



FISCAL YEAR 2021

July 1, 2020 - June 30, 2021

ANNUAL REPORT

FISCAL YEAR 2021
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Joe Spraggins
Joe Spraggins
Executive Director

MESSAGE FROM THE EXECUTIVE DIRECTOR

On behalf of the Mississippi Advisory Commission on Marine Resources and our staff, I present to you the Mississippi Department of Marine Resources 2021 fiscal year annual report. We thank you for your continued support of the activities and programs we deliver to enhance, protect and conserve Mississippi's marine resources. It is our intention to remain transparent and accountable to you and the taxpayers of Mississippi through our efforts.

This annual report covers all aspects of our agency and contains valuable information about our work and its impact on marine resources. The agency continues to work with local and federal partners to deliver programs that benefit the citizens, tourists and industry stakeholders on the Gulf Coast. We have made great progress over the years, but there is always work to be done.

This past year, and ongoing, our agency coordinated and administered the Coronavirus Aid, Relief and Economic Security (CARES) Act funding for seafood processors, commercial fishermen and charter captains who were negatively affected by COVID-19. In fiscal year 2021, Mississippi received over \$1.5 million to provide for fisheries participants meeting the threshold of economic revenue losses greater than 35% compared to the prior five-year average. An additional \$3 million was received and is set for distribution in fiscal year 2022.

Another of our projects is the Oyster Management and Recovery Strategic Plan. MDMR has many goals and objectives for our state's oysters. This includes working to increase harvestable oyster resources on public reefs and improving resiliency and adaptive management techniques to allow stakeholders and the resource to better withstand environmental and man-made stressors. The Oyster Management and Recovery Strategic Plan summarizes projects proposed by the MDMR Office of Marine Fisheries Shellfish Bureau and identifies how each project will benefit the resource or environment.

Our agency has also taken an active approach to the conservation and management of fisheries through conscious efforts to find solutions to fisheries-related issues as they are identified. Due to a noticeable decrease in the Gulf-Wide harvest of Southern Flounder, we have focused multiple projects on this highly sought-after species to gain a better understanding of what drives these catch reductions, and if further management actions are needed. The projects, funded through the USFWS Sportfish Restoration Program, the Gulf State Marine Fisheries Commission SuRF Program and Tidelands Trust Funds, are aimed at monitoring relative abundance, movement patterns and habitat preferences across Mississippi's three coastal drainages.

We take pride in our work, and it shows. We believe a healthy environment will provide for a healthy economy. Our goal is to enhance, protect and conserve the marine interests of Mississippi and we will continue to work to achieve this goal every day. This essential work would not be possible without your support. We look forward to many successes together as we manage Mississippi's marine resources.

"Our agency has also taken an active approach to the conservation and management of fisheries through conscious efforts to find solutions to fisheries-related issues as they are identified."

MISSISSIPPI DEPARTMENT OF MARINE RESOURCES

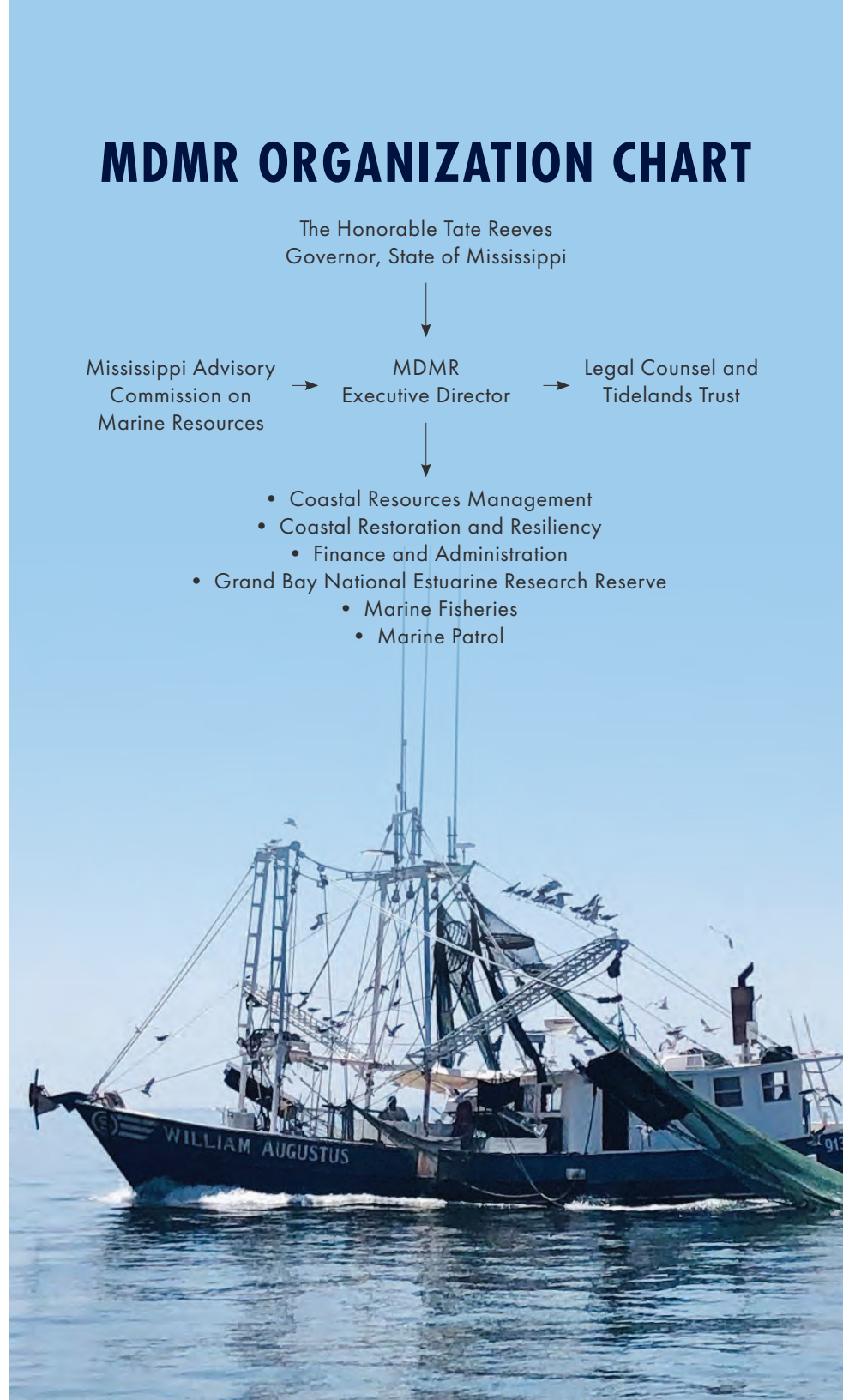
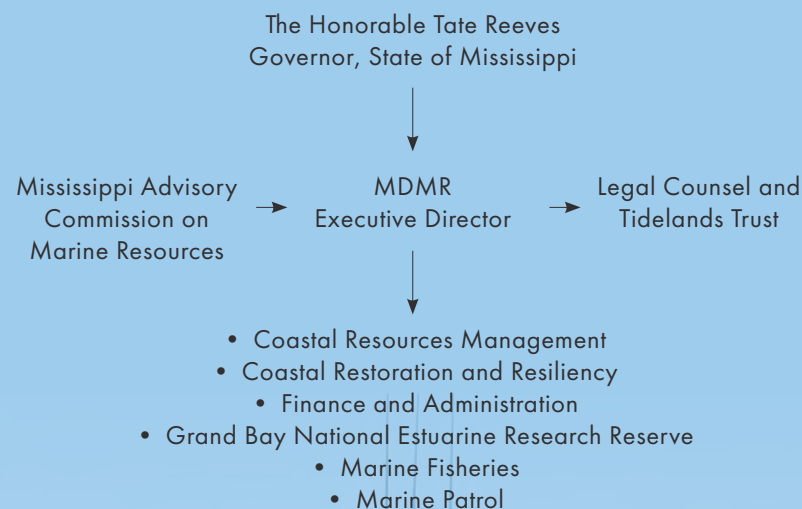
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This annual report was prepared by the Mississippi Department of Marine Resources, Office of the Executive Director, with contributions from staff.

