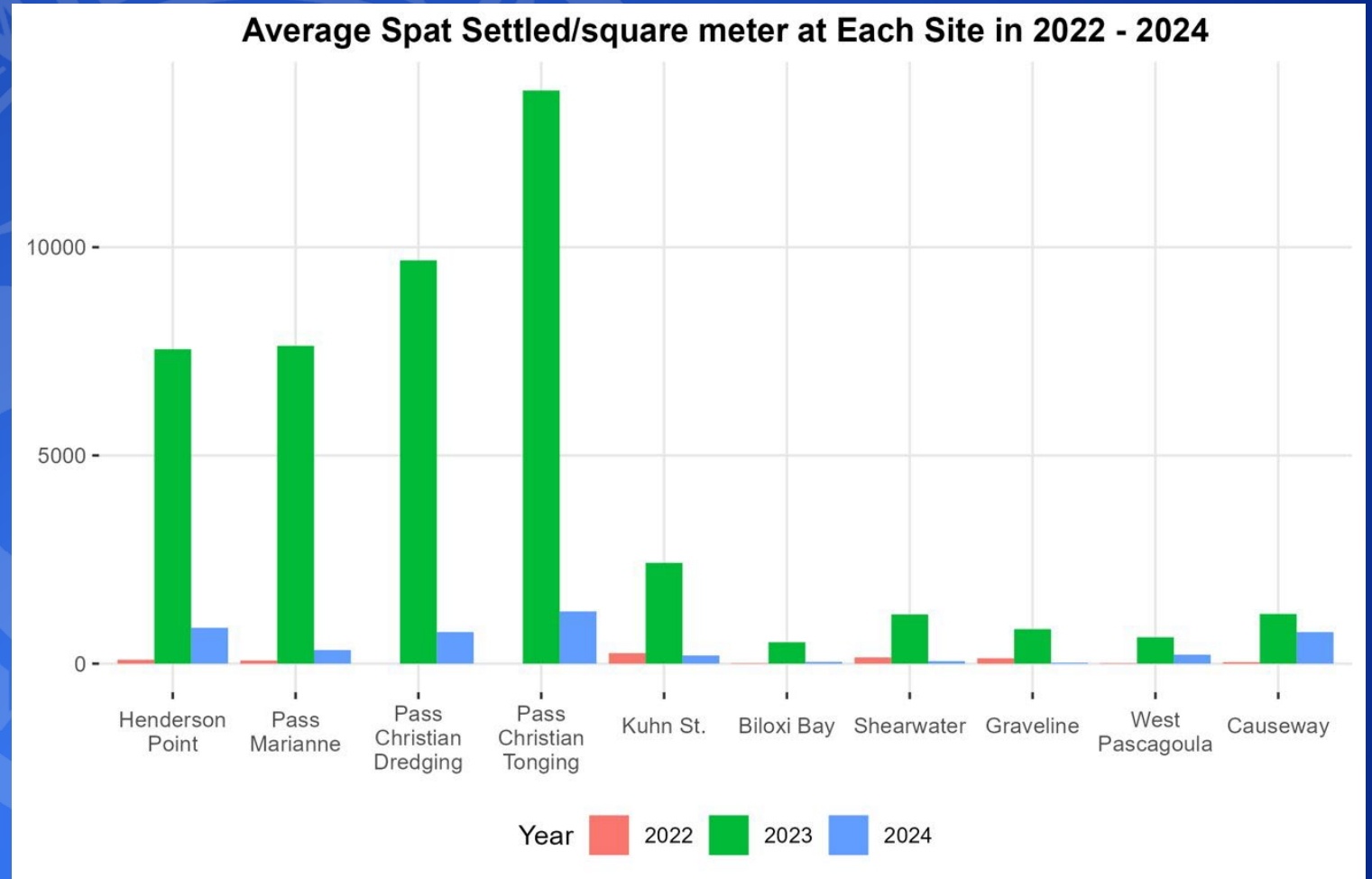




# Oyster Spat Settlement and Reef Recruitment:

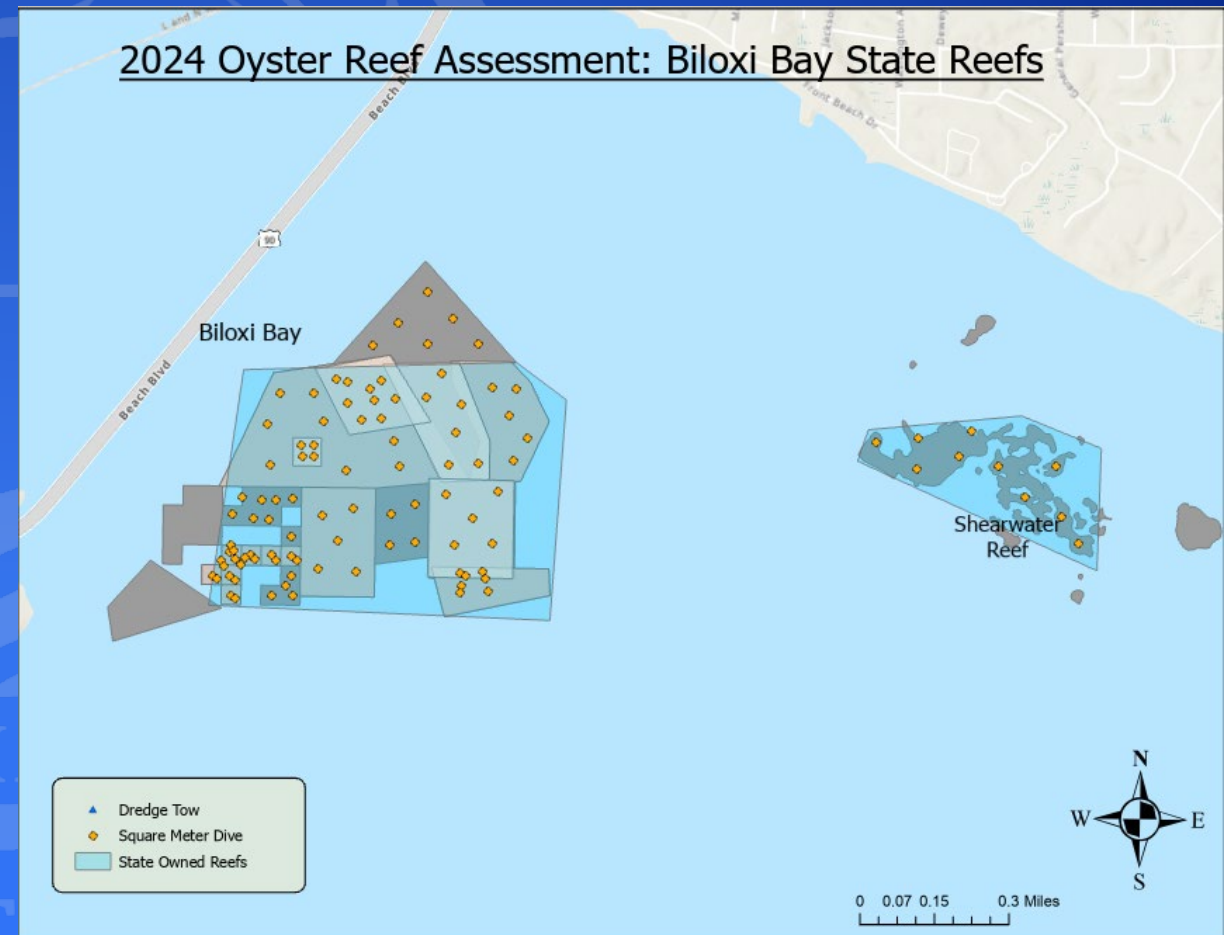
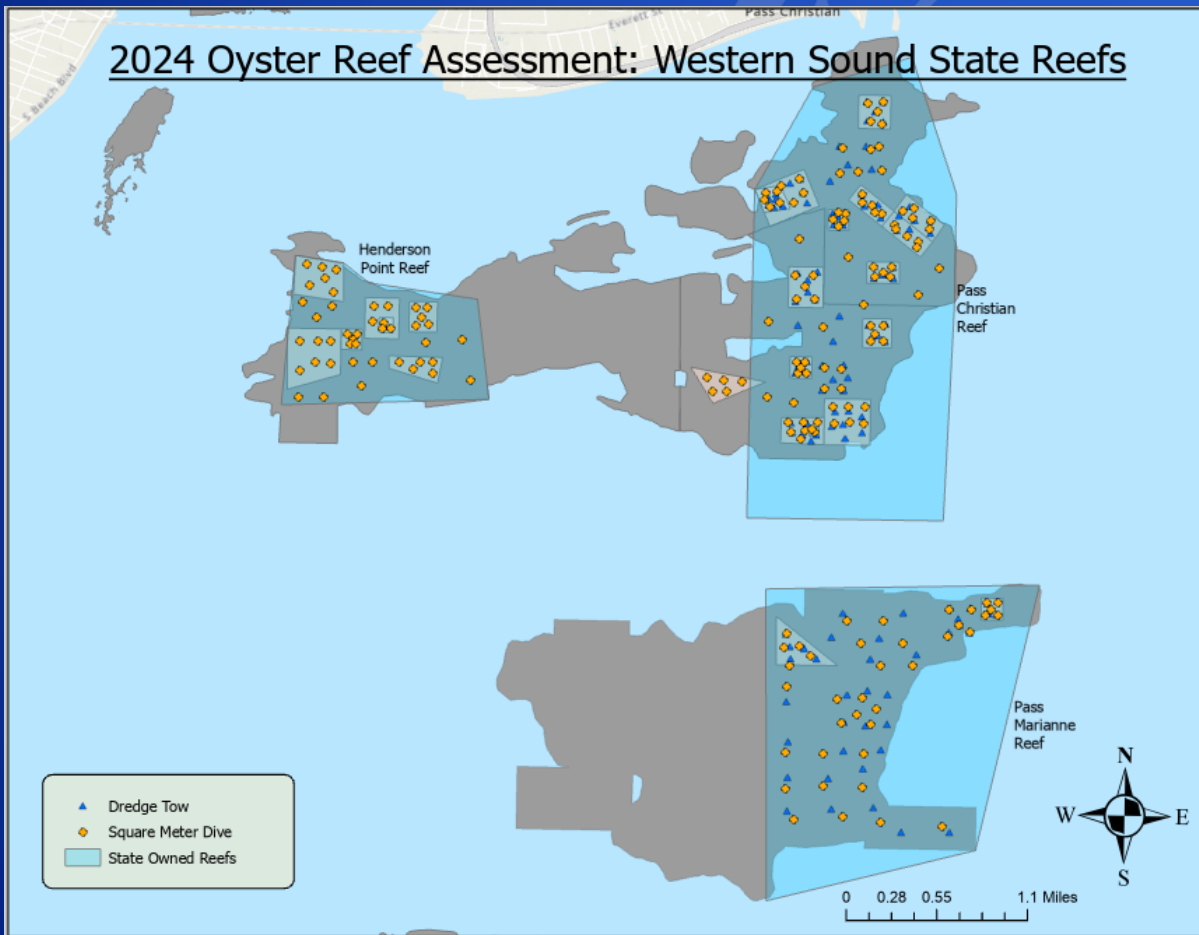
- 660 settlement tiles and 7,920 oyster shells have been deployed and analyzed for spat settlement since 2022

