APPROVED BY:
for COMMITTEE CHAIRMAN

Commission Business Meeting
March 17, 2021
Virtual

Call to Order

Chairman Doug Boyd called the meeting to order at 1:00 a.m.

The following Commissioners and/or Proxies were present:

Doug Boyd, ***Chairman*** *Citizen Representative from Texas*, Boerne, TX
Robin Riechers, TPWD, Austin, TX *(Proxy for Carter Smith)*
Dan Ellinor, FWC, Tallahassee, FL *(Proxy for Nick Wiley)*
Chris Blankenship, ADCNR, Montgomery, AL
Scott Bannon, ADCNR/MRD, Gulf Shores, AL *(Proxy for Chris Blankenship)*
Read Hendon, *Citizen Representative from Mississippi,* USM/GCRL, Ocean Springs, MS
Joe Spraggins, MSDMR, Biloxi, MS
Jason Froeba, LDWF, Baton Rouge, LA *(Proxy for Jack Montoucet)*
John Roussel, *Citizen Representative from Louisiana*, Zachary, LA

Staff

Dave Donaldson, *Executive Director*, Ocean Springs, MS
Nancy Marcellus, *Administrative Officer*, Ocean Springs, MS
Chery Noble, *Administrative Assistant*, Ocean Springs, MS
Steve VanderKooy, *IJF Program Coordinator*, Ocean Springs, MS
Jeff Rester, *SEAMAP/Habitat Coordinator*, Ocean Springs, MS
Gregg Bray, *FIN Program Manager*, Ocean Springs, MS
Joe Ferrer, *Systems Administrator*, Ocean Springs, MS
James Ballard, *Sport Fish Restoration/Aquatic Invasives Coordinator*, Ocean Springs, MS
Donna Bellais, *ComFIN Programmer,* Ocean Springs, MS
Angie Rabideau, *Senior Accountant*, Ocean Springs, MS
Deanna Valentine, *Scanning Specialist*, Ocean Springs, MS
Debbie McIntyre, *Staff Assistant*, Ocean Springs, MS
Ali Wilhelm, *Staff Assistant*, Ocean Springs, MS
Charlie Robertson, *Fisheries Restoration Coordinator*, Ocean Springs, MS

Others

Allan Brown, USFWS, Atlanta, GA
Glen Constant, USFWS, Baton Rouge, LA
Ashford Rosenberg, Gulf of Mexico Reef Fish Shareholders' Alliance, New Orleans, LA
Trevor Moncrieff, MSDMR, Biloxi, MS
Julien Lartigue, NOAA RESTORE, SSC, MS
Rick Burris, MSDMR, Biloxi, MS
Ed Swindell, Marine Process Services, LLC, Hammond, LA
Julie Lively, LASG, Baton Rouge, LA
Laura Picariello, TXSG, Corpus Christi, TX
Tracy Floyd, MSDMR, Biloxi, MS

Paul Doremus, NOAA Fisheries, Silver Spring, MD
Beverly Sauls, FWC/FWRI, St. Petersburg, FL
Chris Mace, TPWD, Corpus Christi, TX
Jack McGovern, NOAA Fisheries, St. Petersburg, FL
Darin Topping, TPWD, Rockport, TX
Jason Downey, ADCNR, Dauphin Island, AL
Tom Sminkey, NOAA Fisheries, Silver Spring, MD

Opening Comments and Brief Overview of Commission Voting Procedures

D. Donaldson gave a brief overview of the Commission's voting procedures and stated there was a quorum. He informed the Commission that John Ray Nelson, a long time Commissioner, passed away and asked for a moment of silence in his honor. He also recognized Cheryl Noble for 30 years employment and Angie Rabideau for 10 years employment with the Commission.

Adoption of Agenda

D. Donaldson asked to add discussion of the ***Young Fishermen's Program*** under Other Business.

S. Bannon moved to adopt the agenda with the addition of discussion of the Young Fishermen's Program under Other Business. R. Hendon seconded the motion and it passed unanimously.

Approval of Minutes (October 15, 2020)

R. Hendon moved to approve the October 15, 2020 minutes as submitted. S. Bannon seconded the motion and it passed unanimously.

GSMFC Standing Committee Reports

Law Enforcement Committee (LEC)

Jason Downey reported the LEC met with the Council's Law Enforcement Technical Committee (LETC) virtually on March 9, 2021. Several items were covered specific to the Gulf Council's LETC which included a report from Rich Malinowski (NOAA) on the Southeast For-hire Electronic Reporting Program. Dr. Lasseter reviewed Amendment 32 (Cobia), the Lane Snapper and Changes to Accountability Measures, and issues related to illegal charters were discussed.

J. Downey stated the LEC approved the ***2021-2024 Strategic Plan*** and the ***2021-2022 Operations Plan*** which is included as Tab B and C in the briefing book and asked the Commission to pass a motion to approve each document.

J. Downey said S. VanderKooy reported on the **IJF Program Activities.** He said due to the pandemic, progress on the ***Red Drum Profile*** has been very slow. Scott Pearce from the FWC sits on the Task Force representing enforcement. S. VanderKooy plans to initiate a reboot of this effort in the next few weeks. In addition, the pandemic has also impeded the progress of forming the new Mangrove Snapper Task Force. Establishment of this group will take place later this year. **J. Downey** said written reports were provided by the individual states/agencies in advance and highlights were discussed.

S. Bannon moved to approve the LEC 2021-2024 Strategic Plan and the 2021-2022 Operations Plan. R. Riechers seconded the motion and it passed unanimously.

R. Hendon moved to accept the LEC Report. S. Bannon seconded the motion and it passed unanimously.

Technical Coordinating Committee (TCC)

D. Topping gave the TCC Report. He stated Tershara Matthews, Bureau of Ocean Energy Management, provided a brief overview of offshore renewable wind energy in the Gulf of Mexico. Jamie Reinhardt presented information on the DWH restoration priorities and facilitated an interactive discussion to get feedback from the group on restoration priorities across the Gulf. Marcus Drymon updated the TCC on the results of the Great Red Snapper Count. Following his presentation, the TCC briefly discussed how this will be incorporated into future stock assessments. Jeff Rester presented the TCC with the ***SEAMAP 2021-2025 Management Plan*** and sought the group's approval of the document. The TCC approved the document and will forward it to the Commissioners for future approval via email. Steve VanderKooy presented on IJF Research Funding that will support different projects in the states.

D. Topping then gave a brief overview of each Subcommittee report and stated the FIN Committee chose not to meet this Spring because of the complexities of the conversations that they needed to have. They preferred to meet face-to-face to have these discussions and plan to meet this summer.

R. Hendon moved to accept the TCC report. S. Bannon seconded the motion and it passed unanimously.

State-Federal Fisheries Management Committee (S/FFMC)

Menhaden Advisory Committee (MAC)

T. Moncrieff reported the MAC met virtually on Tuesday morning, March 2, 2021. He gave a brief report of the MAC activities and stated there was only one action item that needed approval. The election of chair was deferred from the Fall meeting due to some questions about whether a proxy can be elected or if it must be the member. The rotation of chair moves from federal to state to industry and Mississippi was next in rotation. **The MAC passed a motion to have T. Moncrief serve as chair for this year until the end of the October meeting 2021.**

S. Bannon moved to accept T. Moncrief as Chair until the end of the October 2021 meeting. R. Hendon seconded the motion and it passed unanimously.

S. Bannon moved to accept the State/Federal Fisheries Management Committee Report. J. Spraggins seconded the motion and it passed unanimously.

Listening Session on EO 14008 Section 216 (c): Tackling the Climate Crisis at Home and Abroad -

P. Doremus briefed the Commission on the Executive Order asking NOAA to start efforts to collect input from fishermen, regional ocean councils, fishery management councils, scientists and other stakeholders on how to make fisheries and protective resources more resilient to climate change and asked for the Commission's input. After extensive discussions and suggestions, it was decided that D. Boyd and D. Donaldson will decide the best way to gather information from the

stakeholders in the Gulf of Mexico and submit the final comments before the April 2, 2021 deadline.

Sea Grant Fisheries Extension Meeting Report

Laura Picariello reported the Sea Grant Fisheries Extension Group met virtually March 12th. She said several Regional Projects involving Sea Grant collaborations were discussed including the Deepwater Horizon Fish Restoration Plan which includes the Better Bycatch Project with the shrimp fishery by testing smaller bar spacing on TEDs and improving BRDs. Sea Grant will assist NOAA by holding stakeholder workshops for these projects. She said Nick Haddad and Charlie Robertson reported on the early stages of the Fish Descender Device project. She said the Greater Amberjack Research Project has been moving forward and this is a Gulf and South Atlantic Project similar to the Great Red Snapper Count. The National Sea Grant Office has created a series of funding opportunities for the state Sea Grant Programs to request funding for proposals on COVID impacts to the seafood industry. She said the Young Fishermen Development Act passed and appropriations should be starting in 2022 to help fund fishermen training programs and some ongoing aquaculture funding that can help with the training programs. She then gave a summary on each state's report.

NOAA Fisheries Southeast Regional Office Comments

Jack McGovern gave a brief report on activities of NOAA/SERO and stated the complete report is in Tab D of the briefing book. He said they will be announcing the federal for-hire red snapper season soon and expects it to be similar to last year. He said the ***Great Red Snapper Count*** report will be independently reviewed and the SSC will provide catch recommendations to the Gulf Council at their April meeting. He reported the software for the commercial catch program online system has been updated and the transition is going well. The Gulf Council met in January and took final action on two framework amendments that increased catch levels for gray triggerfish and lane snapper, and these catch levels will be implemented soon. They also approved an amendment that would establish status determination criteria for red drum and unassessed species. The Gulf Council is expected to take final action at their April meeting on the red snapper amendment that will adjust catch levels according to the recommendations of their SSC. They will also take action on another amendment to deal with state survey conversions and are expected to address Cobia Amendment 32 that would modify catch limits, size limits and possession limits, and to have a discussion on an update to effort data collection for the shrimp fishery now that the ELB units are no longer transmitting information. They will also discuss Amendment 53 that deals with red grouper ACLs and allocations based on a recent stock assessment. The Southeast Electronic For-Hire program started on January 5th and they have been working closely with the fishermen through weekly webinars training them on the devices and answering questions. He said NOAA is considering delaying the TED skimmer rule which requires TEDs in skimmer trawls greater than 40 ft. starting April 1st. The delay will allow additional outreach and training with industry. He said they are also revamping the online permit system to expand capabilities to fishermen to apply and receive permits online.

USFWS Region 4 Office Comments

Allan Brown stated the FWS conservation offices in the Southeast are interested in developing a strategic alignment with their coastal partners to identify actions and support that their fisheries staff can provide to assist the marine fisheries managers. He said through their collaboration with the Commission, their point of contact, Glenn Constant has participated through Committee

activities to provide insight and support on issues in the region. He welcomed feedback from the state managers on how they can better provide support to individual states and to the Commission. **G. Constant** said all the states are addressing aquatic nuisance species and the FWS has discussed ways to help with these issues such as funding proposals with multistate interest in dealing with ANS. He also stated at the last meeting he asked for the states' support on a petition to remove the Saltmarsh Topminnow from the ESA listing process. Because the Saltmarsh Topmminow has been part of litigation, they have decided to go through a complete scientific assessment of the species. He thanked all that contributed to the process. **A. Brown** stated how much he appreciates working with the Commission, specifically James Ballard for administering their Small Grants Invasive Species Program.

NOAA Fisheries Budget Update

D. Donaldson gave an update on the NOAA Fisheries budget. The details can be found in Tab E and F of the briefing book. Both the House and Senate has passed bills for NOAA Fisheries just under $970M which was $125M over the President's budget. Fisheries Data Collections, Surveys and Assessments was appropriated at $174M and that includes FIN and SEAMAP funding. Aquaculture was funded at over $15M and $2M for a new project for a multitrophic program in state waters specific to the Gulf of Mexico. Funding for the regional councils and commissions which includes IJF funding, is just over $45M. The President proposed reductions but those were not implemented. IJF grants were level funded at $3.4M. Enforcement was funded just under $80M which is a significant increase over past years. He said there was language to eliminate the JEAs but thankfully that did not happen. **D. Donaldson** stated that overall it is a positive budget and it will be interesting to see with a new administration if that trend continues. He said the Biden administration seems to be focused on climate change and the environment so hopefully the funding will continue to go in a positive direction.

Discussion of One vs. Two Commission Meetings per Year

D. Donaldson stated that there is a cost analysis in Tab G of the briefing book for having one meeting versus two meetings per year for the Commission. He stated that as discussed in previous meetings, if it is decided to have only one meeting per year they would meet in October and would expand travel reimbursements for the Committees and Subcommittees to allow them to attend the General Session and the ***Lyle-Simpson Award*** ceremony. He said they would also expand travel reimbursements to include the Commissioners, who have previously been reimbursed by the states. They also plan to have a Wednesday dinner instead of a reception. These scenarios were included in the cost analysis and the one expanded meeting would cost less than having two meetings.

After discussion, the Commission decided to have an expanded meeting in October 2021 in Florida as a trial run. They will have a final vote at the October meeting on whether to change the meeting format or not. It was also suggested to have a virtual Commission Business meeting in the spring and allow the Committees and Subcommittees to meet throughout the year if needed.

Discussion of *Lyles-Simpson* Award Recipient Selection for 2021

D. Donaldson stated the Commission usually selects the recipient for the ***Lyles-Simpson Award*** for the current year at the March meeting. Due to the COVID restrictions and not being able to meet face to face in 2020, the 2020 recipient, **Harriet Perry**, was not presented the award at the

last meeting. He suggested not selecting a 2021 recipient for this prestigious award and just have the usual ceremony in October to present Ms. Perry with the award.

R. Hendon moved to defer voting on a 2021 Lyles-Simpson Award recipient and choose a 2022 recipient in October 2021. S. Bannon seconded the motion and it passed unanimously.