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MDMR ORGANIZATION CHART



AGENCY OVERVIEW

LEADERSHIP

Rick Burris
Chief Scientific Officer

Patrick Levine
Chief Administrative Officer

Leslie Brewer
Chief Financial Officer

Chief Kyle Wilkerson
Chief of Marine Patrol

Erik Broussard
Marine Fisheries Deputy Director

Traci Floyd
Marine Fisheries Deputy Director

Jennifer Wittmann
Coastal Resources Management Director

Rhonda Price
Coastal Restoration and Resiliency Director

Michael Lee
Aquaculture Hatchery Manager

Ayesha Gray, Ph.D.
Grand Bay NERR Director

George Ramseur
Ecological Restoration Director

Christy Royals
Human Resources Director

Brian Sherwood
Information Technology Director

Charmaine Schmermund
Public Affairs Director

Sonja Slater
Tidelands Coordinator

Russell Weatherly
GOMESA Coordinator

MISSISSIPPI ADVISORY COMMISSION ON MARINE RESOURCES

Ronnie Daniels (Chairman), *Harrison County
Charter Boat Operators*

Natalie Guess (Vice Chairman), *Hancock County
Nonprofit Environmental Organizations*

Cammack (Cam) A. Roberds, *Jackson County
Recreational Sports Fishermen*

Vacant
Commercial Fishermen

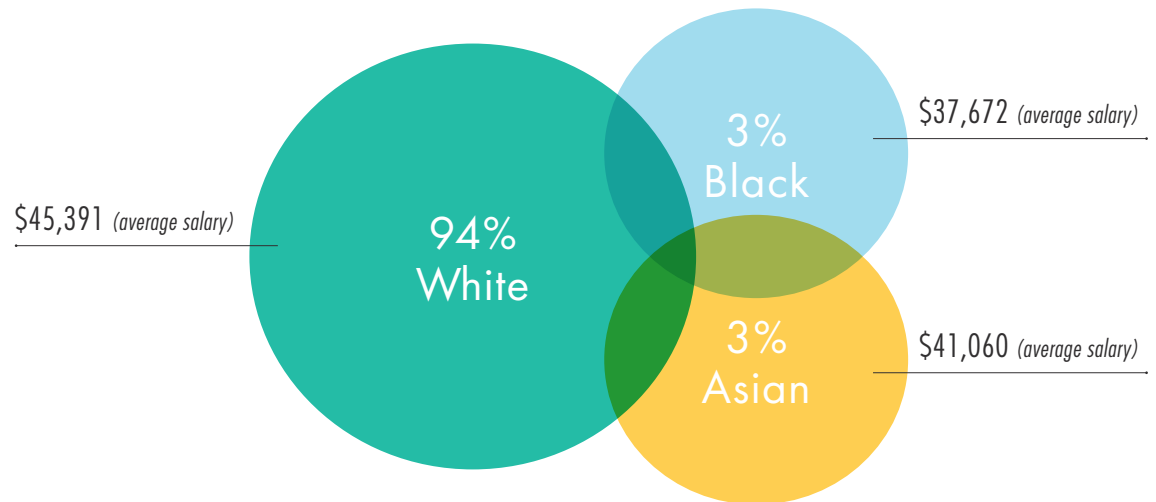
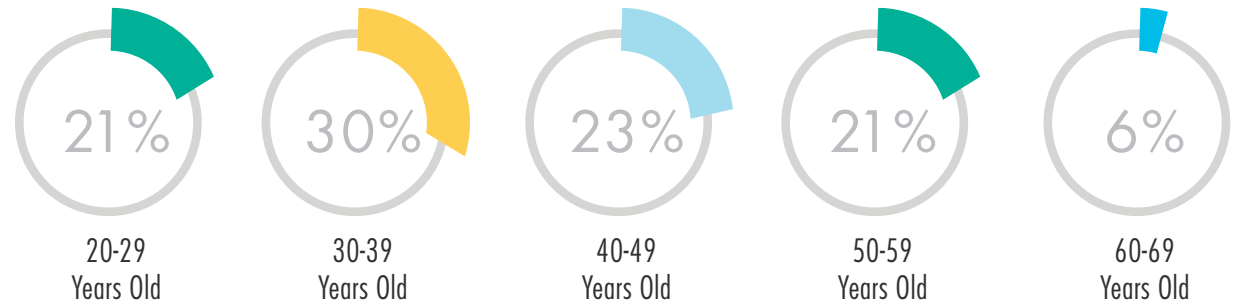
Vacant
Commercial Seafood Processors

PERSONNEL OVERVIEW

Human Resources (HR) maintained compliance of personnel budget and expenditures required by Appropriation Bill and the Mississippi State Personnel Board (MSPB). In support of the MSPB Project SEC², HR facilitated the completion of agency position descriptions for all MDMR employees.

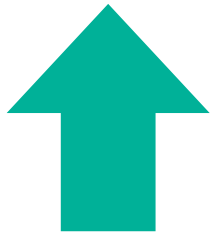
The COVID-19 pandemic created unprecedented times for the agency and staff. Safety protocols were immediately put into place to allow the majority of staff to return to in-office work by June 1, 2020. Communication and coordination of resources for employees were required during this time. This included communication of state and federal guidelines, teleworking, testing information, illness reports and related resources to assist employees in staying safe and reducing risk of exposure to the virus.

During FY 2021, the agency filled 52 positions with 14 new hires and 38 internal promotions. Employee orientation was conducted for these hires and the on-boarding process for new employees was completed throughout the year. MDMR employed 154 total employees during FY 2021.



FINANCIAL SUMMARY

- The agency managed 63 grants, totaling \$52 million.
- There were 78 active contracts.
- 334 vendors were paid out a total of \$26.1 million dollars.



LICENSE SALES INCREASE

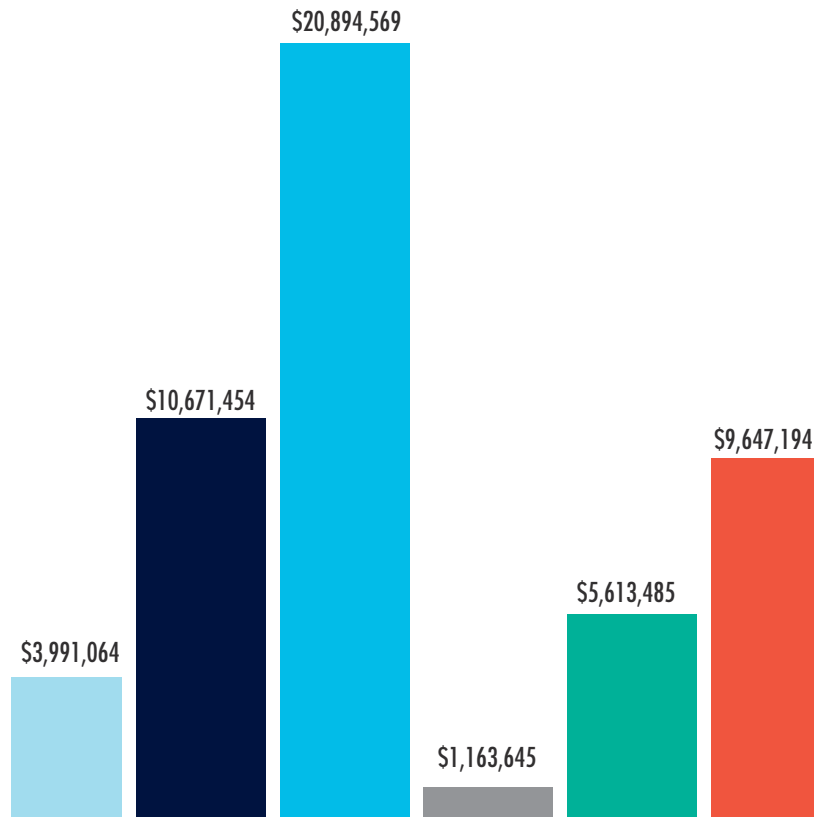
- 3,359 Commercial
- 752 Recreational
- 85,252 MDWFP