Year	Total Observed Spat Across All Sites
2022	266
2023	30,978
2024	3,861



# 2024 Reef Assessment

- Completed 120 one-minute dredge tows
- Completed 288 square meter samples site with 576 total samples

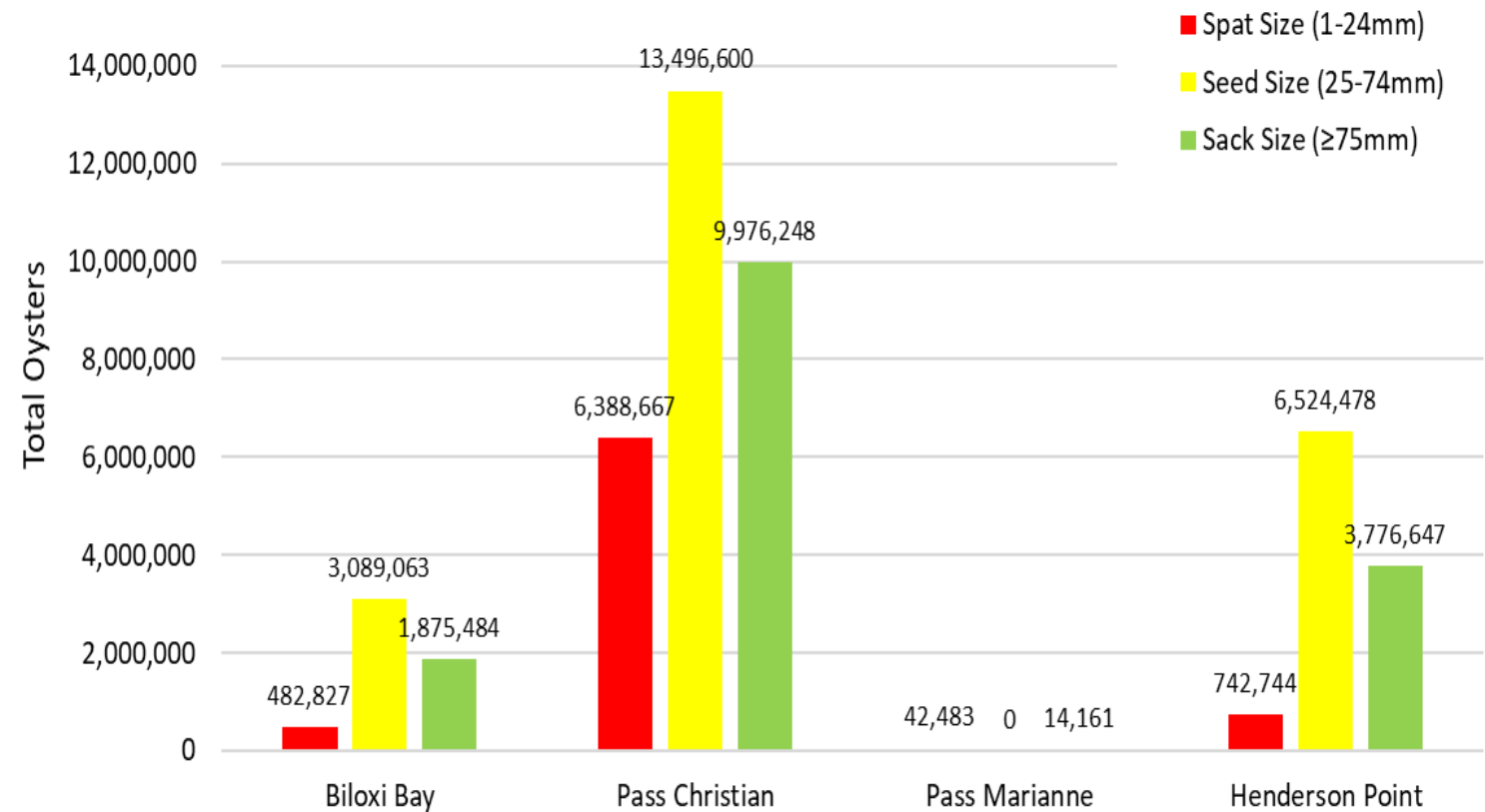




# 2024 Oyster Reef Assessment Overview

- Early high water temperatures and early low salinity had compounding effects causing delayed spawning activity and limited larval survival to settlement
- The Mississippi State-Owned Reefs
  - Cultch limited
  - Low Spat set from extreme water quality conditions in 2024