GSMFC Program Reports

Interjurisdictional Fisheries Program (IJF)

S. VanderKooy reported the IJF detailed report is in Tab I of the Briefing Book. He said the Red Drum and Mangrove Snapper Task Forces have been delayed because of COVID but they are starting to move the process along. The Otolith Manual is available on the GSMFC and Atlantic States Marine Fisheries Commission's websites. He said this was a huge undertaking and it includes 46 species in 17 species groups. It has been well received and has been cited in various publications so that is a good indication that it is being used. He said they are still collecting Tripletail genetic samples and hope to have some final analysis later this summer along with a full report and publication. The acoustic tagging is ongoing and **S. VanderKooy** reviewed the details of the project. He said they are still planning to host a large Flounder Symposium later this summer. This was postponed from last summer due to COVID. He then reported on the Small Grants program stating funds have increased which allowed them to target research and data needs in the states specifically addressing IJ species. He reviewed each state project.

S. VanderKooy reminded the Commissioners there were four virtual Subcommittee meetings prior to this meeting and they are available to watch on the Commission's YouTube channel. He said to type Gulf States Marine Fisheries Commission in the search bar to view those meetings and all other Commission meetings that have been streamed in the past.

Aquaculture Program

S. VanderKooy said the complete report is in Tab J of the Briefing Book. He stated the Aquaculture program has been ongoing for several years. The NOAA Office of Aquaculture provides funds each year to do pilots and various projects in the Gulf with the intention of promoting and advancing aquaculture. He said they formed a Consortia for Oyster Research in 2019-2020. This is an ongoing project in it's second year. He said they still have regional projects from 2019 that are continuing because they were delayed due to COVID. Seven 2020 projects had just started before COVID but were stopped. They have awarded extensions to these projects to continue and they cover a variety of topics from novel aquaculture items to the use of oil and gas platforms as potential work platforms.

All three Commissions have received 2021 funding for the next round of pilot programs. Unfortunately, the Gulf was so far behind due to COVID that it was decided to hold the funds and make a larger award available next year. Approximately $1M will be available for competitive projects for pilots in 2022. He said as mentioned in the budget report, the Gulf Commission specifically has been provided funding for a new initiative for Aquaculture to promote IMTAS – Integrated Multitrophic Aquaculture Systems. Specifically, culturing native species of finfish, bivalve mollusks and macroalgae in Gulf state waters. Few details are available at this time but the first year of funding will be around $2M and it is potentially for multiyear projects. The

language limits the projects to state waters only and a RFP will go out once the final funding level is received.

SEAMAP

J. Rester reported the Fall Shrimp/Groundfish Survey took place last year from was October 1 – December 11, 2020 and 251 stations were sampled during the survey. They had planned to sample more stations but did not due to hurricanes and bad weather. SEAMAP has held several invertebrate identification workshops online over the past few months to help field staff in the identification of various invertebrates including commercial shrimp, noncommercial shrimp, and lobsters and lobster like shrimp. They hope to eventually hold a face to face meeting to provide a more hands on approach to help in the identification of invertebrates in the Gulf of Mexico. The FY2021 budget figure is $1,953,625. He said that is approximately $28,000 less than last year. The Subcommittee met to discuss the budget and proposed survey activities for 2021. The Subcommittee also discussed ways to spend remaining 2020 funds. Carryover funds will allow SEAMAP to sample at historic levels, but sampling in 2022 will have to be curtailed from historic levels if funding does not increase next year. **J. Rester** said SEAMAP plans to resume their usual surveys in 2021. He reported the Commission continues to manage SEAMAP data and distribute the data to interested parties. The Commission has fulfilled three SEAMAP data requests since October.

CARES Act

J. Rester stated the detailed CARES Act report is in Tab L of the Briefing Book. He said so much has changed since his last report in October 2020. He said the Coronavirus Aid, Relief, and Economic Security Act (CARES) from last March dedicated $300M in fishery assistant funding for affected fisheries participants who incurred a greater than 35% loss as compared to their previous 5-year average. The Gulf States allocations are: Texas $9,237,949; Louisiana $14,785,244; Mississippi $1,534,388; Alabama $3,299,821; and Florida $23,636,600 but Florida will be working with the Atlantic States Marine Fisheries Commission, not this office.

J. Rester stated the application process closed on November 23, 2020 for Louisiana. The Commission received 1,052 applications representing 865 applicants. The Commission has made $2,753,577.87 in payments. The application process closed on November 27, 2020 for Alabama. The Commission received 74 applications representing 72 applicants. The Commission made $3,254,064 in payments to the 72 applicants. The application process closed on January 5, 2021 for Mississippi. The Commission received 223 applications representing 223 applicants. The Commission made $1,414,684.83 in payments. The Texas Spend Plan was approved on January 26, 2021. The application process began on February 1 and is scheduled to close on March 18, 2021. As of Monday, TPWD has received 245 applications and they will be reviewing those applications for eligibility over the next several weeks.

J. Rester reported the Commission has received a total of 1,348 applications and has paid out $7,422,326.70 to eligible applicants. The Commission received $28,857,402 and the remaining funds must be spent by September 30, 2021.

For the latest information on the Commission's CARES Act program, you can sign up for updates at https://www.gsmfc.org/cares-act.php.

Sportfish Restoration Program

J. Ballard stated the full report is under Tab M in the briefing book. He reported they are continuing their efforts to do the pilot study of the Gulf Artificial Reef Monitoring and Assessment Program (GARMAP). This is a multi-gear standardized sampling protocol that was developed from input from the Artificial Reef Subcommittee, and their goal is to eventually have this as a standardized monitoring protocol that can be used across the Gulf to get baseline data on artificial reefs. He said they have completed the third year of the Jimmy Sanders Memorial Lionfish Challenge virtually using Fishing Chaos. He recognized all the sponsors and stated this tournament would not be possible without their support. He stated they will try to do a face-to-face meeting at the end of the summer for the Joint Artificial Reef Subcommittee meeting.

Aquatic Nuisance Species (ANS) Program

J. Ballard stated the full report is under Tab J of the Briefing Book. He said as mentioned earlier, the Commission continues the administration of the FWS Region 4 AIS Small Grants Program and over the last six years 39 projects totaling $850K has been funded. He reviewed the Invasive Species projects that were funded in 2019 and said because most of the universities were shut down in 2020 due to COVID, they will combine the 2020 funds with the 2021 funds and they will be able to have larger projects covering a longer timeframe. They are continuing their efforts with the Invasive Species Traveling Trunk. They now have 3 trunks and since 2012 they have been used for over 1,500 days. He noted that in 2020 they had very few reservations because of COVID.

He reviewed the ANSTF Prevention Subcommittee FY20 Outputs and FY21 Work Plan. He stated he is Chairing the Subcommittee which is made up of a large group of federal, state and non-government organization members. He said their first objective was to evaluate and refine the NISC/ANSTF pathway risk assessment document. In 2020 they were able to start to compile a list of all the current published literature on risk assessments and pathways of invasive species. The USGS may be able to utilize their student employees to continue this effort. He said the second objective is to work with applicable federal agencies and responsible industry sectors to make organisms in trade importation data electronically available and searchable. The next objective is to assess ANS introductions to determine where prevention measures failed. Another objective of the Subcommittee is to establish an ad-hoc Committee to evaluate and implement the roles and responsibilities of the ANSTF under the Vessel Incidental Discharge Act (VIDA). The last objective is to enter into national prevention practices and agreements that promote effective risk management measures. In 2020, they were able to develop a Notice of Funding Opportunity for Seaplane Risk Analysis. **J. Ballard** stated the USGS was alerted that zebra mussels were found in little balls of moss that are sold for aquariums. He said this triggered a rapid response on the federal and state side to assess how far this spread. At last count around 34 states had these balls of moss and determined they were coming from the Ukraine through three major distributors in the US. They issued instructions on how to destroy the moss balls and sterilize the aquariums they were in. He said he is hosting the next GSARP Meeting Virtually on April 21, 2021 and the next ANSTF Meeting will be held virtually in late June.

FIN

G. Bray said the FIN Report is in Tab O of the Briefing Book. He stated the GulfFin Committee decided not to meet virtually prior to this meeting because they have a multitude of complex issues

to discuss and hope to have a face to face meeting this summer. He said 2021 funding levels are still undetermined but they have received partial funding to start 2021. He feels confident they will be able to support all the ongoing work which is the normal fishery dependent surveys such as MRIP and APAIS sampling. He said for the first time they have been able to support the state surveys that have gone through MRIP certification through Modernizing Recreational Fisheries Management Act Funding. He said SEFHER has been postponed but they hope to continue in the near future. They expect to hear from NOAA soon on the status of the program. He said he usually updates the Commission at the March meeting on the previous year's activities but due to COVID they did not have very many angler interviews because of all the restrictions in place. He said they have transitioned to electronic tablets for the MRIP APAIS surveys and transitioned from PC based reporting to a VESL system which is a web-based interface to be used for the Electronic Trip Ticket program. The advancements in electronic technologies has made life easier for the data managers and scientists in both the recreational and commercial side of fishery dependent data collections.

Fisheries Restoration Program

C. Robertson stated the full report is under Tab P of the Briefing Book. He reported the Fisheries Restoration Program is focusing on reducing post-release mortality from barotrauma in Gulf of Mexico reef fish recreational fisheries. They have received proposals and hope to start implementing components of the projects later this year. The components include data collection and monitoring studies investigating post-release mortality estimates for priority Gulf of Mexico reef fish species and the effectiveness of Fish Descender Device (FDD) use and how it is related to depredation from a Gulf-wide perspective; a Human Dimensions Survey to gather data measuring anglers knowledge, behaviors, attitudes, and perceptions regarding handling and release practices of reef fish; and distribution of devices and tools starting with for-hire reef fish anglers then expanding to private recreational reef fish anglers. C. Robertson said they will be contacting the states to discuss the most effective ways to achieve the different components of the project. This is still very much in the development stages but they hope to start all components this year.

State Directors' Reports

D. Donaldson stated all detailed state reports except for Florida were submitted before the meeting for the briefing book (Tab Q-T) and will be attached to these minutes **(Attachment 1).** Each state Director gave a brief overview of their report. D. Ellinor will submit Florida's report for inclusion to the minutes after the meeting.

Future Meetings

D. Donaldson stated as mentioned before, they plan to have the October meeting in person using the new expanded format. The location will be in Florida and they will meet with D. Ellinor on suggestions for the location and a hotel. It will be decided at the October meeting if the Spring Meeting will be in Texas or if they will meet virtually.

Review of Committee Listings

D. Donaldson stated several years ago it was suggested that a list of committee members by state be distributed each year to the Commissioners to review the membership. He said the listings were emailed and are in Tab U of the briefing book and asked the Commissioners to review and send any changes to C. Noble.

Publications List and Web Statistics

D. Donaldson stated Tabs V and W of the Briefing Book has the information on publications and the website. He said if there are any questions to contact D. McIntyre for Publications and J. Ferrer for the web statistics.

Other Business

D. Donaldson reported as mentioned by Laura Picariello in the Sea Grant report, there has been progress with the ***Young Fishermen's Program***. He said Ashford Rosenberg is on the call and if anyone has questions to feel free to ask her. He asked the Commissioners if they would like to add her to the Agenda for the October meeting for an update. The Commissioners agreed to add an ***Update of the Young Fishermen's Program*** to the agenda for the next meeting.

There being no further business, the meeting adjourned at 4:36 p.m.

ATTACHMENT 1

Alabama State Report
Gulf States Marine Fisheries Commission's
Spring 2021 – Online meeting

Emerging Issues Pertinent to Gulf of Mexico Fisheries.

1. Regulatory/Administration

Beginning in 2021, owner/operators of recreational vessels (private and for-hire) with Gray Triggerfish or Greater Amberjack landing the fish in Alabama must report their catches to the Alabama Marine Resources Division (AMRD) Snapper Check program. The two species have been added to the prior reporting requirement for recreationally caught Red Snapper to enhance data collection.

Enrollment in Alabama's Coronavirus Aid, Relief and Economic Security (CARES) Act program was extended to November 13, 2020, to allow eligible fishery participants the opportunity to provide required application documentation. The extension was needed to allow extra time for applicants who were impacted from Hurricane Sally. AMRD has determined 74 applications out of 107 applications were eligible for CARES Act distributions. Preliminary calculations indicate each eligible applicant will receive $0.25 of CARES funds for every dollar in damages. The list of eligible applicants with distributions has been sent to NOAA Fisheries for final approval.

Activities Related to Artificial Reef Programs.

Phase II of the National Fish and Wildlife Foundation Alabama Artificial Reef and Habitat Enhancement Project continues to provide funding for reef fish habitat enhancement and monitoring projects in the inshore, nearshore, and offshore waters of Alabama.

AMRD continues to coordinate with BOEM, USACE, and NMFS for authorization to designate approximately 110 square miles of water bottoms as artificial reef zones. A $742,724.42 contract to perform a Phase I cultural resource survey, required for compliance with Section 106 of the National Historical Preservation Act, has been completed to meet federal regulatory requirements for permit evaluation. Additionally, A formal consultation with NMFS was initiated to confirm compliance with Section 7 of the Endangered Species Act and the project plans were amended to mitigate damages to threatened/endangered species and their critical habitats. Approximately 48 square miles between 6 and 10 miles offshore of Baldwin County, approximately 62 square miles between 10 and 20 miles offshore of Mobile County, and four

reef sites in Mobile Bay will be enhanced with reef structures to provide habitat for various estuarine and marine reef-associated finfish after federal regulatory requirements are satisfied.

A total of 345 individual reefs constructed by members of the public were inspected and permitted for deployment in the Offshore General Reef Permit Zones offshore of Alabama. The majority of the reef structures consisted of chicken transport cages, prefabricated concrete reef modules, and steel frame boxes. The structures were deployed between approximately 10nm to 50nm offshore of Alabama along water bottoms authorized for artificial reef construction activities.