AGENCY EXPENSES BY CATEGORY

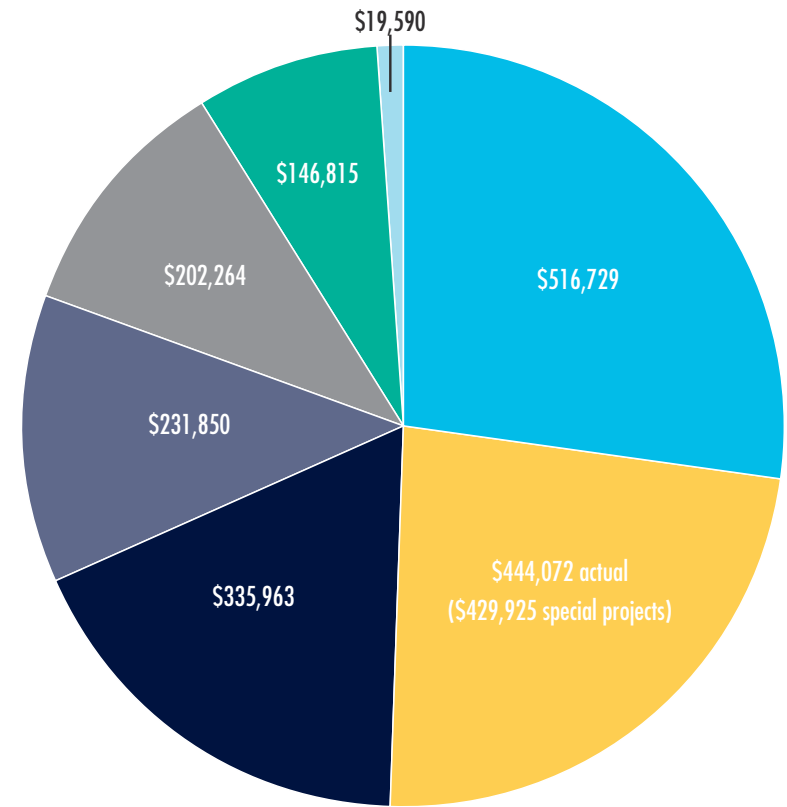
Contractual Services	\$3,560,272
Commodities	\$791,825
Equipment	\$406,014
Federal Indirect	\$332,361
In-state Travel and Subsistence	\$9,505
Salaries, Wages and Fringe Benefits	\$9,486,516
Subsides, Loans and Grants	\$11,386,443
Vehicles	\$164,229
TOTAL	\$26,137,165



FUNDING MANAGED BY GRANTS



PURCHASE ORDERS BY BUREAU



- | | |
|--------------------------------------|----------------------|
| ■ Coastal Resources Management | ■ Marine Fisheries |
| ■ Coastal Restoration and Resiliency | ■ Marine Patrol |
| ■ Finance and Administration | ■ Oyster Aquaculture |
| ■ Grand Bay NERR | ■ Tidelands |

GULF OF MEXICO ENERGY SECURITY ACT (GOMESA)

The signing into law of the unprecedented GOMESA in December 2006 created an opportunity for the State of Mississippi in terms of its potential magnitude and significance. This landmark legislation enables Mississippi and its neighbor offshore energy-producing states –Alabama, Louisiana and Texas – to share in royalties from revenues generated through federal oil and gas leases on the Outer Continental Shelf (OCS), royalties that prior to GOMESA's enactment were deposited in their entirety into the Federal Treasury. The intent of GOMESA's revenue-sharing provision is to provide resources to the coastal states to offset the potentially harmful effects of energy production within - and adjacent to - the Gulf of Mexico, such as coastal erosion, habitat degradation and natural resources depletion.

CURRENT GOMESA PROJECTS	
USM-Ocean Enterprise	Research with local, state and regional partners continue with efforts to identify potential projects supporting the GOMESA mission and increase the visibility of the Ocean Enterprise initiative.
AUDUBON-Nature Based Tourism	Continue response to stranded marine mammals, monitor bird nesting, record data.
East Biloxi Boardwalk	Work has begun and boardwalk from Oak Street to Schooner Pier is in place.
East Biloxi Sand Re-nourishment	Sand survey is complete.
Coffee Creek Water Quality	Clearing and treatment of Clower Thornton Park is complete, retention pond bulkhead is complete.
Coffee Creek Outfall	Bids were received for construction and should begin within 60-90 days.
MDWF-Buccaneer State Park Enhancements	Bids were received and notice to proceed should be issued within 30 days.
Bayview Avenue Boardwalk and Living Shoreline	Construction is 60% complete and should be 100% by end of year.
Bay St. Louis Ward 6 Boat Launch	Delayed due to permitting and DAH survey. Construction should begin within 30 days.
Harrison County Sea Oats and Sand Dunes	Second batch of plants destroyed by Hurricane Ida. Awaiting decision from county.
INFINITY Science Center	Work delayed due to shutdown of facility due to COVID. Have new staff in place and ready to resume.
MSU/IMMS	Eleven dolphin photo ID's completed, two surveys of West Sound, West Islands, Lake Borgne, East Sound, East Islands, South Marsh. A total of 421 dolphins identified, frozen samples submitted to lab for analysis.
Jackson County Front Beach Erosion Control	Four new outfalls installed, 600 LF of turtle fencing, 622 LF of concrete pipe installed, replacement of stem wall, two drainage structures completed, four drainage structures partially completed, landscaping begun.
USM-Aquaculture Depth Control Unit	Cage deployment in oyster tank at Halstead, software being updated, survey development of demonstration of prototype.
MDMR-Artificial Reef	Deployed 6,171 tons of material to Katrina Key location expanding the artificial reef 810 LF to the west, deployment of material to the FH- 13 location will begin within 60 days when contract is awarded.
Hancock County Water/Sewer Force Main Beach Crossings	Phase I was completed August 2020. Phase II bid and awarded, Notice to Proceed for August 30, 2021.

NEWLY AWARDED GOMESA PROJECTS FOR FY 2022

MDMR-Bonnet Carré Response	Formally establish the Western Sound Science Collaborative and perform citizen science initial water quality monitoring. These efforts will provide precise operational recommendations for operating the Bonnet Carré Spillway accounting for flood control and ecological impacts.
JCBOS-Watershed Management Plan	The plan will describe existing conditions, areas of concern and management actions that could improve watershed conditions and prevent future degradation.
Diamondhead-Marsh Erosion Prevention	This project will restore the shoreline, restore water quality and enable monitoring for both conservation and restoration progress.
DWSD-Diamondhead Sewer Improvements	Improve coastal water quality, protect our natural resources and mitigate damage to fish and wildlife by eliminating the inflow and infiltration problems due to an insufficient sewer system.
Pass Christian-Sanitary Sewer Pump Station Replacement	Serve to replace the main pump station on the south side of the CSX railroad right-of-way. The pump station is severely undersized and is lacking sufficient pumping and storage capacity.
Long Beach-Small Craft Harbor SE Bulkhead Repair	Intended to construct improvements to the southeast corner of the small craft harbor. Improvements will be in the form of a constructed bulkhead wall which will provide protection and stabilization at that location, which has been damaged repeatedly by storms.
Kiln Utility District-Jourdan River Shores Sewer Force Main	Includes abandoning the submerged sewer force main, installing 1,500 LF of 6" PVC force main and connecting this new line to a different discharge location far away from any natural body of water.
Biloxi-Point Cadet Living Shoreline	Restore 1,000 feet of shoreline along the Biloxi Waterfront Park through construction of a living shoreline and also include a new walkway and elevated overlook to enhance public access as well as protect the coastal ecosystem.
MDMR-Oyster Restoration and Enhancement	Restore and enhance the oyster reefs of Mississippi through replacement of cultch material and other innovative oyster restoration techniques.
MDMR-Reef Fish Monitoring and Assessment	An adjusted continuation of the initial National Fish and Wildlife Foundation Reef Fish Assessment, which provided MDMR with a consistent and robust data stream of relative abundance for Mississippi's primary reef fish populations, particularly Red Snapper.
HANCO UA-Oak Harbor Sewer Improvements	Funds will be used for acquisition of privately-owned water and sewer system and the associated MS Public Service Commission franchise certificates and replacement of the sanitary sewer collection system and connection to the public sewer system for treatment at the HCUA Western facility.
HANCO PORT/HARBOR Port Bienville Conservation Management	Construct a wetlands conservation area and implement a Permittee Responsible Mitigation Plan pursuant to COE provisional permit.
Gautier-Water Quality and Infrastructure Sewer Improvements	Includes installing 10,000 LF of new force main from the pump station at Gautier-Vancleave Road and Old Spanish Trail to the pump station near Robertsdale Road and installing 1,000 LF of new gravity sewer on Gautier-Vancleave Road south of Hwy 90.
Pascagoula-Buena Vista Area Drainage Improvements	Consists of drainage improvements along Washington Avenue and South Buena Vista Street within 500 feet of the Gulf of Mexico.
Pass Christian-Gravity Sewer System Improvements, Phase I	Serve to replace a portion of the existing gravity sewer system north of CSX Railroad within the city limits.
Pascagoula-Point Park Pier Repairs/Improvements	Completing the repair of damaged piers as identified in the Point Park Improvement Master Plan which includes repairing/replacing damaged areas of several piers, replacing outdated, deteriorated timber pilings with concrete pilings, provide new decking, handrails and transition ramps and connecting to existing piers.
MDMR-Railroad Corner Beneficial Use Site	Conceptual design, permitting and final design of the Railroad Corner BU site.
USM-Blue Crab Data Collection	Commercial observer program for collection of fishery-dependent information on Blue Crabs.