## 2024 Total Oyster Size Class Distribution by Reef



# 2024 Cultch Planting

## Pass Christian State Reef

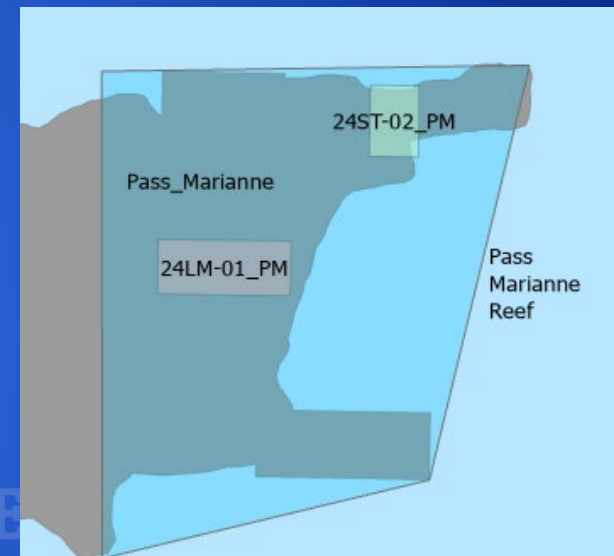
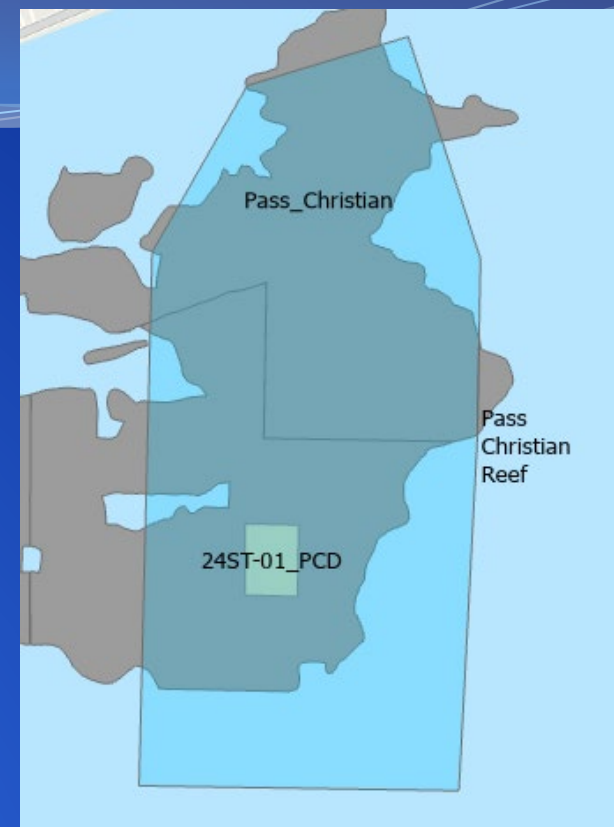
- 24ST-01\_PCD:
  - 34 Acres, Planted 3,424 Cubic Yards of Limestone

## Pass Marianne State Reef

- 24ST-02\_PM:
  - 34 Acres, Planted 4,395 Cubic Yards of Limestone
- 24LM-01\_PM:
  - 70 Acres, Planted 10,400 Cubic Yards of Limestone

## Initial Sampling Results – September 2024

- Based off initial 3 month Spat Tile Deployment Data, MDMR has recording an initial spat set.
- Water quality has been consistent and we anticipate moderate to average recruitment.



# Private On–Bottom Molluscan Shellfish Leases

- Application window opened on October Tuesday, October 1<sup>st</sup>, 2024, and will close on Monday, December 2<sup>nd</sup>, 2024, at 4:00 pm.
- The overall goal is to promote the prosperity of coastal communities and foster a thriving shellfish industry in the state.

## Primary objectives of the updated regulations:

- Encourages private individuals or businesses to lease and develop previously in-accessible water bottoms
- Ensures compliance with environmental and conservation requirements
- Fosters a sustainable framework for shellfish production in Mississippi
- Increases oyster production in Mississippi
- Stimulates economic development within the shellfish industry by creating leasing opportunities
- Job creation, revenue generation, and support for associated industries, such as hatcheries, processing facilities, and seafood markets

MISSISSIPPI LEGISLATURE

REGULAR SESSION 2024

By: Senator(s) Thompson

To: Ports and Marine  
Resources

SENATE BILL NO. 2648  
(As Sent to Governor)

1 AN ACT TO AMEND SECTIONS 49-15-17, 49-15-27, 49-15-37,  
2 49-15-38, 49-15-46, AS AMENDED BY HOUSE BILL NO. 1007, 2024  
3 REGULAR SESSION, AND 49-15-47, MISSISSIPPI CODE OF 1972, TO  
4 PROVIDE TECHNICAL REVISIONS TO THE POWERS AND DUTIES OF THE  
5 MISSISSIPPI DEPARTMENT OF MARINE RESOURCES RELATING TO OYSTER  
6 CULTIVATION LEASES, THE SEAFOOD FUND, THE OYSTER PRODUCTION  
7 PRESERVE ACCOUNT AND THE COASTAL PRESERVE ACCOUNT; TO AUTHORIZE  
8 THE DEPARTMENT OF MARINE RESOURCES TO RECONFIGURE OYSTER LEASE  
9 AREAS AND TO REVISE PERMITTED AREAS AND TO PROVIDE PROTEST  
10 PROCEDURES BY OYSTER LEASE APPLICANTS; TO PRESCRIBE CRIMINAL  
11 PENALTIES FOR ANY PERSON VIOLATING THE PROVISIONS OF THE OYSTER  
12 BOTTOM LEASE PROGRAM; TO AMEND SECTION 51-11-105, MISSISSIPPI CODE  
13 OF 1972, TO REMOVE THE UNITED STATES ARMY CORPS OF ENGINEERS FROM  
14 THE EXISTING LOWER PEARL RIVER RESTORATION PROJECT AGREEMENT; TO  
15 REPEAL SECTION 27-19-56.27, MISSISSIPPI CODE OF 1972, WHICH  
16 AUTHORIZES A SPECIAL LICENSE TAG FOR SUPPORTERS OF THE MISSISSIPPI  
17 SEAFOOD INDUSTRY; AND FOR RELATED PURPOSES.

18 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MISSISSIPPI:



# Private On-Bottom Molluscan Shellfish Leases

- Fifteen (15) year leases.
- Total acreage cannot exceed 2,500 acres per individual/business
- The leasing rate is three dollars (\$3.00) per acre per year.
- Lessees must propagate a minimum of 50% of the total bottom area leased within the first five (5) years, with a minimum of 20% being propagated by Year 2
- The minimum planting density
  - no less than 60 cubic yards of approved cultch per acre
  - or
  - no less than 5 cubic yards of approved cultch material with a minimum of 75,000 oyster spat per cubic yard.
- MDMR staff will inspect cultch material and volume prior to deployment
- Submit a yearly summary of lease activity
- Failure to meet the leasing requirements may be deemed an “Event of Default.”



The screenshot shows the Mississippi Department of Marine Resources (MDMR) website page for "ON-BOTTOM MOLLUSCAN SHELLFISH LEASES". The page features a navigation menu with links for "AGENCY INFO", "OFFICES", "OUTREACH", "PROGRAMS", and "GO FISHING". Below the navigation is a large heading "ON-BOTTOM MOLLUSCAN SHELLFISH LEASES". A horizontal menu contains four buttons: "PROGRAM INFORMATION", "WHAT YOU NEED TO KNOW", "HOW TO APPLY", and "APPLICATION REVIEW AND EVALUATION". The "PROGRAM INFORMATION" section is active and contains the following text:

**PROGRAM INFORMATION**

The Mississippi Department of Marine Resources (MDMR) is pleased to announce the recent update of its on-bottom shellfish regulations. These changes were made possible by the passage of Senate Bill 2648 during the Mississippi Legislature 2024 Regular Session. The updated statutes and regulations now allow private individuals or businesses to lease previously inaccessible water bottoms, fostering a sustainable framework for shellfish production in Mississippi while ensuring compliance with environmental and conservation requirements. They emphasize responsible cultivation practices, ensuring the long-term protection of the marine environment for future generations.

The overall goal is to promote the prosperity of coastal communities and foster a thriving and sustainable shellfish industry in the state. One of the primary objectives of the updated regulations is to encourage private individuals or businesses to lease and develop water bottoms, thereby increasing oyster production in Mississippi. By creating leasing opportunities, the regulations aim to stimulate economic development within the shellfish industry. This includes job creation, revenue generation, and support for associated industries such as hatcheries, processing facilities, and seafood markets. The overall goal is to promote the prosperity of coastal communities and foster a thriving shellfish industry in the state. The updated regulations are designed to establish a vibrant and sustainable shellfish industry.