Activities Associated with the Gulf of Mexico Crab Fisheries.

No derelict trap collection program has been finalized for 2021. AMRD continues to monitor for the number of derelict traps and is currently working with our partners in deciding if a derelict cleanup will be conducted in 2021.

Activities Related to Fisheries Dependent Data Collection.

1. APAIS

AMRD continued the collection of dockside Access Point Angler Intercept Survey (APAIS) interviews and validation of charter vessel activity. From September 1, 2020 through December 31, 2020, AMRD samplers completed a total of 155 out of 221 APAIS assignments and out of the completed assignments, 1,109 anglers were interviewed. During the reporting period, a total of 66 of 221 (30%) scheduled assignments were cancelled. Majority of the cancellations were due to site closures caused by Hurricane Sally on September 15th, 2020. More than a dozen Marina's, boat ramps and shore sites were significantly damaged causing months' worth of repairs. Approximately, eight public access points remained closed post Hurricane Sally with an estimated re-opening date of March 1, 2021. COVID-19 outbreaks had little to no effect on assignment completion during this reporting period. Semi-annual training and fish tests were given to APAIS staff in February and August.

2. Biological sampling

AMRD continued operation of the Biological Sampling Program for the collection of otoliths from recreationally harvested marine finfish. The program was re-implemented on March 1, 2020 and will continue for 18-months. From September 1, 2020 through December 31, 2020, a total of 362 sets of otoliths with 9 additional length measurements representing 11 out of 13 primary target species were collected by AMRD's staff. The COVID-19 pandemic had not impacted biological sampling activities during this reporting period. However, Hurricane Sally influenced sampling opportunities by damaging angler public access points such as boat ramps,

marina's and shore sites. Therefore, field samplers were limited on places to go, thus, restricting the collection of otoliths from a variety of saltwater finfish typically obtained in the fall.

3. Snapper Check

Alabama did not utilize the entire red snapper quota prior to the initial season closure on July 3rd. After the closure, it was determined there was sufficient quota remaining to re-open the season within limited weekends. The season re-opened on Saturday, October 10th and closed Sunday; December 6th having been open a total of 17 weekend days during the second season. A total of 580 and 73 vessel landing reports were submitted by representatives from private recreational and state-licensed vessels, respectively. An estimated 39% of private recreational vessels landing Red Snapper in Alabama reported through Snapper Check. The private recreational harvest was estimated to be 80,463 pounds and the state-licensed charter vessel harvest was estimated to be 2,953 pounds. When the first and second season harvest totals were combined, there were 19,939 pounds remaining of the 1,122,662 pounds quota. Beginning in 2021, recreational anglers landing Gray Triggerfish or Greater Amberjack in Alabama must report their catches through Snapper Check.

4. Shrimp conversion

The AMRD completed a project with the Gulf States Marine Fisheries Commission (GSMFC), other Gulf States, and federal partners to validate commercial conversion factors of processed brown and white shrimp. Samples were collected from Alabama seafood dealers during the reporting period. Samples were processed and analyzed, and the final report was submitted.

Activities Related to Fisheries Independent Sampling.

1. Shellfish

After analysis of the 2020 oyster reef quadrat surveys, the AMRD decided to open the public oyster reefs to harvest on October 12, 2020. The reefs remained opened until December 23, 2020 for a total of 47 working days. During the season, a total of 22,070 sacks of oysters were harvested from Heron Bay, Cedar Point West, and Cedar Point East. The average amount of sacks harvested per day was 469. The average number of harvesters per day was 83. The average amount of sacks/harvester/day was 5.5 within a six-sack limit.

The AMRD also opened the reefs on four Saturdays at the beginning of the season to provide an opportunity for younger generation to harvest oysters. The decision was made to stop harvesting on Saturdays due to low participation of young harvesters. We may revisit Saturday harvest in fall of 2021.

A new grid system utilizing 500 x 500-meter grids was employed to manage harvest on individual reef areas. The AMRD monitored grids in which harvest was taking place and opened

and closed specific grids as needed to move oyster catchers off sufficiently harvested areas so that there was a more even distribution of harvest across productive reefs. Harvesters were able see which grids were open and monitor their position within the grid system by accessing a web link on their smart phones.

The AMRD obtained Natural Resources Disaster Assessment (NRDA) funding for the construction of an Eastern oyster hatchery and remote larval setting facilities. Construction should begin in spring of 2021 with oyster spat production anticipated spring of 2022.

2. SEAMAP

Fall activities were completed for vertical line survey. The fall trawl cruise was completed in conjunction with Gulf Coast Research Laboratory . Staff from Alabama and Mississippi have worked together and completed fall trawl sampling October 1-5 from the Mississippi River to Panama City in an effort to maximize the use of funding. Vertical line fall sampling completed 28 stations; catches comprised of seven species totaling 110 fish with Gray Triggerfish and Vermilion Snapper being the next most abundant species after Red Snapper. Sampling period was extended (August – December) due to Coronavirus issues which halted sampling for an extended period. The AMRD scheduled the Fall 2020 SEAMAP ichthyoplankton survey off Alabama for September 2, 2020 but due to the COVID-19 pandemic, NOAA cancelled all ichthyoplankton cruises. The AMRD and NOAA are currently discussing which SEAMAP operations will be conducted in Alabama 2021 and will finalize these plans moving forward.

3. Inshore Gillnet

From August 2020 to the end of December 2020 gillnet sampling was conducted each month using small mesh perpendicular sets with mesh ranging from 2-4 inches, and large mesh parallel sets with mesh ranging from 4.5-6 inches. A total of 93 hour-long sets were completed with a total of 45 different species sampled comprising 2,862 observed individuals. Two Hurricanes, and a Tropical Storm prevented us from completing the full 106 sets normally conducted in those months. Over 600 otoliths were collected from captured individuals and measurements of length, weight, sex, and gonad weight were taken. Whole specimens of gilled/wedged Gulf Menhaden were collected at 10 individuals/mesh/month to perform a paired scale/otolith age comparison and better estimate differences in processing time. 340 Menhaden were processed in total for 2020 collecting fish weight, female gonad weight, measuring length, extracting otoliths, and then mounting 10 scales per fish between slides. We are currently in the process of separately ageing whole Gulf Menhaden otoliths and scales using image analysis to denote annuli and generating a side-by-side images for each fish. The table below is a list for each species of number caught, catch per unit effort (net sets), and otoliths collected from August through December 2020 from gillnets, trawls, seines, marine enforcement seizures, and other sources.

Species	Caught	CPUE	Otoliths			
			Gillnet	Trawl	Seine	Other/ Enforcement
Sp. Seatrout	88	0.94624	88	--	--	7
S. Mullet	152	1.63441	110	--	--	--
W. Mullet	174	1.87097	89	--	--	--
Sheepshead	10	0.10753	9	--	--	4
G. Flounder	--	--	--	--	--	--
So. Flounder	13	0.13978	7	--	1	--
Red Drum	17	0.1828	19	--	--	--
Atl. Croaker	204	2.19355	75	--	--	--
S. Kingfish	7	0.07527	6	--	--	--
Sp. Mackerel	45	0.48387	41	--	--	--
Bl. Drum	16	0.17204	15	--	--	--
G. Menhaden	965	10.37634	65	--	--	--
Red Snapper	--	--	--	--	--	--
Sand Seatrout	43	0.46237	41	4	--	--
Lane Snapper	--	--	0	3	--	--
Gray Snapper	1	0.01075	1	4	2	--
Bluefish	--	--	--	--	--	--
Cobia	1	0.01075	1	--	--	--
Tripletail	1	0.01075	1	--	--	--
Fl. Pompano	10	0.10753	8	--	--	--
Gulf Kingfish	1	0.01075	1	--	--	--
Totals	***1748**	--	**577**	**11**	**3**	**11**

Other State Activities.

1. Mariculture

Stock enhancement efforts continued at the Claude Peteet Mariculture Center (CPMC). Approximately 30,000 Spotted Seatrout (*Cynoscion nebulosus*) were released into coastal Alabama waters late last year. A Southern Flounder spawning event was initiated in January and February this year. The first spawning event resulted in approximately 15,000 ½" flounder which are scheduled for release in March. The second spawning event resulted in approximately 85,000 larvae. Release of those flounder will occur in April. Spawning is planned for Florida Pompano and Spotted Seatrout later this year.

CPMC staff assisted researchers from Auburn University who have been contracted using Inter Jurisdictional Funds (IJF) to conduct a cryogenic preservation study of Southern Flounder sperm. Results from spawning activities last year indicated procurement, maturation and sperm collection timed with egg development in females is somewhat problematic. The purpose of the

research is to determine the most appropriate technique to maximize sperm survival and motility after cryopreservation. Having southern flounder sperm stored for future use could lead to greater fertilization success. The results from the initial collection in January yielded positive results and a second trial is underway.

2. Boating Access

As a result of Hurricane Sally repairs are in progress to repair the parking areas of the Boggy Point and Weeks Bay boat ramps. Fort Morgan Boat ramp is under current renovations to remove sedimentation from the basin. Renovations to the Delta Port boat launch will begin in March to maximize available space and stabilize the surface for parking. In addition, the boating access facilities at Little Billy Goat Hole boat ramp on Dauphin Island and the boat ramp at the Bayou La Batre State Docks will be improved in FY2021.

3. Outreach

AMRD Fisheries section participation in outreach events (e.g., Mobile Boat Show) were cancelled due to the COVID-19 pandemic. The Alabama Seafood Marketing Program continued with public relations, television commercials, print ads and articles, radio ads, billboards, distribution of marketing materials and sponsorships of events. The marketing program's website is www.eatalabamaseafood.com.

4. Enforcement

From October 2020 through February 2021, AMRD enforcement officers conducted 2,405 commercial fishermen intercepts, 2,397 recreational fishermen intercepts, 357 seafood dealer and processor inspections, 3,613 hours of patrol (combined vessel patrol and shore patrol) and boarded 1,818 vessels.

Due to the Covid-19 pandemic, the Enforcement Section's participation in outreach events has been greatly reduced. The Enforcement Section has managed to participate in two live outreach events during this time, both were quite successful considering the circumstances.

In January 2021, the Enforcement Section received final approval to move ahead with implementing the second expansion of the Coastal Remote Monitoring System that was partially paid for with Port Security Grant 2019 funding, totaling more than $273,865 This expansion will update and expand the capabilities of the network of cameras throughout coastal Alabama. Several new camera locations as well as higher resolution cameras along with a more robust communications system will be coupled with a much larger storage capacity that provides a much higher quality video as well as the ability to store the archived video longer. The construction and additions to the current system under this phase of enhancement will be completed by April 2021.

In November of 2020, the Enforcement section worked closely with the Dauphin Island Sea Lab staff (and many other organizations) to help deal with a Sperm Whale that had stranded itself in

Mobile Bay. The animal was eventually euthanized and removed for further study by the Dauphin Island Sea Lab biologist.

The Enforcement and Fisheries Sections continue work on the grant intended to monitor and protect marine mammals and marine turtles. This grant will utilize specialized monitoring equipment to monitor turtle nesting areas and established nesting sites. Along with turtle nesting and protection, the grant provides funding to educate the public and enforcement about marine mammal and turtle interactions and current laws related to these interactions. Two portal camera units that are solar/battery-powered that feed into our existing network of cameras were purchased with monies from this grant. Both are in service and waiting for the coming turtle nesting season. These cameras will help track turtle movement, human interaction and monitor known nesting sites.

Gulf States Marine Fisheries Commission
Technical Coordinating Committee
Mississippi State Report (July 1, 2020 – Dec 31, 2020)

1. Emerging Issues Pertinent to Gulf of Mexico Fisheries

COVID-19

On May 7, 2020 $300 million of CARES Act funds were allocated to US fishery participants, of which Mississippi received $1,520,087. The Mississippi Department of Marine Resources (MDMR) developed a spend plan to distribute those funds to eligible commercial fishermen, charter fishermen and seafood dealer/processors in an equitable manner. Mississippi's spend plan was approved by NOAA on October 13, 2020.

The first application period for the CARES Act funding resulted in 237 participants applying, of which 211 were found eligible by MDMR. This first eligible group consisted of 164 commercial fishermen, 34 charter captains, and 13 dealers. Mississippi residents with the eligible in-state licenses self-certified over 35% lost revenue for the varying months identified in the spend plan, when compared to the same months in previous years.

Upon review, it was found that the remaining appeals applicants appeared to be primarily Mississippi residents that were licensed in fisheries out of state. As a result, an amendment was submitted to NOAA and approved on December 23, 2020 to include this group in Mississippi's spend plan. The application process reopened only for Mississippi residents licensed in fisheries out of state and ran from December 28, 2020 through January 5, 2021.

2. Activities Related to Artificial Reef Programs

The Artificial Reef Bureau (ARB) continued monthly monitoring of fish assemblages and physiochemical parameters at selected inshore reef sites. In conjunction with the Gulf States Marine Fisheries Commission (GSMFC), the third annual Jimmy Sanders' Memorial Lionfish Challenge began May 1, 2020 and will ran through December 1, 2020. Six participants harvested a total of 52 invasive lionfish.

In December 2020, ARB staff began deployments of materials donated by Ingall's Shipyard into FH-13. When completed, this project will contribute 4,455 tons of clean concrete material and 1,872 tons of steel H-beams to new artificial reef structures.

ARB staff obtained permit renewals for all inshore keys and Cat Island reef. Efforts to renew permits for all nearshore artificial reefs are ongoing.

3. Activities Associated with the Gulf of Mexico Crab Fisheries

No updates or regulatory changes to report.

4. Activities Related to Fisheries Dependent Sampling

MRIP

The Finfish Bureau (FB) continued to oversee the Marine Recreational Information Program (MRIP) in Mississippi. A total of 223 assignments and 1,244 surveys were completed July through December 2020 in Jackson, Harrison, and Hancock Counties.