TIDELANDS

The Tidelands Trust Fund is comprised of funds derived from the lease of tidelands and submerged lands and is administered by MDMR as mandated by state law. The Secretary of State's Office presents the Tidelands check to Mississippi Department of Marine Resources (MDMR) officials and legislators each year. The state Legislature each year approves Tidelands funding for MDMR to administer through the Tidelands Program. This action is authorized through the Mississippi Code of 1971 Section 29-15-9 and Section 29-15-10. During 2019, through HB 1656, the Legislature approved \$11 million in funding. In the 2020 session, the Legislature approved \$7.3 million in projects through HB 1726. Currently Tidelands has 192 open projects, 116 public access projects and 76 managed projects

THE LEGISLATURE APPROVED THE FOLLOWING PROJECTS DURING THE 2021 SESSION FOR FUNDING IN FY21:

HARRISON COUNTY

- Kuhn Street Boat Launch Ramp Area Expansion (City of Biloxi)
- Causeway Park Floating Dock Project (City of Biloxi)
- Eagle Point Park Development (City of Biloxi)
- Hiller Park Boat Launch (City of Biloxi)
- D'Iberville Working Waterfront Harbor/Marina (City of D'Iberville)
- Courthouse Road Boat Launch Maintenance Dredge (City of Gulfport)
- Bernard Bayou James Hill Park Site Improvements (City of Gulfport)
- Long Beach Pavilion, Harbor and Volleyball Area (City of Long Beach)
- West Small Craft Harbor (City of Pass Christian)
- Maritime Classroom (Lynn Meadows Discovery Center)
- Marine Patrol (MDMR)
- Estuarine Education Center Comfort Station and Area Reclamation (MGCCC)
- Seafood Museum Hurricane Zeta Schooner Pier Repair (Maritime and Seafood Industry Museum)
- MS Coastal Map (SMPD)
- Marine Education Center Pier and Kayak (The University of Southern Mississippi)

JACKSON COUNTY

- Mary Walker Bayou Parks Project (City of Gautier)
- Shepard State Park Upgrades (City of Gautier)
- Sunset Pier and Sidewalk Extension (City of Moss Point)
- East Beach Accessibility - Phase II (City of Ocean Springs)
- Improvements to River Park Piers (City of Pascagoula)
- Race Track Road Boat Launch (Jackson County BOS)
- Ocean Springs Sidewalk Project (City of Ocean Springs)

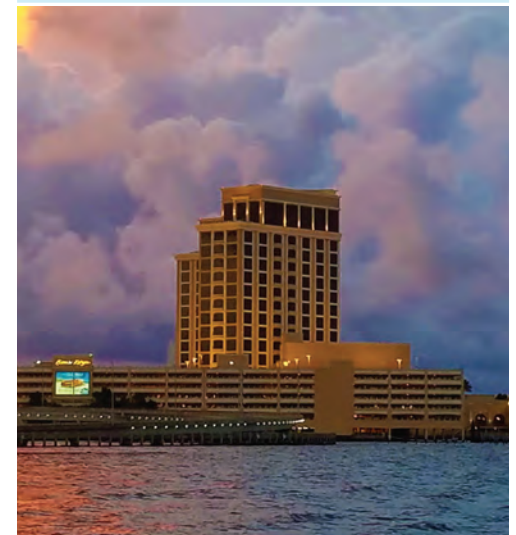
HANCOCK COUNTY

- Bayou LaCroix Boat Launch in Ward 6 (City of Bay St. Louis)
- Diamondhead Noma Drive Public Access Improvements (City of Diamondhead)
- Boat Launch and Marina Planning Assistance (City of Waveland)
- Clermont Harbor Pier Expansion (Hancock County)

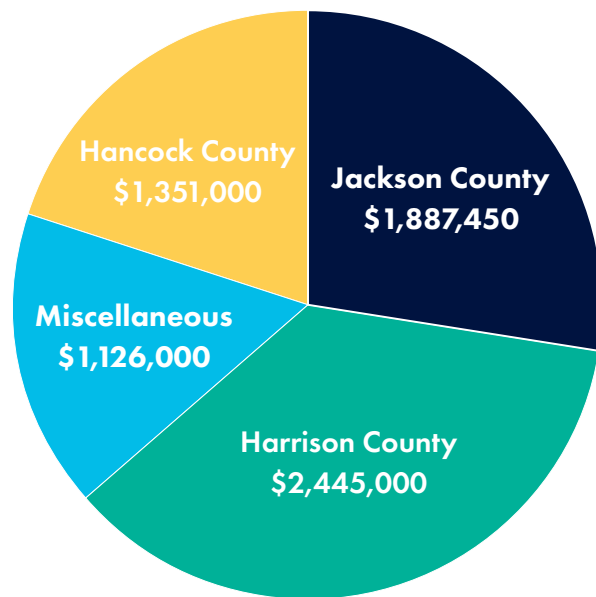
TIDELANDS FUNDING HISTORY

2014	\$9,787,443
2015	\$9,787,443
2016	\$9,787,443
2017	\$4,700,000
2018	\$9,787,443
2019	\$10,000,000
2020	\$11,000,000
2021	\$7,349,277
2022	\$12,226,497

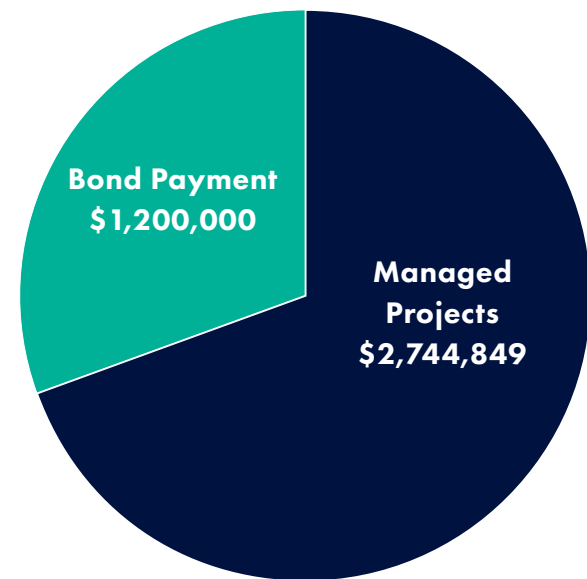
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FY 22 TIDELANDS PUBLIC ACCESS PROJECTS



FY 22 TIDELANDS MANAGEMENT PROJECTS



OPERATIONAL SUPPORT

FACILITIES

Improvements were made to MDMR's facilities during the fiscal year to better serve constituents, provide opportunities for growth in research and testing and protect assets for long-term usability.

- **AQUACULTURE BROODSTOCK SPAWNING FACILITY** - Located in Lyman, this facility uses modern recirculating aquaculture systems (RAS) for marine finfish spawning. The facility has 12 recirculating 4,500-gallon systems to house marine fish species for purpose of breeding. The systems have filtration, photothermal control and egg collectors. The tanks have the capacity to hold 250-300 adult fish of various species for the purpose of breeding for stock enhancement and research.
- **BOLTON BUILDING COMPOUND** - Improvements consisted of new pavement, as well as a covered structure, to protect vessels and equipment.
- **LICENSING SUITE** - Now accessible and conveniently located on the first floor of the Bolton Building adjacent to the main entrance. New data screens feature up-to-date catch data, as well as opening and closure dates and other important information as it pertains to the MDMR.
- **RECEPTION AREA** - This area is centrally located on the second floor of the Bolton Building allowing for easy access to information, as well as a place for visitors to check-in when meeting with MDMR staff.