MDMR established a system to determine qualifications of applicants. The system prioritizes applicants based on weighted scoring criteria. Those with the highest scores will be prioritized among eligible applicants to enter into a Lease Agreement for Oyster Production in Mississippi with the MDMR.

Applicants will be evaluated and scored through the MDMR's comprehensive application process. Those with the highest scores will then enter into a Lease Agreement for Oyster Production in Mississippi with the MDMR.

The application period will open on Tuesday, October 1, 2024, at 8:00 am and close on Monday, December 2, 2024, at 4:00 pm.

For a comprehensive understanding of the updated regulations, interested parties can access detailed information below.

**WHAT YOU NEED TO KNOW**

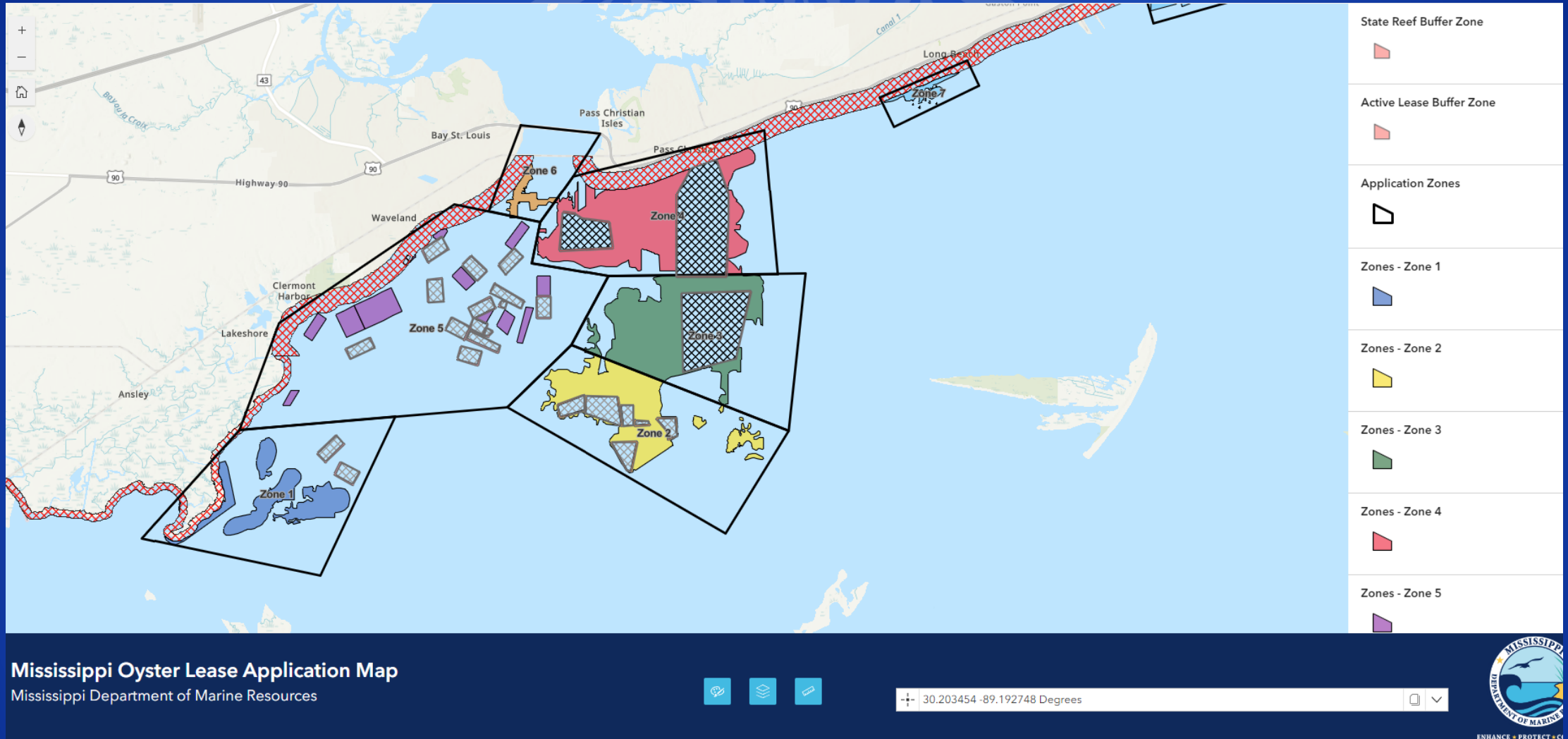


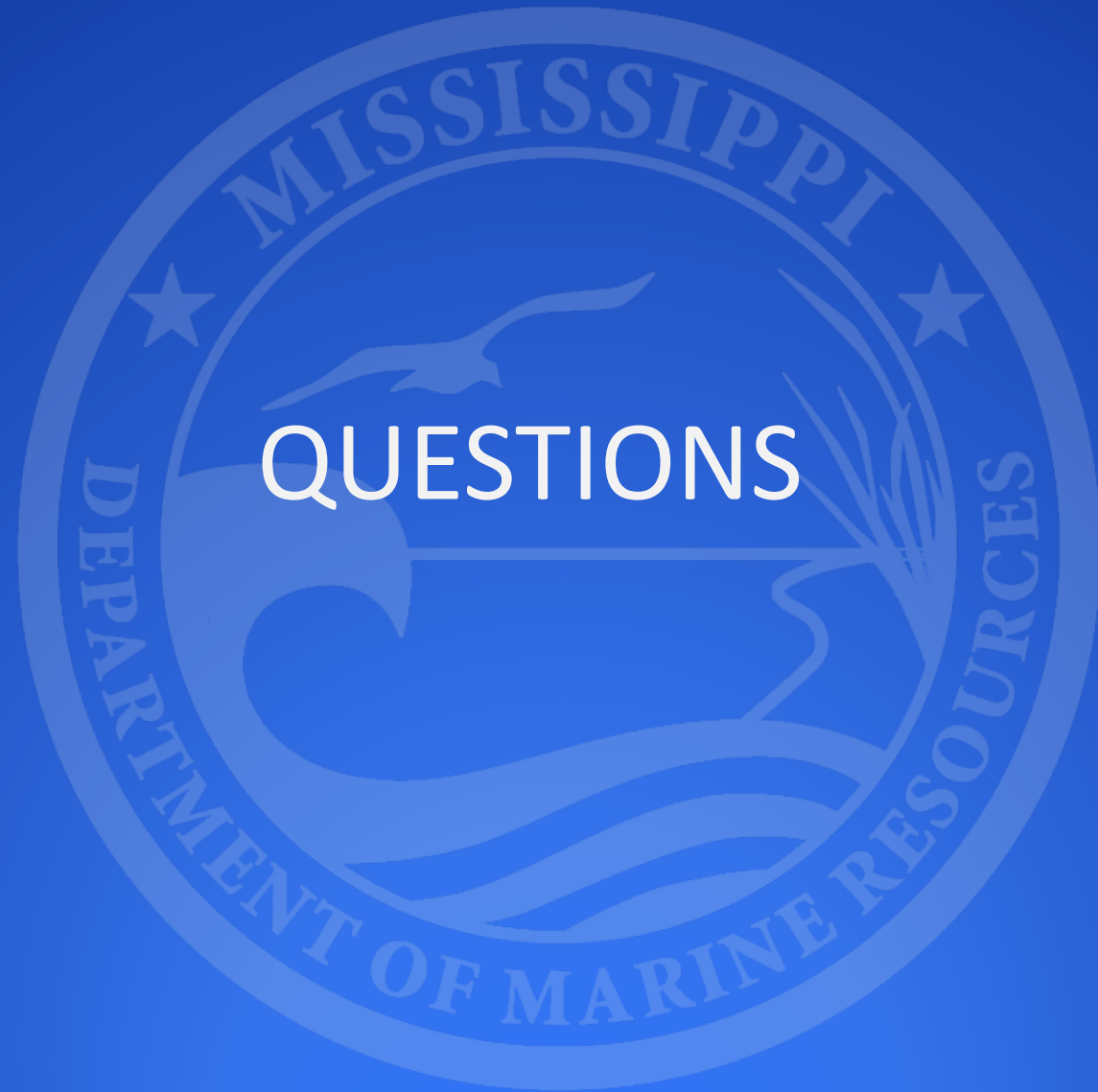
# Private On-Bottom Molluscan Shellfish Leases