Trip Tickets

FB collected commercial landings data from processors, dealers, and fishermen utilizing the Mississippi Trip Ticket program. This data allows management of the resource and effective monitoring of the quota on Red Drum, Spotted Seatrout, and Southern Flounder. From July through December 2020, there were 2,919 paper and electronic trip tickets submitted by 346 active commercial fishermen and 69 dealers participating in the trip ticket program. The number of commercial fishermen selling their catch using a Fresh Product Permit and participating in the trip ticket program was 83. The FB and the Shrimp and Crab Bureau (SCB) is continuing to work with BlueFin Data to develop the electronic trip ticket reporting application known as VESL. A beta version has been tested and staff is currently attempting to go live with the system by the next license year – May 2021. SCB is also working with BlueFin Data to develop an electronic monthly dealer ticket for the Mississippi Live Bait industry. The finalized form is expected to be completed concurrently with the electronic trip ticket and will be available to live bait dealers tentatively by summer 2021.

Age and Growth

The FB collected and processed 192 otoliths as part of the MDMR Biological Sampling Program from eight select species: Red Snapper, Sand Seatrout, Spotted Seatrout, Black Drum, Sheepshead, Striped Mullet, Atlantic Tripletail and Southern Flounder.

Tails 'n' Scales

Mississippi's recreational Red Snapper electronic reporting system, Tails n' Scales was updated for use in the 2020 season. Under amendment 50c passed by the Gulf of Mexico Fisheries Management Council, Mississippi managed the 2020 recreational Red Snapper season in state and federal waters. The state charter for-hire and private recreational components were managed together this year with a season opening date of May 22nd and closing date of July 5th with a one-day re-opening on September 5th. The federal for-hire season was 62 days, although vessels with federal reef fish permits were not included under amendment 50c. Mississippi's total annual quota for the 2020 season was 151,584 pounds for both the private

recreational and state charter for-hire components. The Tails n' Scales reporting system began offseason maintenance and updates for use in 2021.

5. Activities Related to Fisheries Independent Sampling

Finfish Sampling

Long-term fishery independent sampling continued in conjunction with the NOAA Project "Monitoring and Assessment of Mississippi's Interjurisdictional Marine Resources". The FB completed 56 gill nets at ten stations to collect finfish species for subsequent age-and-growth analysis as well as other biological data. A total of 280 otoliths were collected from July through December 2020 and samples were collected from seven different species: Red Snapper, Sand Seatrout, Spotted Seatrout, Southern Kingfish, Sheepshead, Black Drum, and Southern Flounder.

Through a project funded by the USFWS Sport Fish Restoration Program, the FB intended to deploy 11 additional satellite tags on Atlantic Tripletail in the fall of 2020 as continuation of the 2019 Atlantic Tripletail deployment dataset. Programmatic changes during the target tagging period resulted in only one tag deployment. The remaining 10 tags are scheduled for deployment on Atlantic Tripletail in 2021.

An extension of the acoustic telemetry work funded by the USFWS Sport Fish Restoration program resulted in additional acoustic receiver deployments in ten new locations in Mississippi state waters for interagency, cooperative tracking of multiple species. In September 2020, six Cobia were tagged using acoustic transmitters prior to the programmatic changes during the Fall tagging period. Additional acoustic transmitters are scheduled for deployment on Southern Flounder in 2021.

The Fyke Net sampling program, which is used to target Southern Flounder, resumed in May 2020. A total of 12 sampling events occurred from May – October. Reduced sampling efforts compared to previous years were primarily due to hurricanes and Covid-19 restrictions. Fyke nets were set and retrieved on a bi-weekly basis at the three sampling locations, Davis Bayou, Deer Island, and Belle Fontaine. Throughout the year, 30 Southern Flounder were collected. Other species observed in the fyke nets included Blue Crab, Red Drum, Atlantic Croaker, Hardhead Catfish, Atlantic Spadefish, Black Drum, Spot, Gray Snapper, Spotted Seatrout, Sheepshead, Striped Mullet, Atlantic Stingray, Pinfish, and Southern Kingfish.

The FB, in conjunction with the Gulf Coast Research Lab (GCRL), is currently in year five of sampling for the NFWF Reef Fish project. Due to impacts from COVID-19, both entities were forced to engage in limited sampling efforts throughout the timeframe.

Shrimp and Crab Sampling

The Shrimp and Crab Bureau (SCB) continued to conduct monthly fishery independent trawl sampling under the project "Monitoring and Assessment of Mississippi's Interjurisdictional Marine Resources". This sampling program includes 14 fixed stations located across the Mississippi Sound from Herron Bay east to Bernard Bayou using a 16' otter trawl with liner in the cod end. A total of 75 trawls were completed from July to December 2020.

The SCB continued fishery independent trap surveys for Blue Crabs within the three major bay systems – St. Louis Bay, Biloxi Bay, and the lower Pascagoula River. Each bay system was sampled monthly from July to December 2020 for a total of 18 sample sets. This program, which began in September 2014, provides data on CPUE, sex composition, abundance of Blue Crabs, and bycatch composition and 237 sample sets have been completed since the beginning of the project.

The SCB continued to conduct monthly fishery independent shrimp trawls to monitor seasonal abundance of penaeid shrimp within the Mississippi Sound. This sampling program includes 10 fixed stations located across the Mississippi Sound from the mouth of St. Louis Bay east to the Round Island using a standard 16' otter trawl. A total of 54 trawls were completed from July to December 2020.

Shellfish Sampling

The MDMR Shellfish Bureau (SB) conducts an extensive oyster reef assessment on all significant public oyster resources in state waters each year. This assessment includes one-minute dredge tows and diver square meter samples for analysis of oyster health, growth, productivity, abundance, and predatory behavior. This data is used for resource management and enhancement. From April to November 2020, the Shellfish Bureau conducted 67 dredge tows and 206 square meter samples at 164 sites.

6. Other State Activities

State Records for Recreational Fishing

A total of 13 recreational fishing records were approved as state records between July 1 and December 31, 2020. All tackle category records had six approved record submissions: Permit (spear), Red Grouper (spear), Spanish Hogfish (spear), Ocean Triggerfish (spear), Red Lionfish (spear), and Striped Mullet (gig). There were four Conventional Tackle records approved: Spot (twice), Silver Perch, and Atlantic Needlefish. There were also three Youth Records approved during the timeframe: Spotted Seatrout, Spot, and Atlantic Tripletail.

Commercial Shrimp Conversion Project

The SCB completed sampling and data analysis on the GSMFC funded project "MDMR/ GSMFC U.S. Gulf of Mexico Commercial Shrimp Conversion Factors Validation." The project was completed in collaboration with the four other Gulf states to validate industry-accepted historical conversion factors that are used by states to convert whole shrimp landings to headless (tail weight only) prior to reporting overall landings to National Marine Fisheries Service (NMFS). The project included dockside procurement of commercially harvested brown, white and pink shrimp from Mississippi shrimpers and lab processing of shrimp samples including head-on, head-off, and peeled, deveined weights, and standard length. SCB staff collected and processed 1,032 total shrimp – 520 brown shrimp, 505 white shrimp, and 7 pink shrimp. Sample collection and processing was completed in July 2020 and data compilation was completed in August 2020. MDMR data was combined with other states' data for final analysis.

Live Bait Shrimp Licensing and Special Permits

The SCB manages the live bait shrimp licensing program. Inspections and technical assistance were provided, as needed, to the 12 licensed dealers across Mississippi's three coastal counties. The SCB also manages the MDMR Special Permitting program which includes Scientific Research Permits, Brood Stock Permits, Non-profit Harvesters Permits, and Experimental Gear Permits. SCB staff issued 15 Special Permits from July to December 2020.

Skimmer TED reimbursement Program

MDMR Office of Marine Fisheries staff continued development of a program to reimburse shrimpers who purchase turtle excluder devices (TEDs) for their skimmer vessels. This project is intended to mitigate financial impacts to those vessels effected by the forthcoming TED rule change, which will require all skimmer vessels 40' in length or smaller to use TEDs in their nets beginning April 1, 2021.

Oyster Aquaculture

The Shellfish Bureau (SB) began training the third class of Off-Bottom Oyster Aquaculture Program (OBOA) in 2020. The Off-Bottom Oyster Aquaculture Program addresses all aspects of off-bottom oyster farming appropriate to the local and regional area in oyster aquaculture operations, including business development and aquaculture methodologies. Participants will be positioned to operate and maintain economically and environmentally sustainable off-bottom oyster farms in the state of Mississippi, increasing the quantity and value of Mississippi's annual oyster harvest. MDMR established a two-phase off-bottom oyster aquaculture program, as well as offered post-program business incubation services. Phase 1 of the program included classroom and field education on aquaculture, business operations and demonstrations of off-bottom aquaculture techniques. During this phase, participants received

the training and assistance needed to deploy and manage approximately 10,000 oysters with the use of MDMR rental equipment such as cages and bags as well as the MDMR small and large tube tumbler. During Phase 2 of the program, training participants opened their own off-bottom oyster aquaculture operations and continued training with instruction from the program to refine skills before beginning an individual operation.

The acreage of available off bottom leases has also increased from 2018 to 2021 in a total of three phases. Phase I included the ten-acre aquaculture training park and 75 acres available for commercial lease. In 2020, Phase II comprised of 135 additional acreage to the west of Phase I, providing commercial oyster farmers with a deep-water profile option as well as closer to the Biloxi Small Craft Harbor. In 2021, the final Phase III will be available to commercial farmers which opens an additional 245 acres. Phase III is located north of Phase I and II, giving farmers the opportunity to farm in more shallow waters closer to Deer Island. In 2021, there will be a total of 465 acres available for commercial farming. The continuation of MDMR Off Bottom Oyster Aquaculture Program will allow aquaculture staff to train more farmers and lease out all acreage in approximately five to ten years. MDMR currently has 51 acres leased by 24 farmers and upwards of 2.8 million oyster seed being cultured. Commercial operations harvested approximately 423,895 oysters in 2020.

Harmful Algal Bloom (HAB) Event

From July 13, 2020 to July 23, 2020, a harmful algal bloom (HAB) of *Alexandrium* spp., *Cochlodinium* spp., *Prorocentrum* spp., and *Nitzschia* spp. persisted on the south side of Deer Island in Approved Area 5C which encloses the state aquaculture park. Over the course of the bloom, a total of 22 whole water samples were collected to monitor the HAB activity. Both seawater samples and oyster meat samples were sent off for toxin analysis which included: saxitoxins, domic acid, okadaic acid and dinophysistoxins. The toxin results for the seawater samples and tissue samples were nondetectable above their respective method detection limits.

Shellfish Management

The Shellfish Bureau conducts the shellfish sanitation and compliance program in order to maintain oyster growing water classifications defined by the FDA. This monitoring program mitigates the risk to human health from consuming raw oysters contaminated by fecal coliforms. These bacteria indicate the possible presence of pathogenic bacteria, viruses, and protozoans found in human and animal wastes. In addition to maintaining oyster growing waters classifications, these samples are used to manage the openings and closings of oyster reefs for harvest. The samples are collected by boat, in sterile bottles, one-half meter below the surface on the windward side and transported to an FDA certified microbiology laboratory.

From July through December 2020, SB staff collected 381 routine water samples and 1 tissue sample from 62 sites across the Mississippi Sound.

Seafood Technology Bureau

The Seafood Technology Bureau (STB) conducted a total of 126 inspections (routine, follow-up, and certification inspections). A total of 59 sanitation and Hazard Analysis Critical Control Point (HACCP) deficiencies were cited. The required bi-annual water quality sampling for seafood processing facilities for September was completed with a total of 51 samples taken.

The STB staff conducted one foodborne illness investigation for an undetermined Vibrio spp. related to oyster consumption, the oysters were traced to a Louisiana harvest area. Staff conducted damage assessments of the industry for two storms, Cristobal and Zeta, the industry mostly sustained structural damage. All damaged facilities have since been able to reopen for business.

The STB originally planned to host five HACCP workshops and two Sanitation Control Procedures (SCP) workshops in 2020. Only one class was completed with 15 participants. Due to COVID-19 restrictions all remaining 2020 workshops were rescheduled for 2021.

Gulf States Marine Fisheries Commission
Technical Coordinating Committee
2021 Louisiana Spring State Report

Contents

Emerging Issues Pertinent to Gulf of Mexico Fisheries

COVID-19 / CARES Act

The World Health Organization (WHO) declared COVID-19 a pandemic on March 11, 2020. COVID-19 directly affected the United States (US) economy due to Stay at Home orders and the closing of all nonessential businesses. The US government acted quickly to assist the public when Congress passed the CARES Act and it was signed into law by President Trump n March 27,2020. The CARES Act was an over $2 trillion economic relief package that contained $300 million for the US Secretary of Commerce to provide to affected fishery participants. The Louisiana Department of Wildlife and Fisheries (LDWF) compiled a report showing losses in economic value by fishery and submitted to NOAA for approval. Louisiana is to receive a total of $14,785,244 in economic assistance for eligible fishery participants. The GSMFC will administer economic assistance to the eligible participants in LA through direct payments based on the approved LA Spending Plan.

LDWF developed an online application portal for its CARES ACT Program and contracted with South Central Planning and Development Commission (SPDC) for assistance with the application process. LDWF set its initial application period to open at 8am September 14th and set it to close on October 26th at 11:59 pm. During this time, 1335 application were received by LDWF. Due to the low turnout and a very active hurricane season, LDWF extended the application period until 11:59pm November 23rd. On November 14th, LDWF held an in person application event in Lake Charles to assist those in SW LA who were affected by Hurricanes Laura and Delta. Thirty four people showed up at the event and LDWF collected 21 applications. By the end of the application period on November 23rd, LDWF received 1695 applications. By December 31st, LDWF had approved 826 applications and had submitted 758 to GSMFC for payment.