The new microbiology laboratory provides microbiological water quality testing to aid in the Shellfish Bureau's regulatory actions for shellfish growing area waters, wet storage facilities and depuration processes. The laboratory has implemented a quality assurance program and is being audited by the U.S. Food and Drug Administration for compliance with National Shellfish Sanitation Program (NSSP) regulations. The laboratory processes over 62 samples per month to monitor water quality and help the Shellfish Bureau ensure public safety and economic growth. In addition, the bureau conducts investigative studies to augment the understanding of various environmental issues directly related to the state's economic growth.



INFORMATION TECHNOLOGY

- Completed implementation of new coastal permitting system, including online payments.
- Maintained 12 custom GIS-based data collection and viewing solutions including four for the public.
- Implemented rapid field data collection solutions for mapping and tracking treatment of invasive species.
- Developed CARES Act online application for commercial fishermen and enabled Mississippi to become the first State to deliver CARES Act payments to fishermen.
- Managed five agency websites, including security, system updates, change requests and training of employee contributors.
- Continued to evolve and expand unmanned aircraft systems (UAS) operational capabilities.
- Engaged in external collaboration and partnership activities, such as hosting and participating in the 8th Annual statewide GIS conference and participated in planning for the 10th Annual Mississippi Digital Government Summit.
- Provided support for hybrid streaming solution for remote participation for Mississippi Advisory Commission on Marine Resources meetings.
- Continued modernization activities for desktops, servers and network infrastructure.
- Enhanced Backup / Disaster Recovery platform with new cloud-based capabilities.
- In continued support of remote work due to COVID-19, continued to provide new technology and workflow solutions to enable agency staff to work remotely while maintaining, and in some cases improving, operational efficiency.
- Completed 859 agency work orders.

PROPERTY MANAGEMENT

Property Management's mission is to maintain accountability for all state property under the control of the MDMR and maintain all pool vehicles and vessels to ensure their operational readiness. Property Management accounts for each inventory item with the State Auditor's Office. MDMR's costs to maintain the fleet is evaluated regularly and fleet is updated accordingly.

TOTAL VALUE OF PROPERTY \$32,093,914

Vehicles	112
Buildings	24
Parcels of Land	54
Marine Vessels	62
Jet Skis	2



COASTAL RESOURCES MANAGEMENT

The Office of Coastal Resources Management (CRM) is responsible for implementing the Mississippi Coastal Program, which was mandated by the Legislature in Section 57-15-6 of the Mississippi Code of 1972 and approved by NOAA. CRM also administers the following programs Coastal Preserves, Wetlands Permitting and Mitigation, Invasive Species and Beneficial Use.

**PERMITTED A NEW
BENEFICIAL USE SITE
AT DEER ISLAND WITH A
TOTAL OF 66.5 ACRES OF
MARSH RESTORATION.**

**KIOSK AND TRAIL SIGN WERE
REPLACED AT DEER ISLAND.**

COASTAL PRESERVES

- Obtained tracked loader and started clearing work at Bell's Ferry Coastal Preserve.
- Removed hazardous pier at Hellmers Lane Unit of the Davis Bayou Coastal Preserve.
- Girl Scout project removing understory brush, cleaning up and planting native vegetation at Hellmers Lane Unit.
- Replaced Ansley Nature Trail Pier at the Ladner Unit of the Hancock County Marshes Coastal Preserve after Hurricane Zeta.
- Zebra Mussel invasive species response with aquarium plants species (part of nationwide response with aquarium industry).
- 46 feral hogs removed from Coastal Preserves properties.
- Four kiosks updated at trail heads on Coastal Preserves units.
- Esri ArcGIS apps developed for mapping/tracking invasive species and treatment
- Esri ArcGIS app developed for public reporting of invasive species sightings.
- Permitted new Beneficial Use sites - 26 acres at Beardslee Lake, 66.5 acres at Deer Island and 18 acres at the mouth of Wolf River.
- Engineering and Design contract initiated for a Beneficial Use site at Pelican Key.



▲ Invasive Species staff work at multiple preserves and control various aquatic invasive species in the coastal waterways by using boats and amphibious machine (marshmaster).



▲ Mowed and maintained approximately 14 miles of trails.



▲ Four prescribed burns-one at Deer Island and three tracts at Wachovia.

WETLANDS PERMITTING

- A new online application portal was launched in October 2020 which dovetails into the electronic workflow management system that was implemented in June 2020.
- Created a map-based report of currently authorized projects so Marine Patrol officers can more easily verify authorizations during patrols.
- Obtained satellite imagery which better equips staff to evaluate whether cumulative and secondary impact occur after completion of approved projects.
- Completed 896 total actions, including application evaluations, compliance actions and project reviews. This is up from 621 total actions in the previous year.



The Derelict Vessel Program was established by the Legislature in Section 49-27-71 of the Mississippi Code of 1972, giving MDMR the authority to remove any vessel which has been determined to be a public safety or environmental hazard.

When vessels ranging in size from 10 to over 200 feet are abandoned in Mississippi's coastal wetlands or areas of heavy use by commercial and recreational boaters, the derelicts are hazardous to navigation and detrimental to the wetland environment. In addition, a vessel may be determined as derelict if it has been submerged or abandoned in or on coastal wetlands in excess of 30 days, reducing the waiting period by 60 days. This program enforces state laws through the removal and disposal of derelict vessels, which protects the environment and keeps coastal wetlands and navigable waterways safe for the general public.

COASTAL RESTORATION AND RESILIENCY

BIG

- Completed Bay St. Louis \$200,000
- Award Bay Marina in Hancock County \$200,000

CVA-COASTAL

- Award Ocean Springs Harbor in Jackson County \$15,000
- FY2020 Award: \$103,000 | FY2021 Award: \$140,000

CVA-INLAND

- Award Midway Marina in Fulton, Miss. \$10,706
- FY2020 Award: \$61,000 | FY2021 Award: \$154,000

BOAT ACCESS

- Completed Bayou Tahlia in Hancock County for \$254,000
- Awarded Shepard State Park in City of Gautier \$72,440

GOMA

- Funded one Gulf Star project \$50,000
- Provided coordinator position for Coastal Resilience Team
- Received Smart Home America funding of \$20,000