## Scoring Matrix:

SCORING	LEASE CONDITIONS	CULTIVATION AND PROPAGATION REQUIREMENTS	REPORTING	TERMINATION AND WAIVERS	SUBLEASES AND TRANSFERS	SUPPORTING DOCUMENTATION
Topic	Question	Points	Supporting Documentation	Scoring Matrix		
Experience in Reef Development	Has the applicant held a valid Private Oyster Lease in Mississippi or another state and for what time period?	10	On-Bottom Lease Agreement for any state	1/2 point for every one (1) year that a lease was held.		
	What relevant experience does the applicant have related to cultch planting and reef development?	10	State contracts, receipts, permits, relevant experience	1 point for every one (1) year of experience		
Experience in Oyster Cultivation and Harvesting	How many years' experience does the applicant have harvesting oysters?	10	Trip tickets with associated harvest licenses	1 point for every one (1) year of experience		
	Over the past ten years, how many cubic yards have you planted for a lease/contract?	10	Material purchase receipts, Barge receipts	1/2 point for every increment of 2,500 cubic yard		
Registration with the US Food and Drug Administration ICSSL for Mississippi	What is the total length of time that the applicant has been registered on the US Food and Drug Administration ICSSL for Mississippi?	20	Verify business name on the ICSSL for Mississippi	1.4 point for each year on the list		
Lease Acreage	What is the total amount of acreage applied for per application?	10	N/A	MDMR has determined the total acreage for each zone. Each application will be scored by dividing the requested amount by 10 points.		
	What is the total amount of acreage applied for and currently leased?	10	N/A	Total Acreage of lease applications and current leases (in MS) divided by 10 Points in 125 acre increments		
Financial Stability	Evidence of Applicant's Financial Ability to Perform Cultivation and Propagation Requirements	20	Financial statements, business balance sheets, tax returns, bank statements, personal financial statement			

# Private On-Bottom Molluscan Shellfish Leases





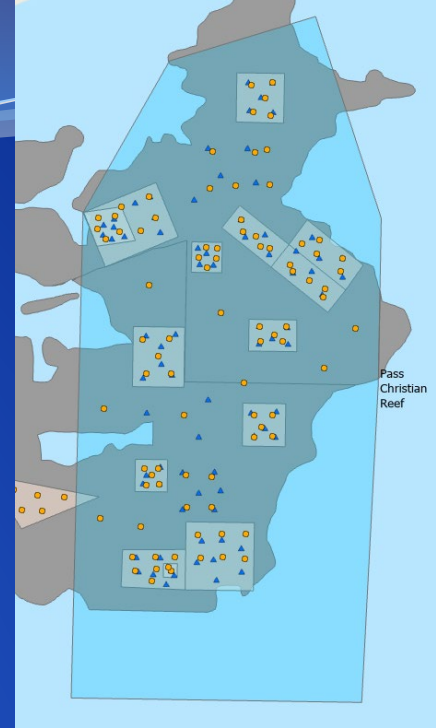
# QUESTIONS

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# PASS CHRISTIAN STATE-OWNED REEF

- State Reef Footprint: Approximately 1,974 acres
- Predators: 0.8 oyster drills per sample (Low)
- 89% of market size oysters are found on cultch plants, which cover only 341 acres
- Anticipated increase in Market Size Oysters next year based on the current seed class
- Healthy distribution of single to 4+ clusters

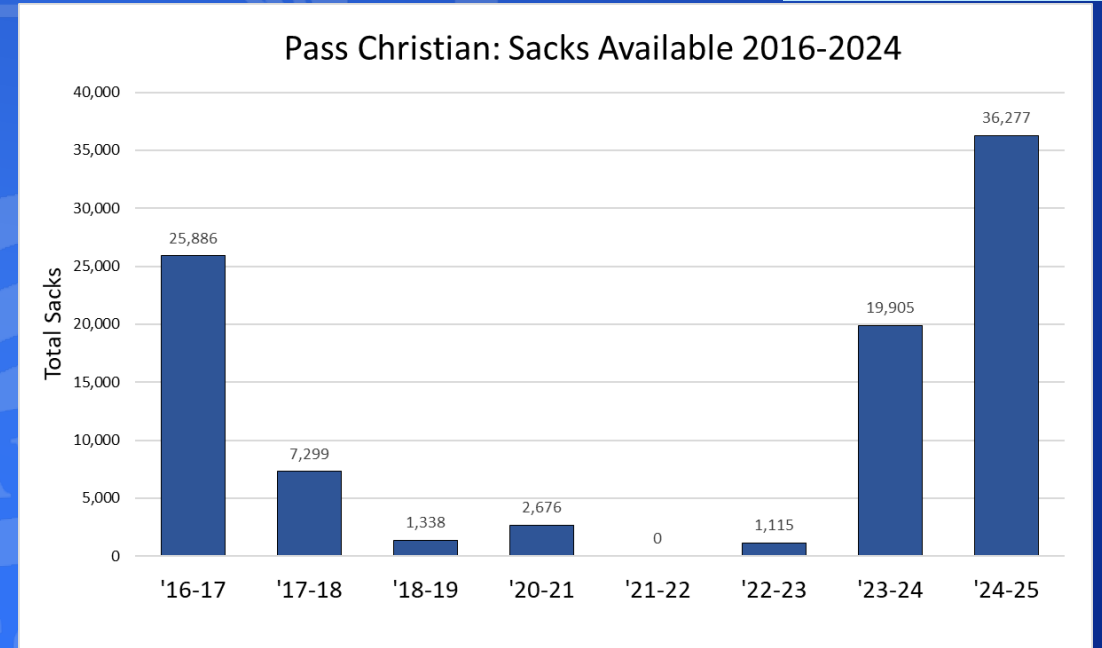
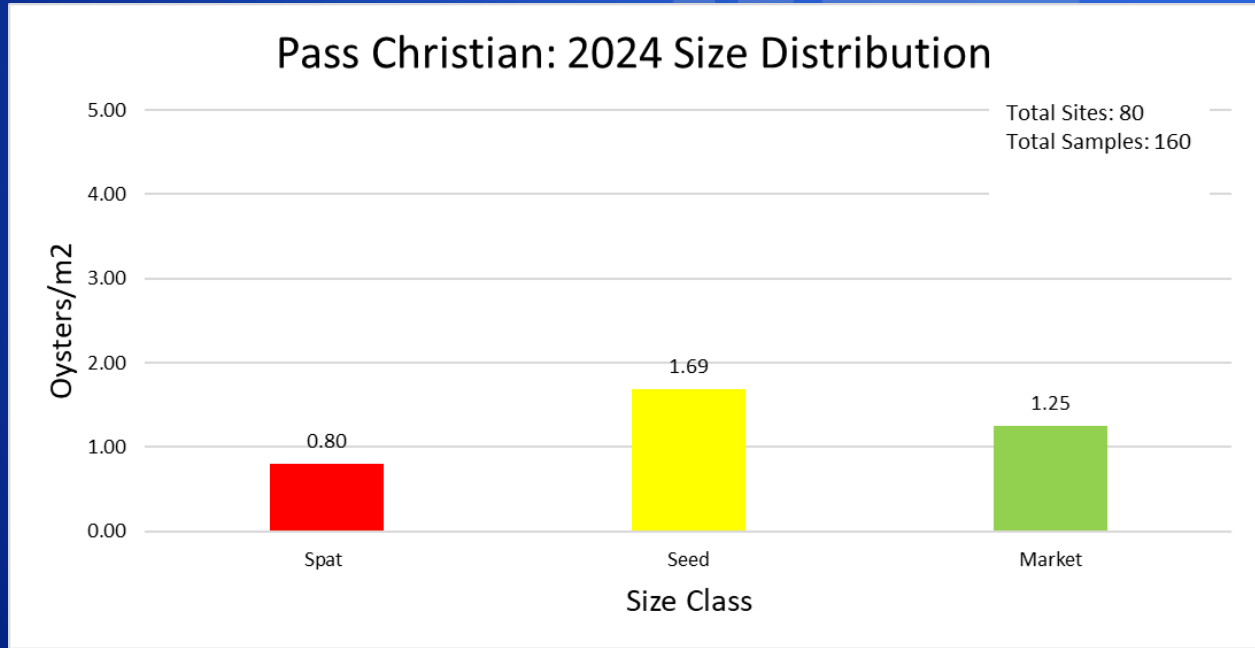
**Total Sacks Available: 36,277**