Oyster Lease Moratorium

The Louisiana Wildlife and Fisheries Commission (LWFC) has approved a notice of intent for lifting the oyster lease moratorium. This public comment period has passed and the new regulations have been ratified. Currently, LDWF is coordinating with the Office of State Lands (OSL) and the Coastal Protection and Restoration Authority (CPRA) to work through Phase 0 oyster lease applications which is expected to conclude in the third quarter of 2021.

Activities Related to Artificial Reef Programs

Offshore

LDWF's Artificial Reef Program continues to assess and permit reef deployments related to offshore oil and gas structures. The Program has accepted one new structure. There are 43 structures permitted for deployment as permanent artificial reefs, and one new reef site has been recently proposed. Permitting of an additional 8 structures is currently underway. The Program also has a permit to reef a vessel in its Main Pass 300 Reef.

Multi-beam surveying of the Program's offshore reefs is ongoing (annually) and is available on the Program's website. The Program has completed two pilot projects using remotely-operated

vehicle (ROV) surveys to sample offshore reefs and is developing plans to create a comprehensive biological monitoring Program for these reefs.

Inshore
LDWF's Artificial Reef Program built no new inshore artificial reefs, however the Program continues to hold a permit to enhance the Independence Island artificial reef site with 15,000 tons of material through NRDA Recreational Use Restoration funding. The project went out to bid and has been awarded.

Nearshore
LDWF's Artificial Reef Program enhanced the Grand Isle 9 reef (also known as the Sulphur Mine). The reef site was enhanced using four hundred and fifty (450) concrete "boxes" that were six feet tall and six feet wide. This reef was completed with NRDA Recreational Use funds. Ship Shoal 26 (the Pickets) reef site using 8,000 tons of limestone. The Grand Isle 9 reef is permitted and under contract. Ship Shoal 26 and Grand Isle 9 will be completed using Recreational Use Restoration funding. The Program has finalized the acceptance of four new nearshore reefs: The Ship Shoal 94 and 108 and Vermilion 119 and 124 reefs were deployed with funding from the Artificial Reef Fund. Vermilion 119 and 124 were done in partnership with Coastal Conservation Association of Louisiana (CCA). The Program reached an agreement with CCA to enhance one existing reef and create two new reefs.

Monitoring
Through funds provided by the Louisiana Restoration Area Trustee Implementation Group, LDWF continued the monitoring of all completed inshore and nearshore artificial reef enhancement sites. This is part of a 5-year plan to assess the success of artificial reefs enhanced in an effort to mitigate for recreational use opportunities lost during the Deepwater Horizon Oil Spill. Monitoring efforts include the study of the aquatic organisms utilizing the reef enhancement sites via the use of gillnetting, rod and reel sampling, and benthic tray observations, as well as observations of recreational users. Together, those efforts are intended to provide insight into the overall biological health of the reef enhancement sites as well as insight into whether those sites are providing enhanced recreational opportunities to the public.

Activities Associated with the Gulf of Mexico Crab Fisheries

Policy and Regulations

The most recent (2019) Louisiana blue crab stock assessment indicated that the Louisiana blue crab stock was not identified as overfished nor experiencing overfishing. Due to the improvement in stock status, no additional regulations were implemented during the 2020 harvest year.

Derelict Crab Trap Program

The Louisiana Wildlife and Fisheries Commission (LWFC) adopted a Notice of Intent in August 2020 to establish four defined derelict crab trap cleanup areas during the 2021 harvest season. Within the four areas, the use of crab traps would be prohibited during the 14-day cleanup, or closure, period. These closure areas are to be held within the Pontchartrain Basin (x2), Terrebonne Basin, and Vermilion-Tech Basin. A scheduled volunteer event was planned to take place on the first Saturday of the Terrebonne Basin closure.

The Department has contracted the Pontchartrain Conservancy to assist in soliciting the Louisiana blue crab industry for specific input towards improving the current derelict crab trap program and developing options that may be used as an alternative towards the current program. The focus within this is to develop a program that incentivizes the commercial blue crab industry to participate in removal of derelict crab traps, to increase the number of derelict or abandoned crab traps removed from state waters, and to reduce the overall cost of the current program. These program goals would reduce competition from traps that are not actively fished, or "ghost fishing", increase the resilience of the blue crab population by allowing more escapement for spawning, and assist the industry with sustainability by reducing bycatch. A formal report with program alternatives is to be completed by December 31, 2020 and submitted to the Department for review, editing, and approval.

Sustainability

The fourth surveillance audit and reassessment of the Louisiana blue crab commercial trap fishery against the Audubon Nature Institute's Gulf United for Lasting Fisheries Responsible Fisheries Management (Gulf-RFM) Standard v1.2 was scheduled to take place during the fall of 2020. This audit and reassessment was granted a 6-month extension in order to increase the Fiscal Year (FY) budget for the Crab Promotion and Marketing fund, which is used by the Louisiana Crab Task Force to promote and support their fishery. The request to increase the FY21 budget came in response to the crab task force voting in favor to fund the Gulf-RFM fourth audit and reassessment in fall of 2020. The extension allowed for the Louisiana Legislation to grant the budget increase. The audit and reassessment is scheduled for spring 2021.

Stock Assessments

No formal stock assessment was completed for the Louisiana blue crab stock in 2020. Blue crab indices of abundance and model estimates were developed to assist with the two sustainability certification audits. Indices for adult and juvenile blue crab decreased slightly, while young of the year saw an increase. Model estimates indicated that the Louisiana blue crab is not overfished or experiencing overfishing.

Landings

All landings data presented in this section are preliminary and subject to change.

Blue crab landings from July – December in 2020 totaled 17.3 million pounds with a dockside value of approximately $24.4 million. Landings from this period in 2020 showed a decrease of nearly 31 percent when compared to the five-year average (2019-2015), while the dockside value decreased by 15 percent. Although landings show a significant decline when compared to the 5-year average, the average price per pound during this period was $1.41, or 19 percent, higher than the 5-year average. Overall 2020 landings for November and December are still incomplete and the reduction in landings and dockside value may be reduced once data has been compiled.

While COVID-19 negatively impacted all Louisiana commercial fisheries, the price for blue crab increased during 2020. The annual dockside value for the blue crab fishery in 2020 was nearly $55.7 million, with landings of 33.2 million pounds. While landings show an annual reduction of approximately 22 percent compared to the 5-year average, the annual dockside value in 2020 was less than 2 percent below the 5-year average. Average price per pound during 2020 was $1.68, which is 20 percent above the 5-year average.

Activities Related to Fisheries Dependent Data Collection

LA Creel

Through the LA Creel program, 6,404 recreational fishing trips, comprised of 16,689 individual anglers, were surveyed during 2020 Sample Weeks 27 – 52 (June 29, 2020 – January 3, 2021). Fifty-three different interviewers completed 738 of the 837 assignments as drawn during the sample period. The difference between the number of assignments worked and the number drawn is due in large part to Hurricane Laura which closed our Lake Charles office for several weeks and kept the majority of their LA Creel sample sites closed for even longer.

Fish kept by anglers and allowed to be viewed by interviewers are referred to as observation Type 1 fish. Fish in possession of the angler at the time of survey but not seen by the interviewer are classified as observation Type 2 fish. For the sample period as above, there were 46,639 Type 1's and 17,546 Type 2's, which equates to 73 percent of all fish in possession of the angler at the time of survey were identified and counted by staff. Type 1 fish numbers rebounded in the second half of 2020 after accounting for only 52 percent during the first half of the year due to COVID-19 restrictions.

Eighty-eight species were represented among Type 1 fish, including some shellfish. Spotted Seatrout was the most commonly counted species with 24,736. Red Drum was second with 6,223 counted and Sheepshead was the third most common with 3,454 counted.

Certain species returned to the water or caught and used for bait are also recorded. Those species are:

1. Black Drum
2. Gray Snapper

3. Gray Triggerfish
4. Greater Amberjack
5. King Mackerel
6. Largemouth Bass
7. Red Drum
8. Red Snapper
9. Sheepshead
10. Southern Flounder
11. Spanish Mackerel
12. Spotted Seatrout

Fish thrown back because they were under the legal minimum length are coded as Type 3. Fish caught and used as bait during the trip are coded as Type 4. Fish thrown back or given away prior to interview for any reason not covered by codes 3 and 4, such as too big, not wanted, etc., are coded as Type 5. Discard data is collected as per the Department's contract with GSMFC.

During the same time period as provided above, staff recorded 45,112 Type 3's, 0 Type 4's, and 5,628 Type 5's.

To generate harvest estimates, angler effort must be determined. LA Creel uses two separate surveys for the purposes of determining angler effort. One survey targets charter captains in which ten percent of the approximately 1,000 charter license holders and thirty percent of the approximately 140 charter license holders who also have a Recreational Offshore Landing Permit (ROLP) are drawn at random each sample week. The ROLP is a free permit that is required to possess tunas, billfish, swordfish, amberjacks, groupers, snappers, hinds, cobia, wahoo, and dolphinfish in Louisiana waters. The purpose of the ROLP is to increase the chances of drawing anglers who fish offshore for effort surveys. During a Red Snapper season (federal and/or state), one hundred percent of ROLP holding charter captains are drawn. Department staff attempt to contact drawn captains to ask about the number of charter trips taken during the sample week, how many paying customers where on each trip, and in what basin the trip occurred.

During 2020 Sample Weeks 1 – 26, a total of 3,323 captains were drawn, with replacement. Of those, a total of 2,235 captains (67%) completed the survey.

The other effort survey pertains to private anglers exclusively. Each sample week, not including weeks that fall within Red Snapper seasons, a total of 1,600 Louisiana recreational saltwater fishing license holders are drawn at random for participation in the effort survey. Twelve hundred of the 1,600 are derived by drawing 300 licensed anglers from each of the four regions La Creel uses to generate landings estimates. A separate random selection of 400 is made from ROLP holders. During Red Snapper seasons the number of private ROLP anglers drawn for the effort survey increases from 400 to 800. A service contracted by the Department is tasked with

contacting drawn license holders to ask questions, such as basin fished in, number of trips taken, about any saltwater fishing trips they may have taken during the sample week.

During 2020 Sample Weeks 27 – 52, a total of 46,800 Louisiana recreational saltwater fishing license holders were drawn, with replacement. Of those, a total of 23,607 (50%) completed the survey. The estimated number of saltwater fishing trips taken during the time period was 1.2 million.

The iPad application used for data entry of dockside surveys was to undergo a rebuild in the spring of 2019, but was pushed back to the spring of 2020. The contractor hired to perform the rebuild finished their work as scheduled and the rebuild was released to field staff in the fall of 2020. However, there were several issues that affected performance and reliability. Although the app remains on field iPads, a new contract is being developed for a vendor to provide ongoing maintenance support so faults can be corrected and improvements made as needed. There is no timeline for contract execution.

Age and Growth

Since the new BIOFIN agreement covers recreational species only, LDWF's Age and Growth Lab in Baton Rouge relies on the National Oceanic and Atmospheric Administration's (NOAA) TIP sampling for commercial otoliths. The lab has processed recreational, commercial and independent otoliths during 2020. From July 1, 2020 through December 31, 2020, the lab has received 3,361 recreational marine fisheries otoliths and aged 2,305 of these otoliths. All otolith collection and ageing data has been transferred to GSMFC through the month of July. Staff are currently completing October-December otolith processing. The Age & Growth lab lost two biologists and one manager in 2020 which caused delays in processing and aging.

Otolith totals are as follows:

- Black Drum – 140
- Cobia – 2
- Gray Snapper – 94
- Greater Amberjack – 28
- Gray Triggerfish – 2
- King Mackerel – 0
- Red Drum – 795
- Red Snapper – 335
- Sheepshead – 273
- Southern Flounder – 151
- Spotted Seatrout – 1,560
- Striped Mullet – 0
- Tripletail - 18

- Vermilion Snapper – 9

Commercial Shrimp, Oyster, and Crab Seasons and Landings

Shrimp

The spring inshore shrimp season closed in portions of state inshore waters from the Mississippi/Louisiana state line westward to the eastern shore of South Pass of the Mississippi River on July 1, 2020 except for the following waters, the Louisiana portion of the Mississippi Sound and the open waters of Breton and Chandeleur Sounds. The remaining inshore state waters closed on July 6, 2020.

The fall inshore shrimp season was set by the LWFC and was to open statewide on August 10, 2020 except for the following areas: The Biloxi Marsh and the Mermentau River, which would open on August 24, 2020. After further independent sample data indicated that a large number of small white shrimp were present within the two closed areas, the LDWF Secretary, through authority designated by the LWFC, delayed opening these areas until September 11, 2020.

Shrimp landings (all species combined and heads on unless specified otherwise) between July – December 2020 totaled approximately 42.2 million pounds with a dockside value of $61.7 million. The 2020 shrimp landings during this period decreased by nearly 23 percent compared to the 5-year average, while the dockside value decreased by 24 percent. While overall numbers in 2020 were low compared to the five-year average, the shrimp average price per pound in this period was only 2 percent above the five-year average. Louisiana brown shrimp landings during the time period mentioned above in 2020 were above the 5-year average by approximately 4 percent; the dockside value of brown shrimp was 5 percent higher. The average price per pound for brown shrimp during this period was only $0.01 below the 5-year average. Brown shrimp annual landings in 2020 were the lowest on record since 2000 (when trip tickets became available). In a more recent comparison, brown shrimp landings were nearly 5 million pounds below 2019, the historic flood year, and 13 million pounds below the 5-year average, which includes low landings in 2019. Since 2000, only three years have had landings that were below 20 million pounds: 2010 (oil spill), 2019 (flooding), and 2020 (COVID). Similar to landings, the annual dockside value of brown shrimp was 35% below the 5-year average. Average annual price per pound in 2020 was higher than the previous 5 years.