HERITAGE

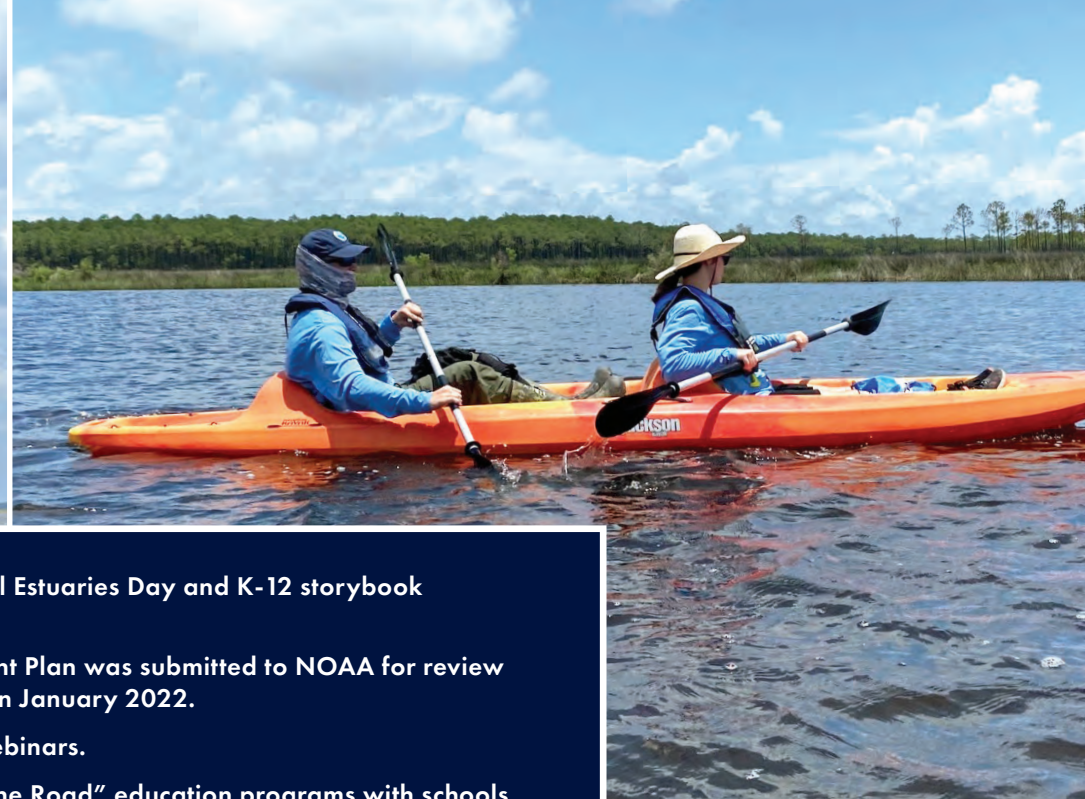
- FY2021 Heritage Community Grant Awarded 13 projects for \$164,000
- Published four issues of "Embrace your Cultural Story."
- Received a 2020 Hancock County Chamber Instagrammy Award.
- Provided support for two workshops (USDA and Coastal Mississippi) and gave 40 tours at the Charnley-Norwood House.
- Completed Rotten Bayou Blueway in Diamondhead.
- Completed digital scans for Gulfport History Museum (Bean Collection and Picayune Train and Intermodal Museum Lockyer Collection).
- Certified six Gulf Coast Outposts (Nature-Based Tourism-Business Recognition Program).
- Funded Nature-Based Tourism Coordinator for Jackson County, Department of Parks and Recreation.
- Completed two National Register Nominations:
 - The Scranton Historic District encompasses approximately 47 acres in the downtown core of Pascagoula, Miss. Most structures were built between 1922 and 1970. This nomination was supported by Pascagoula Main Street.
 - The William and Mary McGee House is a three-bay, Queen Anne Style, side hall shotgun house located in the rural, coastal community of Pearlinton in Hancock County, Miss. The home was owned by the McGee family members until 2002. This nomination was supported by current owners Gail and Myron Brogan.



GRAND BAY NATIONAL ESTUARINE RESEARCH RESERVE

The Grand Bay National Estuarine Research Reserve (NERR) is a program of the Mississippi Department of Marine Resources. Designated in 1999, the NERR is one of 29 reserves in the National Estuarine Research Reserve System (NERRS), which is a state-federal partnership operated by NOAA's Office for Coastal Management.

**PROVIDING LEARNING AND
RECREATION OPPORTUNITIES FOR
TEACHERS, STUDENTS AND THE
COMMUNITY.**



- Conducted Grand Bay NERR's National Estuaries Day and K-12 storybook virtual events.
- Grand Bay NERR Updated Management Plan was submitted to NOAA for review and the public comment period opens in January 2022.
- Conducted regular Lunch and Learn webinars.
- Conducted virtual and in-person "On the Road" education programs with schools.
- Sub-tidal and inter-tidal reefs were installed as part of the Phase IV Natural Resource Damage Assessment (NRDA) Restoration of Reefs in Mississippi Estuaries project.
- Two teacher development workshops were conducted.
- NERRS Science Collaborative funded the national multi-reserve project, "Detecting Impacts from Climate Change Across Multiple Scales: a National Synthesis of Tidal Marshes."
- Provided internship and graduate student opportunities.



MARINE FISHERIES

The Office of Marine Fisheries provides for the effective management of the state's commercial and recreational marine fisheries, including oysters, shrimp, crabs and finfish. It includes conservation and overall management of marine resources through research and data collection as modified by relevant social, economic and biological factors. Marine Fisheries uses the most appropriate methods for management, including but not limited to, regulating harvesting, habitat enhancement, water quality monitoring for molluscan shellfish harvesting, setting of catch limits and seasons and seafood safety inspections of processing and distribution facilities.

- Developed spend plan for over \$21 million 2019 Bonnet Carré Emergency Disaster Recovery Program funds to monitor and assist the recovery of Mississippi's fisheries, pending NOAA approval.
- Developed NOAA-approved \$3 million Coronavirus Aid, Relief and Economic Security (CARES) Act II Section 12005 Consolidated Appropriations Act of 2021 spend plan to assist in the on-going recovery efforts of Mississippi's seafood-related businesses, such as commercial fishing, processing, marine aquaculture and charter for-hire.
- Finalized construction and officially established the Office of Marine Fisheries dry laboratory and expanded the Office of Marine Fisheries wet laboratory to improve the state's capability to complete complex seafood sample analysis and safety testing.
- Utilized over \$1.5 million Coronavirus Aid, Relief and Economic Security (CARES) Act I Section 12005 funds awarded to assist in the recovery efforts of Mississippi's seafood-related businesses, such as commercial fishing, processing, marine aquaculture and charter for-hire.
- Served on regional management committees of the Gulf States Marine Fisheries Commission (GSMFC), including Artificial Reef Task Force, Menhaden Advisory Committee, White Trout Fishery Task Force, Blue Crab Task Force, Fisheries Information Network Committee, Data Management and Recreational Fishery Subcommittees, Technical Coordinating Committee, Gulf and South Atlantic Resource Partnership and the State/Federal Fisheries Management Board. Marine Fisheries personnel also served on the Gulf of Mexico Fishery Management Council, as well as their Red Drum and shrimp committees.



NOTE OF RECOGNITION: Joe Jewell retired from the Mississippi Department of Marine Resources with nearly 24 years of dedicated service to the people of the State of Mississippi. His leadership in the Office of Marine Fisheries was instrumental in effectively managing the state's marine fisheries and developing staff for continued success.

ARTIFICIAL REEF BUREAU

- 12 loads of material, consisting of 275 concrete culverts, were donated
- 36 inshore reef assessments were performed, which included five offshore reef assessments tagging of juvenile reef fish
- Received permits for Cat Island, Katrina Key, Pass Christian Key, Ernie Zimmerman Key and Gene Taylor Key

A large yellow front-end loader is positioned on a dark barge, which is floating on a body of water. The barge is heavily loaded with numerous large, grey concrete culverts stacked in neat rows. A person in a blue shirt and jeans stands near the bottom of the stack of culverts, providing a sense of scale. The background shows a clear blue sky and distant land.

SIX INSHORE DEPLOYMENTS AT KATRINA KEY (6,171 TONS OF MATERIAL DEPLOYED) AND 12 OFFSHORE DEPLOYMENTS AT FH-13 (8,096 TONS OF MATERIAL DEPLOYED)