**Recommended Restoration Action:**

- Expand the footprint of productive cultch plants

Pass Christian			
	State-Owned Reef Only	Historical Reef Only	Cultch Plants
Acres	981	993	341
Total Sacks	0	3,845	32,433
% Oysters	0%	11%	89%

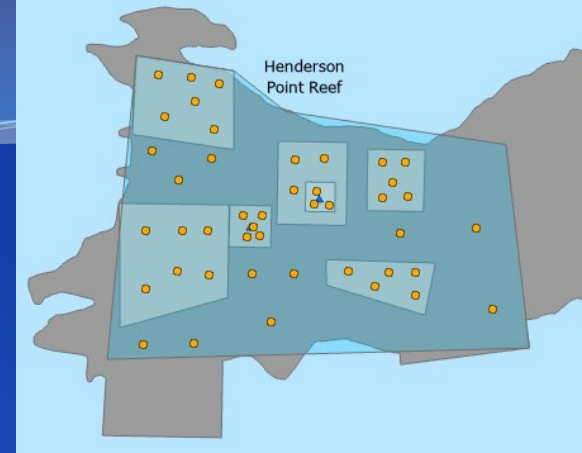




# HENDERSON POINT STATE-OWNED REEF

- State Reef Footprint: Approx. 563 acres
- Predators: Very low levels of oyster drills and hooked mussels
- Limited suitable bottom for reef expansion
- 86 % of Market Size oysters are found on Cultch Plants, within only 199 acres
- Anticipated increase in Market Size Oysters next year based on the current seed class
- Healthy distribution of single to 4+ clusters

**Total Sacks Available: 13,733**

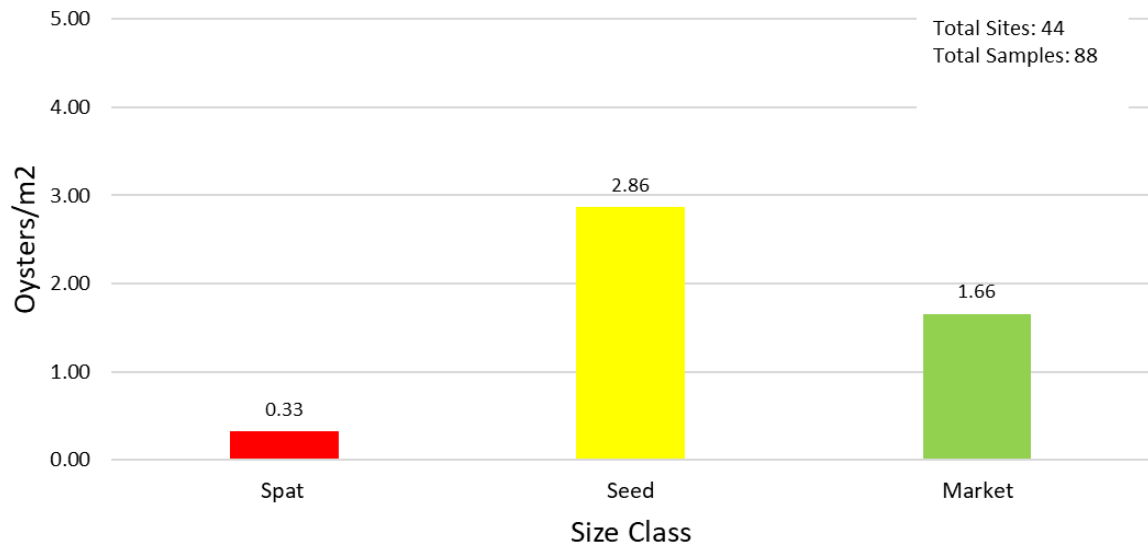


## Recommended Restoration Action:

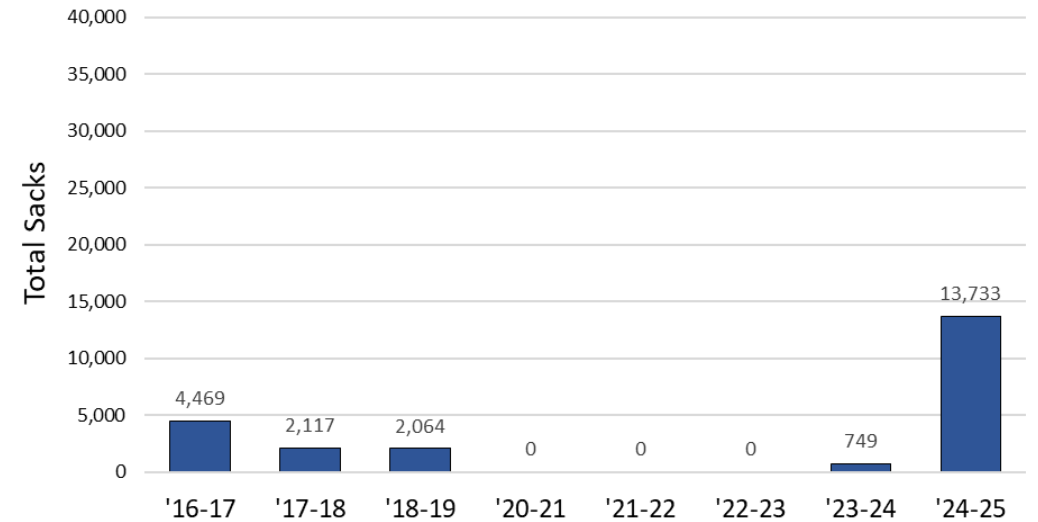
- Monitor. Long-term recovery mode
- Cultch planting recommended thick to combat moderate mud

	Henderson Point		
	State-Owned Reef Only	Historical Reef Only	Cultch Plants
Acres	11	354	199
Total Sacks	0	1,894	11,839
% Oysters	0%	14%	86%

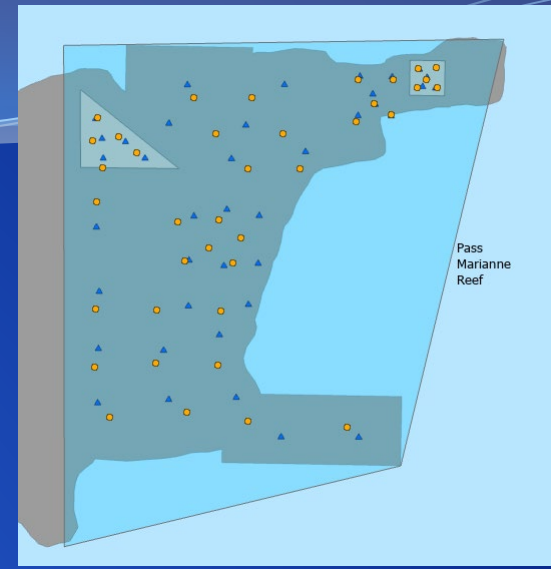
### Henderson Point: 2024 Size Distribution



### Henderson Point: Sacks Available 2016-2024



# PASS MARIANNE STATE-OWNED REEF



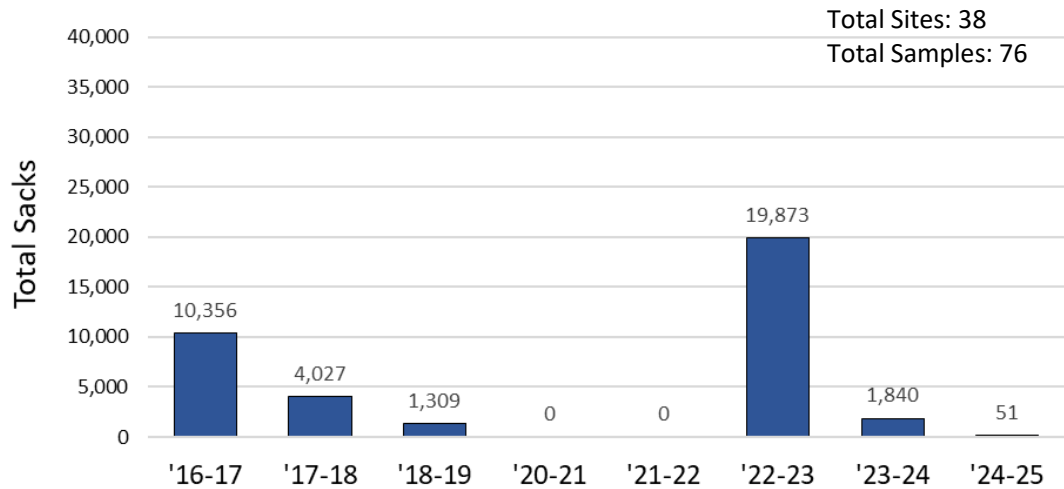
**Total Sacks Available: 51**

- Reef Footprint: Approximately 1,626 acres
- Extremely limited material for recruitment
- Extremely low abundance of oysters present
- 100% of Market Size oysters are found on Cultch Plants, within only 46 acres
- Noticeable spat set on 2024 July Cultch Plants (not included in assessment)

## Recommended Restoration Actions:

- Cultch plants, high priority area indicated by Spat Tile Project.