White shrimp landings in 2020 also showed a fairly large reduction in landings from July – December in 2020. Landings from this period were 36.2 million pounds with a dockside value of $53.5 million. The 5-year average dockside landings for this period is 48.5 million pounds with a dockside value of $73.5 million; this is 25 percent higher than landings in 2020 and 27 percent higher than the 2020 dockside value. Average price per pound during this period was also below the 5-year average. Annual white shrimp landings in 2020 were 48.4 million pounds with a dockside value of $72.6 million, while the 5-year average is 65.2 million pounds and $102.1 million. This is a 26 percent decrease in annual landings and a drop in annual dockside

value of 29 percent. The average annual price per pound in 2020 was $0.06 below the 5-year average.

Blue Crab

Described in the Activities Associated with the Gulf of Mexico Crab Fisheries section above.

Oyster

The table below summarizes the 2020-2021 Louisiana public oyster ground season through December 2020. This year, the goal was to reduce harvest stress on the resource, allowing for a recovery after the 2019 flooding event and associated mortalities, while continuing to use thresholds from the shell budget model.

2020-2021 LDWF Oyster Season Summary (through Dec 28, 2020)						
CSA	**Area**	**Season Opening**	**Season Closure**	**Season/type**	**Days open**	**Harvest ***
1	**POSG East of Mississippi river and North of MRGO**	Closed				
	POSG East of Mississippi river and South of MRGO	Closed				
3	**Hackberry Bay**	16-Nov	16-Nov	Seed Harvest	1	525 barrels
		17-Nov	23-Nov	Sack Harvest	5	100 sack
	Little Lake, Barataria Bay	Closed				
5	**Deep Lake, Lake Chien, Lake Felicity and Lake Tambour**	Closed				
	Sister Lake, Lake Mechant	Closed				
	Bay Junop	16-Nov	16-Nov	Seed Harvest	1	4 barrels
		17-Nov	23-Nov	Sack Harvest	5	0
6	**Vermilion Bay**	Closed				
7	**Calcasieu Lake**	30-Oct	TBD	East Cove: Sack Harvest	42	0
		30-Oct	TBD	West Cove: Sack Harvest	42	0

*Harvest numbers are reported through LDWF surveys conducted during oyster fishing activities. Seed harvest reported in barrels, while market-sized oysters are reported in sacks. 1 barrel equals 2 sack of oysters.

Activities Related to Fisheries Independent Sampling

Stock Assessments

LDWF completed an update stock assessment of Striped Mullet in November of 2020 that will be presented to the LFWC for transmittal to the Louisiana Legislature in February 2021. This assessment uses a statistical catch-at-age model to estimate annual time-series of spawning stock biomass and fishing mortality rates. Time-series of fishery catches-at-age along with a relative abundance index developed from the LDWF fishery independent marine experimental gillnet survey are the primary model inputs. Based on results of this assessment, the Striped Mullet stock is currently not overfished or undergoing overfishing. LDWF began a stock assessment of Red Drum in late 2020 that will be completed in 2021.

Fisheries Research Lab

LDWF's Fisheries Research Lab in Grand Isle is the base for the state's offshore fisheries independent monitoring and research projects. The lab also serves as a point of contact for the public, visiting researchers, and educational programs. Some current activities at the lab are summarized below:

Southeast Area Monitoring and Assessment Program (SEAMAP)

LDWF typically participates in three SEAMAP surveys: Shrimp/Groundfish, Vertical Line, and Bottom Longline during the January through June time period. Due to the Covid-19 pandemic, the Fall Shrimp/Groundfish survey was completed over five days with a reduced crew to allow for social distancing. Environmental and biological data were collected at 23 stations during the survey period. Vertical Line and Bottom Longline were conducted but at a very reduced rate. On these surveys, teams of three to nine fisheries biologists collect, process, and enter both catch data and environmental parameters, including a water column profile. These surveys are conducted from April through October with data management and reporting completed during the winter. During the reporting period, sampling and reporting were completed for 17 bottom longline and 22 vertical line stations. LDWF representatives participated in the Spring GSMFC meeting.

Twenty-five sets were completed by the LDWF bottom longline survey in Louisiana's territorial waters. Longline efforts resulted in four hundred and sixty-eight captures. Elasmobranchs composed 58.3 percent of the catch, teleosts composed 41.5 percent, and sea turtles composed the remaining 0.2 percent. The most frequently captured shark was the Blacktip Shark, comprising 72.4 percent of the total shark captures, followed by the Bull Shark (8.5 percent), and the Finetooth Shark (7.3 percent). The most frequently captured teleost was the Gafftopsail Catfish, comprising 76.3 percent of the teleost captures, followed by the Red Drum (16.5 percent). One-hundred-and-fifty-nine sharks were tagged with metal tags.

Black Drum Life History Study

In January 2021, the Fisheries Research Lab sampled 20 Black Drum ovaries from a total of 57 fish on bottom longline. In the spring of 2020, 210 ovary samples were histologically processed and analyzed, but the project was cut short by the pandemic and not enough data was collected to estimate spawning fraction and frequency. None of the 210 ovary samples yielded fecundity estimates. When combined with future samples, this data will determine if spawning stock biomass is an appropriate proxy for total egg production and will further inform managers for establishing regulations.

Sheepshead Life History Study

In February and March 2020, LDWF biologists sampled 84 Sheepshead ovaries. All 84 have been histologically processed and analyzed. However, the project was cut short due to the pandemic and not enough data was collected to estimate spawning fraction and frequency. There were four fecundity estimates that came from the 84 ovarian samples. When coupled with future samples, this data will determine if spawning stock biomass is an appropriate proxy for total egg production and will further inform managers for establishing regulations.

Offshore Red Drum Age Structure

During the 2018, 2019, and 2020 SEAMAP bottom longline survey, LDWF collected otoliths from 160, 269, and 30 Red Drum, respectively. The low sample size in 2020 was due to the pandemic precautions taken and sampling trips eliminated. Though the majority of those landings occurred outside of the spawning season during spring sampling, 64 gonads were collected from female Red Drum closer to the spawning season during summer and fall bottom longline sampling. Ages for Red Drum collected offshore ranged from 4 to 39 years. These data have been incorporated into a Louisiana stock assessment.

Southern Flounder Experimental Gear/Fyke Net Pilot Survey

Southern Flounder adults are not well represented in the current LDWF independent sampling. Gillnet and trammel net surveys have been sampling very low numbers of Southern Flounder and the trawl surveys have mainly caught juveniles. Because of this data gap, a new gear is currently being tested to potentially establish a new fisheries independent survey. A fyke net with two 8 foot (2.5m) wings and a 100 foot (30.5m) lead net with 1.5 inch (3.81cm) bar mesh is set perpendicular to the shoreline in order to capture flounder traveling parallel to the shore. Each site is randomly chosen from a group of pass/channel and marsh (backside of the barrier islands) sites. The start of the project was delayed to mid-November of 2020 due to a delay in Section 7 gear approval, but sampling began in November 2020 and continued through December 2020 and January of 2021. The gear testing was not very successful with only three Southern Flounder captured with the fyke net at a Grand Terre pass/channel site. This resulted in the reevaluation of the survey design. Initially the nets were to be soaked for a maximum of 24 hours with a check at the first 2 and 4 hours after the set. However, no flounder were caught during any of those soak durations. In late December it was decided to test a soak time of 48

hours which resulted in three Southern Flounder caught in the first attempt. Given these results, in January the soak times were expanded to 72 hours with a check at 24 and 48 hours. Despite weather making this problematic, 72 hour soaks were completed for multiple sites, but it was during neap tide which may have had an effect on flounder movement. The eastern barrier island sites were also problematic due to their remote locations which made them very time consuming and difficult to access. It was decided to replace the eastern Barataria Bay barrier island sites with more sites on the western barrier islands (Elmer's, Grand Isle, and Grand Terre Islands). We have learned quite a bit from our initial attempts to utilize this experimental gear and will continue to tweak the survey design to improve our sampling numbers next Fall during the Southern Flounder migration offshore.

Artificial Reef Monitoring for Sportfish

In order to enhance the monitoring of sportfish species on artificial reef structures, LDWF biologists from the Grand Isle Fisheries Research Lab are using a combination of vertical line sampling, video sampling, and diver surveys. Approximately ten percent of the artificial reef structures in the LDWF Offshore Artificial Reef Program were randomly selected and assigned to the 2020 vertical line survey. Due to an active tropical storm season and COVID-19 restrictions, vertical line sampling was limited to three sampling days within the reporting period. A total of 11 artificial reef structures were sampled using both hooked vertical line and camera gear, with 24 of 31 video surveys meeting visibility requirements for further analysis. Vertical line catch data was entered into the database and video analysis is pending.

Additionally, LDWF included a roving diver survey component into the LDWF artificial reef monitoring effort. While LDWF has previously conducted dive surveys at standing platforms, no dive surveys had been conducted at artificial reef sites prior to 2018. Biologists surveyed finfish species at the artificial reef site and the nearest standing platform. During this reporting period sampling opportunities were limited due to COVID-19 restrictions as well as the many tropical systems that impacted the area. No dive surveys were able to be accomplished during the timeframe. All data and video review were already completed for previous surveys. Thus far, in total 50 species from 33 genera have been identified and recorded. Planning has begun for 2021 sampling.

Shrimp Sampling

LDWF conducts fisheries independent sampling for shrimp year-round statewide using three trawl sizes: 6-foot, 16-foot, and 20-foot. The 6-foot trawl samples gather data in the interior marshes of Louisiana and are used to set the opening and closing dates for the spring inshore shrimp season. These samples are typically taken throughout April and again at the end of June and beginning of July, depending on environmental conditions. From July – December 2020, a total of 6 6-foot trawl samples were conducted. These samples were collected as a component of a monitoring agreement with another state agency and not for monitoring resource for a closure; the closure date had been determined using previously collected data. In 2020, a total of 305 6-foot trawl samples were conducted statewide.

The 16-foot trawl sampling data are used to constantly monitor the state shrimp resource, along with other species of interest, and set the opening date for the fall inshore shrimp season. During July – December 2020, a total of 813 16-foot trawl samples were conducted. These data were used to open state inshore waters for the 2020 fall inshore shrimp season, as well as, monitor statewide resources monthly. A total of 1,718 16-foot trawl samples were conducted statewide in 2020.

The 20-foot trawl sampling data are used to monitor shrimp resources in state offshore waters. A total of 114 20-foot trawl samples were conducted during July - December 2020. Data collected in the 20-foot trawl samples were used to open the portions of state offshore waters described earlier. These samples are primarily taken during the winter and spring months. There was a total of 303 20-foot trawl samples conducted statewide in 2020.

Crab Sampling

Fisheries independent sampling data for blue crab is collected with 16-foot trawls. These data are used to calculate juvenile and adult blue crab indices of abundance for the blue crab stock assessment.

Oyster Sampling

LDWF conducts fisheries independent sampling for oysters year-round, statewide, using two gear types (24-inch hand dredge and square-meter frame: m2) within the public oyster areas, and analyzes the data collected to determine overall health of the oyster resource throughout the year. Dredge sampling occurred monthly throughout the year, except the month of July, on 74 sampling stations located within the public oyster areas from the Louisiana/Mississippi state line to the western shore of Calcasieu Lake. In addition, six dredge stations in Sabine Lake were sampled quarterly during the reporting period. Two replicates were taken per station to monitor size frequency, presence and/or absence of resource, and mortality. A total of 821 dredge samples were collected between July 1 and December 31, 2020.

Sampling for the 2020 public oyster ground stock assessment was completed in July. LDWF biologists performed quantitative evaluations using SCUBA equipment to collect oyster samples from within a square-meter frame as part of regular stock assessment sampling. At each station, five replicate square-meter samples were collected and data were combined to produce average density of spat, seed, and sack oysters per meter. Oyster density was multiplied by the associated reef acreage to obtain an estimate of total oyster population size. Ninety-eight square-meter sites were sampling resulting in a total of 490 samples being collected. The 2020 oyster stock assessment showed approximately 362,783 barrels of oysters were present, representing an increase of 45 percent over the 2019 assessment, which was the lowest on record. This increase is attributed mainly to the rebound of market sized oysters in Calcasieu Lake which increased 145 percent from 2019 assessment. Calcasieu seed and market-sized oysters accounted for 80 percent of 2020 estimated stock availability. The estimated oyster stock in CSA 1 North and CSA 1 South (all public oyster water bottoms east of the

Mississippi River) decreased 7 percent compared to 2019 and is at an all-time low estimated at approximately 10,400 barrels of oysters (bbls).

Sabine Lake is closed to oyster harvest due to Act 159 (RS2018). Dredge sampling is conducted quarterly and square-meter sampling is conducted every other year, with the next sampling scheduled for July 2021. Additional sampling may occur as needed to monitor for possible mortality events.

Additional square-meter sampling was conducted in the Lake Pontchartrain and Barataria Basins in September/October 2020 as provided for under an agreement with the Louisiana Coastal Protection and Restoration Authority (CPRA). In the Barataria Basin, additional sampling was conducted on private oyster leases per the CPRA agreement to better characterize the basin.

LDWF uses oyster stock assessment information to make recommendations regarding setting oyster seasons to the Louisiana Wildlife and Fisheries Commission. Seasons can open as early as mid-September and can run through the end of April of the following year. Seasons may be closed or delayed if biological concerns or enforcement problems are encountered.

Finfish Sampling

LDWF conducts biological monitoring for finfish statewide in the coastal, nearshore, and offshore areas of Louisiana. During fiscal year 2019-20, the fisheries independent finfish sampling program collected 953 gillnet samples, 1,271 seine samples, and 271 trammel net samples for a 99.3 percent overall completion rate statewide. Electro-fishing samples (159 total) are being conducted within some Louisiana estuarine environments to provide fisheries data to CPRA.

Other State Activities

Finfish Seasons and Regulations

Louisiana waters opened to the commercial harvest of King Mackerel on July 1, 2020, concurrent with an opening in federal waters.

Louisiana waters reopened to the commercial harvest of Blacktip and small coastal sharks on July 1, 2020 after a seasonal closure from April 1, 2020 through June 30, 2020.