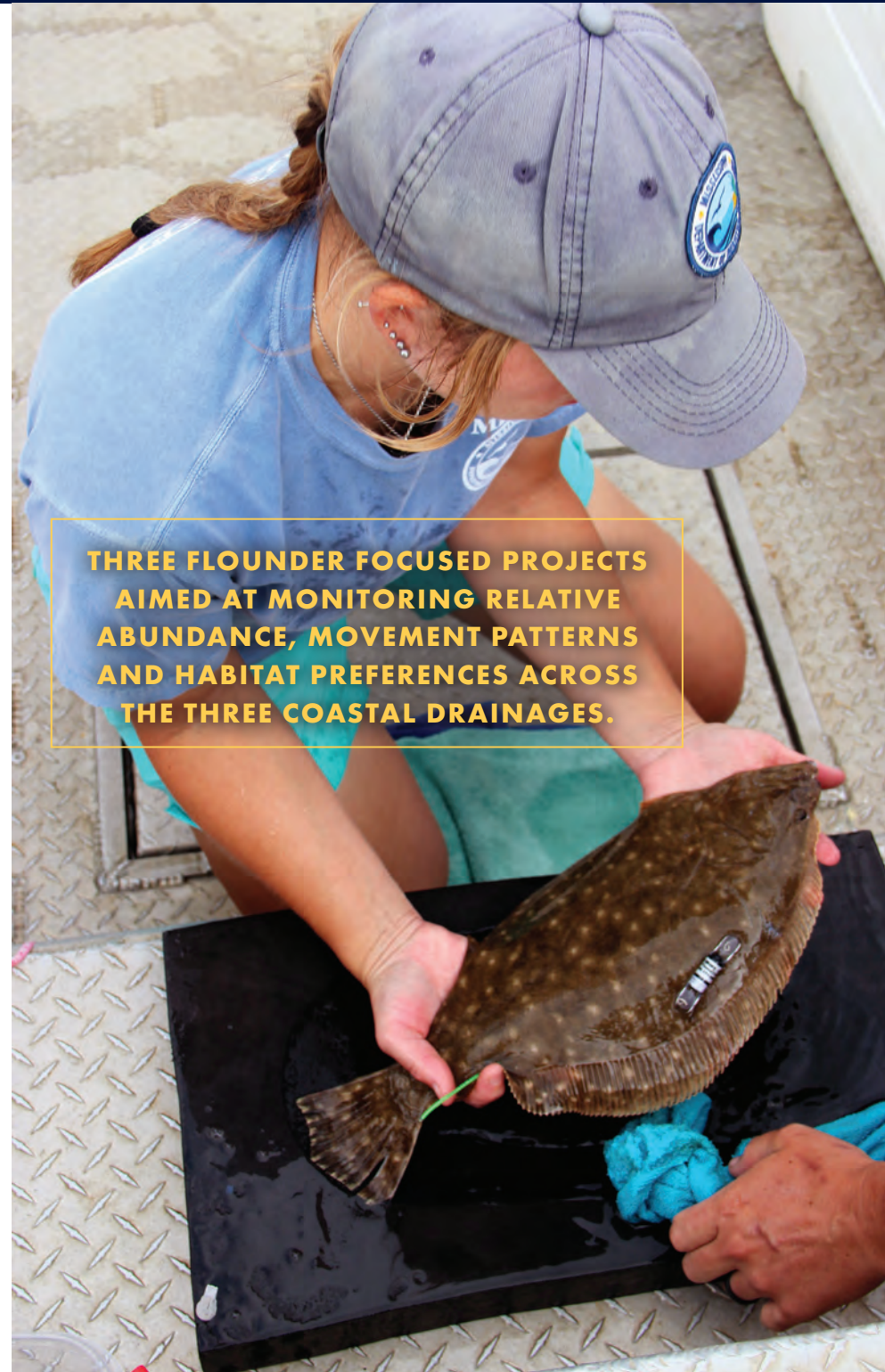
FINFISH BUREAU

- Conducted a total of 2,183 angler surveys across 58 public access sites throughout the three coastal counties. Starting March 1, 2021, MDMR staff transitioned all angler surveys from paper to electronic tablets in an effort to streamline data collection, processing and analysis.
- Provided Mississippi anglers 34 days throughout May and June 2021 to fish for Red Snapper with plans to extend the season in FY22 an additional 33 days to include Labor Day weekend.
- Processed a total of 1,721 tickets from the commercial fishery and monitored the quotas for Red Drum, Spotted Seatrout and Southern Flounder.



▲ 591 otoliths collected from 10 different species.

- Processed, presented and approved 22 total state records including seven youth records.
- Tagged and monitored a total of 40 Red Drum and 6 Cobia through passive acoustic telemetry.
- Conducted a total of 167 fishery independent sampling events across the Mississippi Sound and worked cooperatively to assist other bureaus in monthly monitoring.
- Worked cooperatively with USM to fund numerous projects through Sportfish Restoration funds. These projects focus on monitoring sportfish populations and gathering tag recapture information for numerous recreationally important species.



**THREE FLOUNDER FOCUSED PROJECTS
AIMED AT MONITORING RELATIVE
ABUNDANCE, MOVEMENT PATTERNS
AND HABITAT PREFERENCES ACROSS
THE THREE COASTAL DRAINAGES.**

SALTWATER FISH RECORDS

JULY 2020

Spotted Seatrout *	5 pounds, 11.78 ounces	Samuel Grayson (youth)
Spot	4.16 ounces	Rodie Armes (youth)
Permit	11 pounds, 0.76 ounces	Sean Cook (all tackle-spear)
Spanish Hogfish	2 pounds, 10.72 ounces	Sean Cook (all tackle-spear)
Red Grouper	22 pounds, 2.05 ounces	Tim Shivers (conventional tackle)
Spot	4.42 ounces	Donnie Armes (conventional tackle)

AUGUST 2020

Spot	4.87 ounces	Rodie Armes (youth)
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SEPTEMBER 2020

Ocean Triggerfish	6 pounds, 15.84 ounces	Chad Patti (all tackle-spear)
Red Lionfish	1 pound, 15.04 ounces	Heath Powell (all tackle-spear)
Silver Perch	5.12 ounces	Donald L. Bosarge II (conventional tackle)
Tripletail	19 pounds, 8 ounces	Charlie Russell (youth)

OCTOBER 2020

Needle Fish	2.56 ounces	Rodie Lane Armes (youth)
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DECEMBER 2020

Striped Mullet	5 pounds, 6.95 ounces	Joey Besancon Sr. (all tackle-gig)
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JUNE 2021

Gag	45 pounds, 1.6 ounces	Blake Bosarge (youth)
Gafftopsail Catfish	5 pounds, 12.8 ounces	Samuel Wright (youth)
Swordfish	309 pounds, 14.4 ounces	Donnie Jackson, Jr. (conventional tackle)
Gulf Flounder **	1 pound, 11.52 ounces	Donald Bosarge II (conventional tackle)
Gag	67 pounds, 6.4 ounces	Travis Gessley (conventional tackle)
Almaco Jack	36 pounds, 3.2 ounces	Dyllan Camplejohn (all tackle-spear)
Red Lionfish	2 pounds, 5.4 ounces	Stanford Georgen (all tackle-spear)



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SEAFOOD TECHNOLOGY BUREAU



REGULATORY

- 207 total inspections and responded to technical assistance requests.
- 99 water samples collected.
- Transitioned from paper to digital inspections.
- Completed four illness investigations pertaining to Vibrio, confirming Mississippi oyster safety.
- Assisted Shellfish Bureau with Titles 22 Part 1, Part 13 and Part 17 to successfully consolidate MDMR Title shellfish regulations.
- Secured 2020-2021 FDA Program Element Evaluation Report (PEER) of the Plant Processing and Shipping Element evaluation with a conformance rating.



RESEARCH

- Researched wet storage operations options for oyster dealers.
- Researched ice slurry method regulations for aquaculture harvesters to meet time-temperature matrices during Vibrio vulnificus control plan months.



TRAINING

- New laptops purchased enhancing Basic Seafood Hazard Analysis and Critical Control Point (HACCP).
- Completed required training courses - FD245 Shellfish Plant Standardization and Basic Seafood HACCP training.
- Attended Food Safety for Preventive Controls Alliance - Preventive Controls for Qualified Individuals (PCQI) course.

SHELLFISH BUREAU

- Reef cultivation included approximately 160 acres of the western Mississippi sound.
- Completed 124 one-minute dredge tows and 175 square meter dive samples for reef assessments.
- Two cultch plants performed; planted 200 acres of oyster reef total during fall 2020 and spring 2021.
- 17 active off-bottom harvesters for 2021 and 51 acres leased in the MDMR Commercial Aquaculture Park.
- 2.8 million oyster seed being cultured; commercial operations harvested approximately 423,895 oysters in 2020.
- Completed Off-Bottom Oyster Aquaculture training class with 15 participants.
- Developed and submitted an Oyster Management Plan for public comment.
- Water Quality Analysis performed through monthly water sample collection and fecal coliform analysis for FDA Compliance. The bureau collected 912 water sample for fecal coliform analysis.
- Harmful Algal Bloom Analysis performed through monthly sea water samples are collected at 15 locations for cell identification. Collected 180 samples and completed in-house qualitative analysis for HAB presence.
- Sanitary Surveys completed through annual evaluation of all environmental factors that affect the water quality of shellfish growing waters. Collected data monthly to determine environmental factors and fecal coliform results.
- Assessed and addressed high levels of fecal coliforms present in areas of the Mississippi Sound.