Pass Marianne: Sacks Available 2016-2024



Pass Marianne			
	State-Owned Reef		
	Only	Historical Reef Only	Cultch Plants
Acres	580	1000	46
Total Sacks	0	0	51
% Oysters	0%	0%	100%

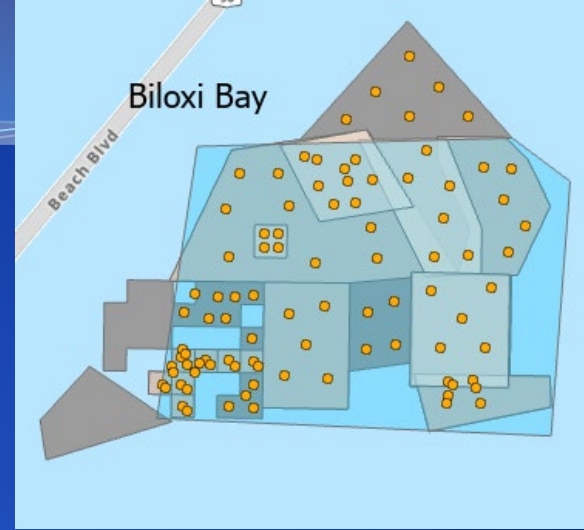
Pass Marianne			
	Spat	Seed	Market
Average per SqM	0.02	0.00	0.01
Total	42,483	0	14,161

\*SqM calculated based on Entire State Reef Acreage (1626 acres)

# BILOXI BAY STATE-OWNED REEF

- Reef Footprint: Approximately 212 acres
- Spawning was subpar in Biloxi Bay, Spat tiles and larval samples suggest a very late spawning season with activity only occurring in September.
- Anticipate a very late spat set in the area.

**Total Sacks Available: 6,820**

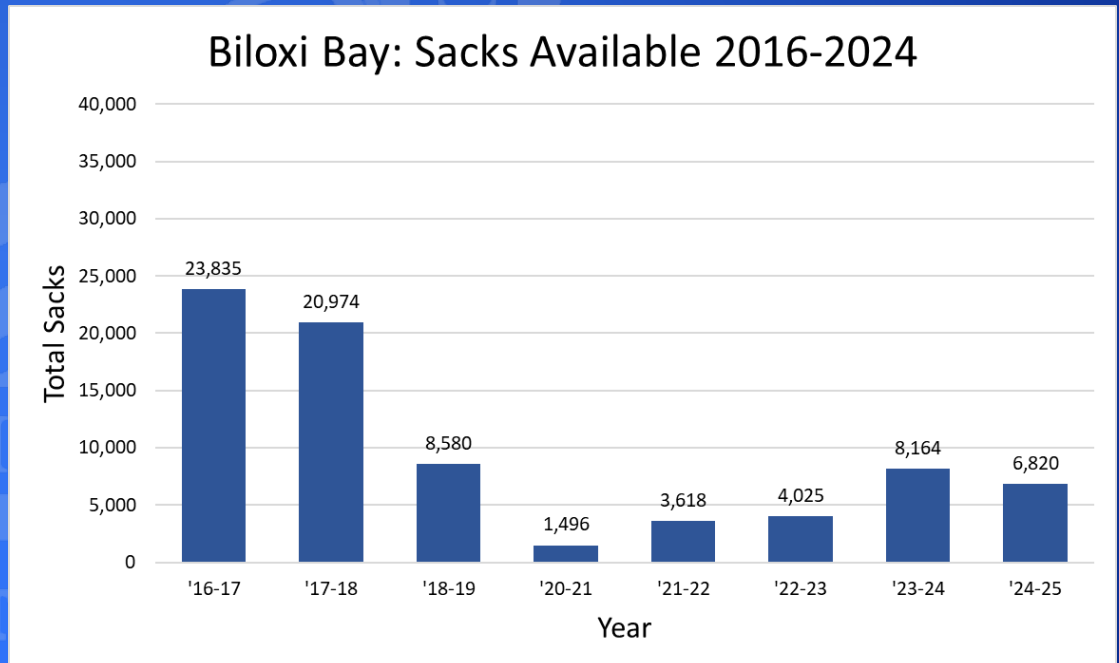
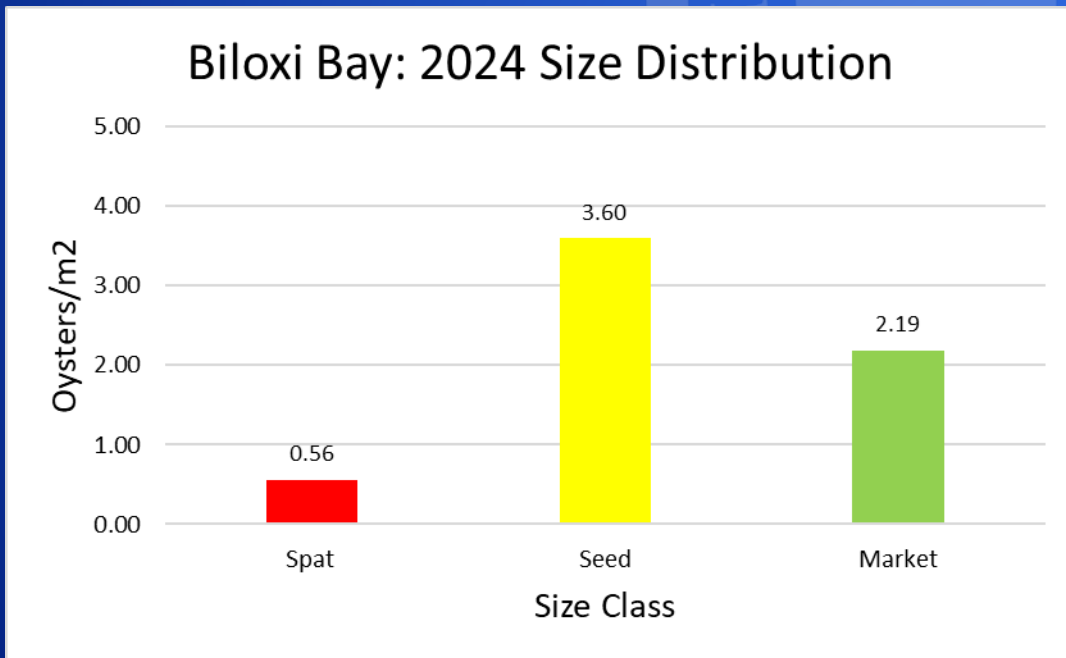


## Recommendation Restoration Activity:

- Cultivate and monitor for reef development.
- **\*Monitor recruitment in October, no harvest to prevent disruption of late spat set and their vulnerability \***