Louisiana waters reopened to the recreational harvest of Greater Amberjack on August 1, 2020 through October 31, 2020 after a seasonal closure from June 1, 2020 through July 31, 2020.

Louisiana waters reopened to the commercial harvest of Gray Triggerfish on August 1, 2020 after a seasonal closure from June 1, 2020 through July 31, 2020.

Louisiana waters opened to the commercial harvest of Florida Pompano with strike nets from

August 1, 2020 through October 31, 2020.

Louisiana and federal waters closed to the recreational harvest of Red Snapper on August 13, 2020 and reopened for the Labor Day weekend from September 4, 2020 through September 7, 2020.

Louisiana waters reopened to the recreational harvest of Gray Triggerfish from September 1, 2020 through October 26, 2020.

A final rule to adjust the minimum length limit of recreationally and commercially harvested Cobia in Louisiana waters from 33 to 36 inches fork length published on October 20, 2020.

A final rule to modify the commercial trip limit of Greater Amberjack harvested in Louisiana waters from 1,500 to 1,000 pounds gutted weight with an allowance for the Secretary of the Department to adjust commercial trip limits if so notified by the Regional Administrator of NOAA Fisheries published on October 20, 2020.

Louisiana waters opened to the commercial harvest of Striped Mullet with strike nets on October 19, 2020.

Louisiana waters closed to the commercial harvest of Gulf Menhaden for reduction on November 1, 2020.

Louisiana waters opened to the harvest of bait Gulf Menhaden on November 2, 2020 and closed on December 1, 2020.

Louisiana waters closed to the recreational harvest of Gag on December 31, 2020.

Louisiana waters closed to the commercial harvest of Spotted Seatrout on December 31, 2020.

Marine Mammal and Sea Turtle Monitoring

The marine mammal stranding program and the sea turtle stranding program are administered and coordinated directly by NOAA in Louisiana.

Michael C. Voisin Oyster Hatchery

The Michael C. Voisin Oyster Hatchery located on Grand Isle, Louisiana, is operated through a collaborative effort between LDWF and Louisiana Sea Grant (LSG). LSG assists with facility operations, provides technical guidance, manages the LSG Breeding Program, and supports the oyster industry through extension, outreach, and research projects. LDWF focuses on the production of diploid and triploid seed and larvae for state restoration projects, as well as commercial sales to support the industry.

Fall 2020 Season

The Fall 2020 hatchery production focused on producing diploid pediveligers and seed for LDWF sales. By July 2020, approximately 17 million diploid pediveligers were set on microcultch to produce diploid seed for sales. Since July 1st 2020, 1,090,338 diploid seed was sold to oyster farmers for LDWF sales.

Due to staffing shortages with COVID-19 restrictions the hatchery could not run at full capacity for most of the season. Therefore, less larvae were produced for sales and restoration. There was also an unknown issue with the tetraploids and egg/water quality that prevented the hatchery from supplying triploid pediveligers larvae. On top of these restrictions and limitations, the Michael C. Voisin Oyster Hatchery had six hurricane/storm evacuations. Grand Isle was evacuated for the following storms: Cristobal, Marco and Laura (back-to-back), Sally, Beta, Delta, and Zeta. During these storms, 23.8 million diploid eggs, 9.56 million d-stage larvae, and approximately 18 million veliger larvae were lost from these evacuations.

In addition to oyster larvae, the Michael C. Voisin Oyster Hatchery also produces all of its own marine microalgae to feed to the oyster larvae. In the Fall 2020 season, the microalgae began experiencing water quality issues. Different culprits were looked into such as: water quality (i.e. vibrio, bacteria, toxins, and heavy metals), filtration issues, and contamination. It was also determined that our LED lighting may not be optimal for the growth of our marine microalgae. Another lighting solution was researched and is set to begin a small trial in the beginning of the 2021 season. In conjunction, we could not pin point the water quality issue in the bags. Methods to further test water quality contaminants in house are being researched and will be implemented in the 2021 season. As mentioned with the larvae, there were six storm evacuations and this led to high mortality of algae bags throughout the fall 2020 season. Algae production continued in the Stock Room and Algal Production Room (APR) throughout the fall and early winter using Standard Operating Procedures (SOPs) until it was shut down in late November to begin off-season maintenance.

Spat on Shell Projects

The Louisiana Department of Wildlife and Fisheries Michael C. Voisin Oyster Hatchery produces diploid oyster larvae for setting on shell, which is then referred to as spat-on-shell and is used for State oyster restoration projects. To prepare for setting on shell, mesh bags that are three feet long are filled with recycled oyster shell and are called shellbags. Recycled shell is obtained through a collaboration with the Coalition to Restore Coastal Louisiana's Oyster Shell Recycling Program.

Due to COVID-19 restrictions, no spat-on-shell restoration was performed during the Fall 2020 season. In October of 2020, a remote setting video demonstration was filmed by Louisiana SeaGrant in conjunction with Louisiana Fisheries Forward to provide a remote setting workshop while maintaining COVID-19 distance requirements. This video features the LSG Hatchery Director Dr. Brian Callam and Emily Baukema, a Biologist III and Spat-On-Shell Coordinator with

LDWF. The video goes over how to prepare shellbags/setting material, set-up setting tanks, and setting larvae in these tanks for restoration purposes. Three in person demonstrations were planned for the Fall season but due to the COVID-19 restrictions, the video was produced instead to encourage spat-on-shell restoration for oyster farmers and anyone with means to do so. The video is still going through the final stages of editing before being released to the public.

Boating and Non-Boating Access Projects

LDWF has several new and ongoing boating and fishing access projects, which are funded through the Sport Fish Restoration Program and administered by local entities. LDWF accepts project proposals on an annual basis and evaluates them based on ranking criteria and available funding. Current projects include:

- Port Sulphur Civic Drive Fishing Pier – construction completed
- St. Tammany Fishing Pier – construction contract has been awarded
- New Iberia Boat Slips Boating Infrastructure Grant Program – construction contract has been awarded
- City of New Iberia CVA Sanitation Facility – design phase
- Indian Creek Recreation Area Fishing Pier – construction phase
- City of New Iberia Civic Center Marina Phase I – design phase
- Marina Del Ray Renovations – permitting phase
- City of New Iberia Civic Center Marina Phase II – permitting phase
- Town of Leonville Boat Launch Improvements – design phase
- Town of Madisonville Boat Launch Improvements – construction contract awarded

Additional boating and fishing access projects were recently approved by the Louisiana Trustee Implementation Group for funding from the *Deepwater Horizon* oil spill and are currently being designed and implemented.

Seafood Industry Professionalism

LDWF seeks to give the state's seafood industry access and training to the latest trends, requirements, and technology in their profession, as expert training will yield higher quality products and give the seafood community a competitive advantage in the marketplace. Since the launch of Louisiana Fisheries Forward: Advancing Our Seafood Industry, this one-of-a-kind professionalism program for Louisiana's commercial fishing industry has received inquiry, acknowledgement, and recognition throughout many facets of local, regional, national and global fishing industries.

The Louisiana Fisheries Forward (LFF) contract was extended for one year beginning January 2020. During this contract period an educational oyster remote setting whiteboard video was created along with a corresponding fact sheet. Additionally, during the second half of 2020 fact sheets were developed on maintaining the quality of catfish after the catch, characterizing the black drum fishery, and the proper handling of harvested alligators. A report characterizing the

graying of the Louisiana commercial fishing fleet was completed and uploaded to the LFF website as well.

In the 3rd and 4th quarters of 2020 the Louisiana Fisheries Forward team continued to develop COVID-19 related materials. These informational materials focused on safety guidelines for commercial fishermen as well as seafood processors during the pandemic.

Aquatic Plant Control

Invasive aquatic vegetation continues to threaten access and recreational activities throughout Louisiana. Fall surveys conducted from October-November 2020 revealed an estimated 248,211 acres of nuisance aquatic plant coverage, mostly composed of water hyacinth (61,703 acres) and giant salvinia (49,803 acres). Fall surveys are conducted at the end of the growing season and usually reflect slightly higher coverage than spring surveys conducted at the beginning of the growing season. From July 1, 2020 through December 31, 2020, LDWF applied EPA-approved herbicides to 12,554 acres of nuisance vegetation across the state. The majority of plant control efforts focused on giant salvinia and water hyacinth, with 4,978 and 4,851 acres treated, respectively. A major area of focus was Black and Clear Lakes in Natchitoches Parish, both of which suffer from a chronic giant salvinia infestation. A total of 879 acres of giant salvinia were treated on Black and Clear Lakes. LDWF treated approximately 495 acres of water hyacinth in the Atchafalaya Basin.

Winter temperatures and isolated flood events have the potential to be major factors in determining the severity of aquatic vegetation impacts, especially giant salvinia, in Louisiana. Occurrences of below freezing temperatures, for the duration of several hours, provide excellent control of aquatic vegetation. The lack of below freezing temperatures experienced last winter, and a decreased amount of contractor spraying due to budget constraints, has led to higher than usual fall aquatic vegetation coverage. Drawdowns were conducted on several waterbodies throughout Louisiana, but results were less than favorable due to numerous major weather events. Vegetation assessments will be made in the spring, and herbicide applications will be made accordingly.

Gulf States Marine Fisheries Commission
71st Annual Spring Meeting
Technical Coordinating Committee
Wednesday, 17 March 2021
Virtual Meeting

1. Emerging Issues Pertinent to Gulf of Mexico Fisheries.

Proposed Regulatory Changes

Statewide Recreational Fishing

Proposed changes to regulations - Aransas Bay Crab Fishing

- Allow recreational use of up to three crab traps/license in previously closed areas of Aransas County.
- Crab traps must be securely tethered to a fixed object (dock, pier, or bulkhead), no open-water traps.

Proposed changes to regulations - Clarify Red Snapper bag limit in federal waters

- When federal waters are open for private recreational fishing:
  a) Federal bag limit is 2 fish
  b) Red Snapper caught in federal waters count towards state bag limit

Freeze Event – February 2021

The February 2021 winter storms that gripped all of Texas also took a toll on Texas Parks and Wildlife Department (TPWD) facilities, operations, and staff, as well as the natural resources of this state.

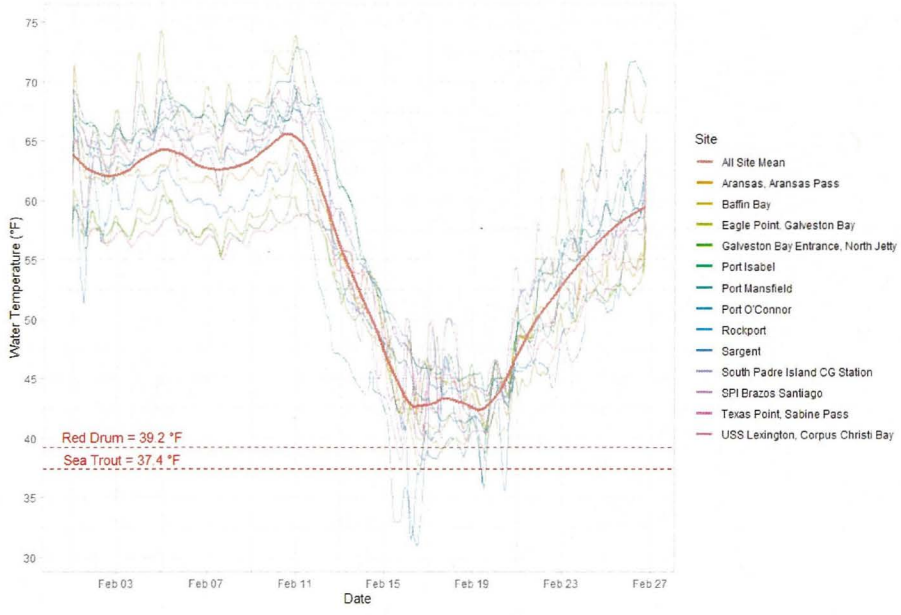

Figure 1. Texas coastwide water temperatures during 2021 freeze event.

Fish – Efforts to quantify the fish mortality event related to the frontal passage are ongoing. Information provided for report is considered preliminary, subject to change. Six bay systems most impacted by the event are: East Matagorda Bay, Matagorda Bay, San Antonio Bay, Aransas Bay, Upper Laguna Madre, and Lower Laguna Madre. Within these bay systems, an estimated 2 million fish estimated to have died. Less than 15 species were impacted to date. The majority of fish impacted were non-recreational species including silver perch, mullet, hardhead catfish, and other forging fish. Recreationally important species included red drum, black drum, spotted seatrout, sheepshead, grey snapper, red snapper, snook, and tarpon. Proportionally, these species accounted for less than 10% of the total mortality event. Along the Gulf of Mexico, staff fielded reports of fish kills along the Gulf Beach including Mustang Island, Matagorda Island and Boca Chica Beach.

Turtles - According to preliminary totals of cold stunned turtle recoveries provided by the Texas Coordinator of the Sea Turtle Stranding and Salvage Network (STSSN) Dr. Donna Shaver, 11,499 sea turtles have been reported along the entire Texas coast during the Winter Storm Uri event as of February 25th, 2021. This event's total is three times higher than Texas' last major winter cold stun event in 2017-2018 with 3,702 turtles reported and doubles the U.S. record held in Florida of 4,613 cold stunned turtles reported back in 2010. To date, 4,257 of the 11,499 cold stunned sea turtles reported from this event have been released into the Gulf of Mexico offshore alive, with many still held in rehabilitation facilities by TPWD agency partner organizations. Additional data will be provided by the National Park Service's Division of Sea Turtle Science and Recovery, the lead organization of the STSSN, as numbers become available. Please contact Dr. Shaver directly for further information or to formally cite this information. "

Management Action – Fishing closure for thermal refuge areas for 48 hours. Requested voluntary suspension of barge traffic from the Gulf Intracoastal Canal Association (GICA), which resulted in the voluntary and temporary suspension of tow operations in the Intracoastal Waterway (ICWW) from the John F. Kennedy Memorial Causeway south to Port Isabel beginning February 15, 2021 at 12:00 a.m. Concerns for barges transiting the section of the ICWW between Rockport and Ingleside also prompted public requests to divert barge traffic to the Lydia Ann Channel. GICA leadership responded to the appeal by issuing a request for barge operators to avoid transiting that section of the ICWW during the cold period.