DRY MICROBIOLOGY LABORATORY

The new lab construction was completed and installed during fiscal year 2021 and includes space to analyze harmful algal bloom events, enzyme-linked immunoassay (ELISA) analysis and taxonomy storage. Since the completion of the lab, the Shellfish Bureau has been able to:

- Develop and implement a Quality Assurance Program.
- Develop and submit a total of 32 procedures, in conformance with National Shellfish Sanitation Program requirements, to the Food and Drug Administration for compliance evaluation.
- Analyze water quality and tissue samples in parallel with external comparison laboratory.

SHRIMP AND CRAB BUREAU

- Held a Mississippi Derelict Crab Trap Removal program public cleanup which resulted in the removal of 310 lost traps from the environment.
- Collected 199 standardized trawl samples at historical shrimp monitoring stations to observe shrimp growth and abundance, as well as determining an appropriate opening date for shrimp season.
- Initiated standardized fishery independent crab trap sampling in commercial harvest waters to monitor seasonal abundance and sex and size composition of market-size Blue Crabs and evaluate bycatch composition. A total of 108 traps were set and run by MDMR staff in areas where MDMR staff has not previously conducted this work.
- Collected 170 standardized trawl samples at historical sample sites to monitor finfish and invertebrate abundance.
- Collected 199 standardized trawl samples at historical shrimp monitoring stations to observe shrimp growth and abundance, as well as determining an appropriate opening date for shrimp season.
- Special Permits: Issued 61 scientific research permits, five experimental gear permits and one marine brood stock permit.
- Live Bait Shrimp Dealer Licensing: Processed applications and inspected 11 bait camps.
- Collected and processed over 1,000 commercially harvested brown, white and pink shrimp. Data was compiled from other Gulf of Mexico states to validate industry accepted conversion factors used to standardize commercial shrimp landings.



- ▲ Continued fishery independent trap survey in three major bay systems to monitor Blue Crab abundance, sex and size composition and bycatch composition. 216 traps were set.



- ▲ Since 1999, 22,250 traps have been removed and recycled from Mississippi state waters.



- ▲ Experimental gear project explored utility of standardized trawl sampling in estuarine waters for monitoring of abundance and migratory patterns or early life stage finfish and crustaceans. 72 trawls were completed in shallow water nursery habitat, using two new trawl sizes.

AQUACULTURE HATCHERY

During fiscal year 2021, the Aquaculture Hatchery in Lyman took an extensive amount of damage due to Hurricane Zeta. This resulted in setbacks regarding egg production which takes place in the greenhouse. Approval given in May 2021 allowed the Aquaculture Hatchery to move forward with FEMA projects and the hatchery is now fully operational, with egg production and stock enhancement expected to resume in the spring of 2022.

- In 2020, the experimental on-site production of fish food produced more than 1,000 pounds of hatchery feed. Lyman continued this project and added a second species for efforts toward sustainable aquaculture practices.
- Upgrades were made to facilities damaged or destroyed during Hurricane Zeta.

**PRODUCTION OF NATIVE SALT MARSHES
FOR COASTAL RESTORATION**

ECOLOGICAL RESTORATION

MDMR'S latest restoration and management development is the Ecological Restoration initiative. George Ramseur has assumed the position of Director of Ecological Restoration to accelerate work already underway in Mississippi, particularly the exploration of a more complete scientific understanding of Mississippi's nearshore marine and estuarine resources. This includes a focus on chronic and acute impacts to the full functional extent of the three-state (Louisiana, Mississippi, Alabama Coastal System (LMACS)) estuary. These chronic impacts include ongoing erosion of habitats and barrier structures, like the Gulf islands, while a significant acute impact is the increasing frequency of Bonnet Carré spillway openings.

Addressing these impacts through restoration or management actions can be made more effective by reducing the uncertainty of large and complex decisions. This requires tools capable of predicting system-wide effects of individual projects or multiple projects over time in a changing landscape. The hydrodynamic and ecological modeling tools needed to do this are already being developed by combining and upgrading existing resources at Mississippi's primary universities. Mississippi's increasing capability in this scientific realm will improve our ability to leverage tools and resources from the other LMACS states to provide true system-wide assessment capability to support cross-state partnerships and resolve related issues for mutual benefit.



MARINE PATROL

- Responded to 30 vessel accidents (five resulting in injuries) and six drownings (due to a vessel accident or other water-related incident).
- Processed 13 public records requests.
- Answered and initiated 8,824 calls for service.
- Acquired two AMBAR-style vessels with outboard motors and practiced deploying them quickly in response to incidents using an enclosed utility trailer. The search and rescue teams have been fully certified in Swift Water rescue, SAR rope awareness, Overland search and rescue and SARTECH, allowing them to be deployable throughout the state and to neighboring states during natural disaster events.
- Currently has within its ranks: two certified Marine Investigators, two National Association of State Boating Law Administrators Level 2 Accident Investigators and one certified Expert Witness in court testimony of boat accident investigations.
- Officers and/or staff members participated in 1,045 hours of training.
- The Marine Patrol Reserve Unit supported the agency's objective by contributing 439 non-compensated man hours assisting with regular patrols and marine events.

NOTABLE FISHERIES VIOLATIONS		CITATIONS AND WARNINGS:	
Undersized Red Snapper during a closed season	5	Fisheries Violations	206
Possession of undersized Red Snapper	5	Boating and Water Safety Violations	174
Red Snapper seized for no Tails N' Scales	125	Boating Under the Influence	15
Undersized Spotted Seatrout	44	Wetlands Violations	39
Undersized Red Drum	20	Miscellaneous Violations	39
		Courtesy Citations	220
		Marine Litter Citations	14



- Conducted, in partnership with the Mississippi Attorney General's office, training to recognize human trafficking. Also, partnered with the Mississippi Department of Health to certify each officer in recognizing an opioid overdose and administer NARCAN to save lives.
- Utilizing grant funding through the Office of Homeland Security, Marine Patrol acquired full face mask under-water communications with heads-up display for our dive response teams and each diver has been certified through the public safety diver course. Relationships between state and local dive teams have been restored and coordinated responses have been conducted in all areas of responsibility.
- Staff have been instrumental in working with the derelict vessel program coordinator and the Office of the Attorney General to implement improved policy in dealing with derelict vessels. Several possible funding sources have been identified and are being applied for to assist with removal.
- Conducted extensive training on and implemented the Consolidated Annual Performance and Evaluation Report management system with Computer Aided Dispatch to better account for officers' location and movements throughout their shift. This serves to protect both agency liability and officer safety.

PUBLIC OUTREACH

The Public Affairs Bureau provides a proactive program of community outreach, education, public information and legislative and media relations. These outreach efforts promote awareness of the MDMR and its roles, responsibilities and programs in balancing economic interests with enhancing, protecting, managing and conserving Mississippi's marine resources. This bureau participates in events throughout the community and distributes information through news releases, social media sites, brochures, a rules and regulations book, calendar, photographs and content for the MDMR website. Public Affairs also provides support to other offices and programs within the agency to create consistent, professional materials to further the agency's mission. The Seafood Marketing program is contained within Public Affairs, and it markets the sale and consumption of Gulf seafood to people throughout Mississippi and the southeastern region of the country.

- Produced videos highlighting marine science and law enforcement careers at MDMR for Pathways 2 Possibilities, a program that educates eighth grade students across south Mississippi.
- MDMR, along with other state agencies, took part in Governor Tate Reeves' "Mask up" campaign. The campaign asked, "Who do you mask up for?" was posted on various state agencies' social media platforms.
- Assisted MDMR staff with promoting virtual meetings and events on MDMR's website and social media.
- Selected Austin Sumrall with White Pillars Restaurant in Biloxi to represent Mississippi in the Great American Seafood Cookoff in New Orleans.
- Printed 75,000 brochures and promotional item, which are used to increase awareness of the MDMR brand and educate the public about coastal resources and fishing rules and regulations.





ENHANCE ★ PROTECT ★ CONSERVE

The Mississippi Department of Marine Resources is dedicated to enhancing, protecting and conserving the state's marine interests by managing all marine life, public trust wetlands, adjacent uplands and waterfront areas to provide optimal commercial, recreational, educational and economic uses of these resources consistent with environmental concerns and social changes.

MISSISSIPPI DEPARTMENT OF MARINE RESOURCES

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