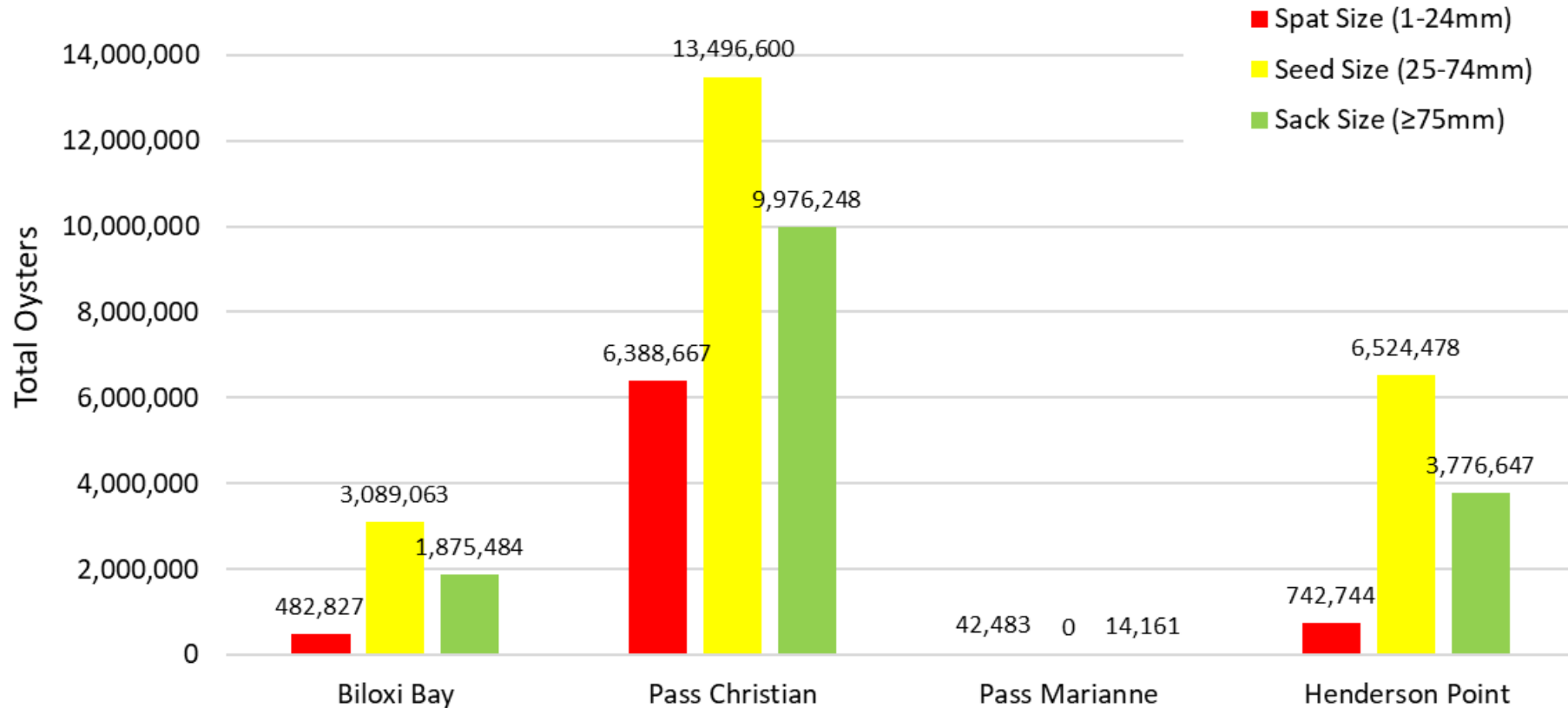
Biloxi Bay			
	Spat	Seed	Market
Average per SqM	0.56	3.60	2.19
Total	482,827	3,089,063	1,875,484

\*SqM calculated based on Entire State Reef Acreage (212 acres)



# Size Class Totals by Major Reef Complexes

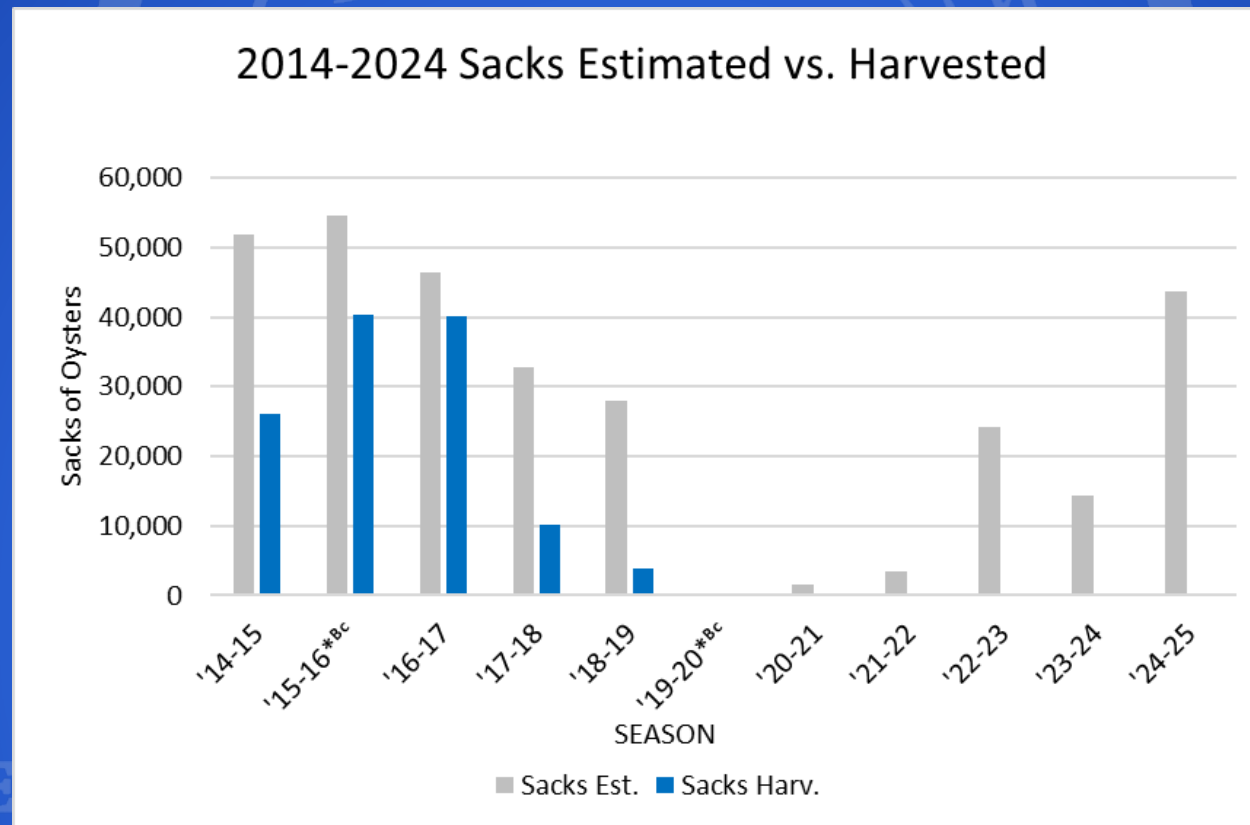
## 2024 Total Oyster Size Class Distribution by Reef





# 2024 MISSISSIPPI OYSTER STOCK ASSESSMENT

State Owned Reef	2024 Est. Sack Total	2023 Est. Sack Total	2023 Comments and Resource Status
Pass Christian	36,277	5,423	Recovering (limited resource)
Pass Marianne	51	135	Recovering (limited resource)
Biloxi Bay	6,820	8,164	Recovering (limited resource)
Henderson Point	13,733	525	Recovering (limited resource)
<b>TOTAL SACKS AVAILABLE</b>	<b>56,881</b>	<b>14,247</b>	



# Harvest Recommendations

## Recreational – Biloxi Bay

- Red Tag/ Personal Use only
- Mississippi Tonging only to not disrupt late season spat settlement
- Approximate 14 Days Season or 1,000 sacks, whichever comes first.
  - Limit 2 Sacks Per Person Per Day
  - 1<sup>st</sup> Day is only first time tongers (green horn day)
  - 7 days in November, 7 days in December

## Commercial – Pass Christian State-Owned Reef

- Commercial Harvest only
- Dredge or Tong
- Harvest 20% of Sacks Available
- Approximate 14 Day Season or 20% Harvest, whichever comes first
  - Limit 20 Sacks Per License Per Day
  - 7 days in November , 7 days in December
- No Seed harvested, market size only.