Future Plans – Assessments concluding the weekend of Feb 27th will provide estimates of the magnitude of this event in terms of numbers of fish that died. Routine monitoring (gill nets, bay trawls, and bag seines) continues through the spring and early summer (April through June) will provide a benchmark of this event to against sampling efforts from previous years. For many of the key game species, data will start coming in with spring gill net sampling. Additionally, as a part of year-round survey efforts, biologists will soon begin collecting information from recreational anglers at boat ramps. These data will provide additional information regarding the impacts of this cold-weather event.

Oyster Updates

Commercial Oyster Mariculture (COM) Update

In 2019, the 86th Texas Legislature authorized the Texas Parks and Wildlife Commission (TPWC) to create a Texas Oyster Mariculture Program. The TPWC adopted rules in May 2020, and the department continued work to develop the permitting system and guidelines to be able to accept mariculture applications in the fall of 2020. Significant program developments include the following:

- Development of program processes, procedures, guidance documents, application forms and online resources including an online permitting portal that will go live later this year.
- Coordination with other state and federal agencies regarding required permits for various aspects of the program.
- Established biosecurity protocols for the importation of out-of-state oyster seed to protect wild oyster genetics.
- Development of a standardized permit application and natural resource survey protocol to ensure no negative impacts to natural resources.
- Creation of a GIS tool that allows for the visualization of the user conflicts and natural resources around the proposed site.

The first two applications were received in January 2021, one for an 8-acre farm in Copano Bay, and the other for a 10-acre farm in East Galveston Bay. Additionally, coastal fisheries staff are in the pre-application consultation phase with nine other prospective applicants.

Oyster Shell Recovery

HB51 (85th Legislative Session, 2017) included a requirement that dealers purchasing oysters harvested from Texas bay systems return 30%, by volume, of the total quantity of oysters harvested during the previous license year. In lieu of returning this cultch back to public oyster reefs, dealers can pay the department a sack fee that will allow the department to return an equivalent amount to public reefs. The current amount of this fee per sack is $1.32 (has not been increased). The license year 2020 landings were 878,503 sacks (110 lbs/sack) of oysters reported to the Texas Commercial Landings Program (Sep 2019 - Jul 2020). In 2020, dealers placed 3,220 cubic yards of cultch; however, due to COVID-19, some dealers have had issues putting out cultch or paying their LY2020 dues, so we are working with them as much as possible to accommodate their issues. So far in LY21, 362,443 sacks have been harvested (Sep – Dec), and $35,969 in fees have been paid. The program in total, since 2018, has generated $776,347 toward cultch plants and 19,516 cubic yards of cultch have been placed in the bays by oyster dealers (Table 1).

Table 1. Summary of Oyster Shell Recovery program (LY2018-2021)

				Final Disposition	
LY (Sep-Aug)	**Sacks Harvested**	**Cultch Due (cu yds)**	**Fee in lieu of cultch**	**Cultch (cu yds)**	**Fee ($)**
2018	564,787	9,805.3	$745,518	6,590.6	$241,815
2019	754,565	13,100.0	$996,025	9,705.3	$205,972
2020	878,503	15,251.7	$1,159,624	3,220.0	$292,591
*2021	362,443	6,292.4	$478,424	0	$35,969
Total				19,516	$776,347

*as of January 2021

Oyster Shell Recovery Cultch Placement

Table 2. Total Restored Acreage and (Cubic Yards) of Dealer-Placed Cultch per Bay System per year.

Year	Galveston Bay	Matagorda Bay	Aransas Bay	Total Acreage
2018	2.46 (1,985)	5.7 (4,605)	0 (0)	8.16 (6,591)
2019	13.69 (9,213)	2.84 (2,292)	0 (0)	12.03 (9,705)
2020	3.99 (3,220)	0 (0)	2.3 (915)	3.99 (3,220)
Total	20.14 (14,419)	8.54 (6,897)	2.3 (915)	**24.18 (19,516)**

Texas Oyster Landings

Oyster landings in LY2020 were greater than landings in the last five years. There was some apparent reduction of catch at the end of the 2020 season most likely due to COVID. The LY2021 oyster season has been relatively average so far (first 60 days), as compared to the previous 4 years (Figure 2). At the end of the first 60 days, LY2021 saw about 50,000 less sacks landed than LY2020, but was similar to cumulative sacks landed at that point in LY2019. In LY2019, there were several areas closed to harvest in December due to rainfall/runoff, which resulted in a decrease in trips made in December, possibly explaining some reduction in harvest (Figure 2). TPWD Targeted oyster sampling in January 2021 did show that some bays fell below the threshold of both CPUE of market size oysters and the percentage of undersized oysters, so some bays were closed in late January.

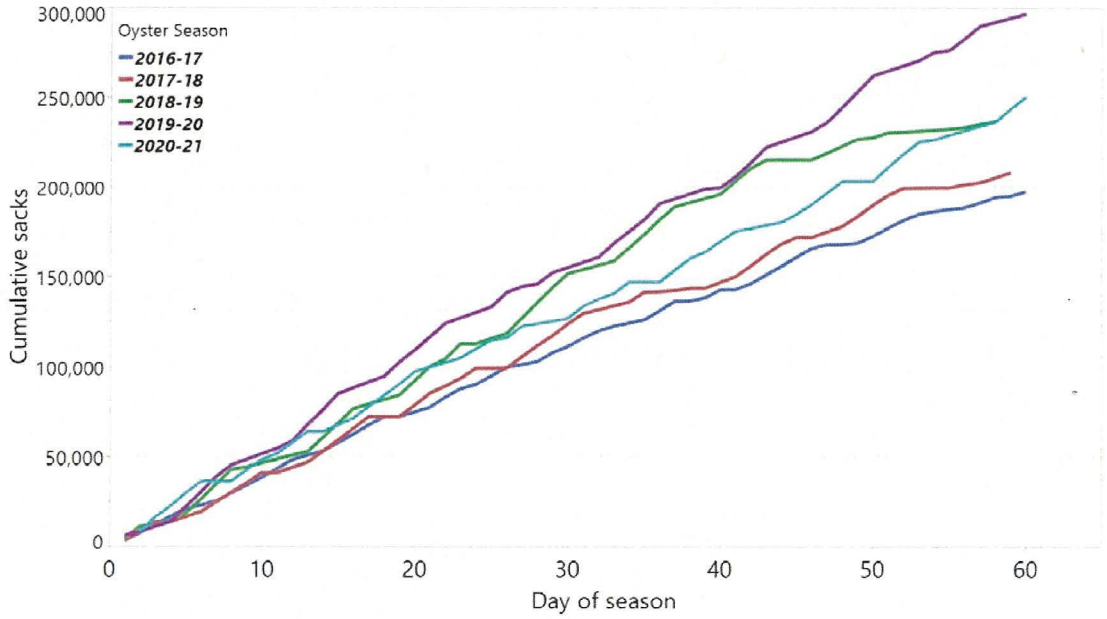

Figure 2. Cumulative number of sacks collected by the Texas oyster industry during the first 60 days (Nov-Dec) of the last 5 years of the public season.

Southern Flounder

The Southern Flounder is highly sought after in both the recreational and commercial fisheries in Texas. TPWD fishery-independent catch rate data show pronounced long-term (past 20 years) declining trends in all life stages, from juvenile recruits to adults. For example, recent gill net survey data for both the fall and the spring showed decreases in catch rates of 60% or greater compared to historic long-term trends.

Based on these long-term downward trends in abundance and declining commercial and recreational landings, the Texas Parks and Wildlife Commission approved regulation changes in May 2020 designed to increase spawning biomass. The recent changes were implemented in a phased approach. The change in the increased minimum length limit from 14 inches to 15 inches was implemented on September 1, 2020, and the second part of the action will close the season for both commercial and recreational harvest from November 1 - December 14 each year beginning on Sept. 1, 2021. The 15-inch minimum size limit allows larger numbers of females to reach sexual maturity prior to being harvested and the closed season during the fall migration is projected to increase escapement of females to the Gulf for spawning, therefore increasing recruitment.

Fall 2020 gill net surveys, which took place after the 15-inch minimum size took effect, showed increased abundance as compared to the previous three fall sampling years. This may reflect a combination of better than normal recruitment in 2018. The full benefits from these regulation changes will take a generation (approximately 6 years) to be realized.

2. Activities Related to Artificial Reef Programs.

All travel and non-essential meetings and field work has been placed on hold due to COVID-19.

Rigs-to-Reefs

The Reef Program did not receive any donations to the program between September 2020 and January 2021.

- A Material Donation Agreement (MDA) was signed between the Artificial Reef Program (ARP) and Fieldwood Energy, LLC for the deployment of the 8-pile platform HI-A-446 A at the HI-A-466 reef site. The donation agreement was finalized at $180,000.
- The 8-pile platform PN-956 B is targeted for a Spring 2021 deployment. A signed MDA between Transcontinental Gas Pipe Line, Company, LLC and the ARP agrees to a $230,000 donation amount for the structure to be towed and deployed at the PN-A-42 reef site.
- ARP received reauthorization construction permits from the USA Army Corps of Engineers for the HI-A-555 (2 October 2020), PS-1122 (20 November), HI-A-466 (10 December), and PN-A-42 (14 January). Each one of these reef sites has a proposed deployment project and the construction/deployment must be completed within two years from the acceptance date of the reauthorization.

- ARP met with Anadarko staff in September to discuss the potential reefing of 3 spar floating platforms off the Texas shelf. Anadarko will be removing the platforms between 2022-2025. We have identified a potential reef site on the continental shelf in over 400ft of water and the company is conducting a sidescan and archaeology survey for the USACOE reef permit application. Each spar is approximately 450ft long with a 100ft diameter.

Ships-to-Reefs / Nearshore Reefs

- ARP staff inspected a steel-hulled sailboat that was donated to the nearshore program by constituent in Freeport, TX. The "Cetus" was deployed October 2020 at Kate's Reef off Galveston. All work will be completed without any funding from, or liability on, TPWD.

Nearshore Reefs

- Laredo Construction LLC, in partnership with Atlantis Marine Habitats, was awarded the reefing contract for Big Man's, Kate's and Sabine Nearshore Reefs. Work is set to be completed by August 2021, with a total cost of $2.7m. Most of the funding is coming from Hurricane mitigation funds, with an additional $559,000 from CCA. The contract will place 1,150 pyramids and 255 low relief plates at the reefs. Due to COVID and weather compilations, the project is slightly behind schedule, but Laredo still hopes to have all materials deployed in August 2021.
- ARP staff submitted three reauthorization permits to the USACOE: GA-220, Kate's Reef; GA-220, Big Man's Reef; and HI-20, Sabine Nearshore. Each of these reef sites is part of the Laredo contract referenced above to deployed roughly 250 reef plates and 1100 pyramids between the three locations.
- A Memorandum of Agreement was drafted between TPWD and UT-RGV for conducting a side-scan survey of the entire PS-1105 Rio Grande Valley Nearshore Reef and is awaiting signature. Dr. Rick Kline will work with graduate students to complete the survey and provide hydrographic training to students. Training will also include the use of underwater scooters and the program's Outlander ROV.

Grants / Administration

- The Artificial Reef Program was awarded funding for a project under the Texas Coastal Management Program (CMP) Grant Cycle 26. This funding will allow for the deployment of 100 pyramids and 100 low-relief reef plates at the Sabine Nearshore Reef Site (HI-20). Funding will be available beginning October 2021.
- The GLO Asset Removal team and the ARP continue communications to discuss the planned removal of the old Queen Isabella Causeway off Port Isabel/South Padre Island. The GLO has ownership of the bridge and it must be removed at some point soon. Estimates show that it may require $10-12m for removal (and reefing).

Resource Sampling / Harvest Monitoring Updates / Science

- The ARP completed a summary report for the biological monitoring from 1990 – 2019. Shipley, J. Brooke, Katie A. O'Shaughnessy, Allison Baldwin, and J. Dale Shively. 2020. The Texas Artificial Reef Program: Fish Composition and Monitoring Efforts from 1993 – 2018. Texas Parks and Wildlife Department Coastal Fisheries Division. Management Data Series No. 301. 68 pp.

3. Activities Associated with the Gulf of Mexico Crab Fisheries.

Abandoned Crab Trap Removal Program

The Texas Parks and Wildlife Department (TPWD) closed state waters to crabbing (with crab traps) 10 consecutive days beginning February 19. However, due to the unprecedented winter weather that impacted the entire state, TPWD asked volunteers to delay any trap removals until February 22nd to allow the crabbers to have additional time to remove their gear, as well as improving the efficiency of picking up traps in better weather. During this time, crab traps encountered are classified as "abandoned" and may be removed by Law Enforcement personnel, Department staff, and any member of the general public. Since the beginning of this coordinated effort to remove abandoned traps from the bays in 2002, over 38,000 traps have been removed with the help of nearly 4,000 volunteers coastwide.

Blue Crab Updates

Based on TPWD fishery independent catch rates, coastwide relative abundance of blue crabs has shown significant declines since the 1980's. This trend is generally consistent in all Texas bays. While these trends have largely stabilized since the early 2010's, and gill net surveys suggest increased catch rates of adult blue crabs in recent years, bag seine and bay trawl catch-rates suggest that juvenile abundance continues to remain low (as low as 21% of the average 1980's catch-rate in the bay trawl surveys; Figure. 3). Further analysis of this data suggests that juvenile mortality is increasing and thus the population is not seeing an overall increase in abundance.

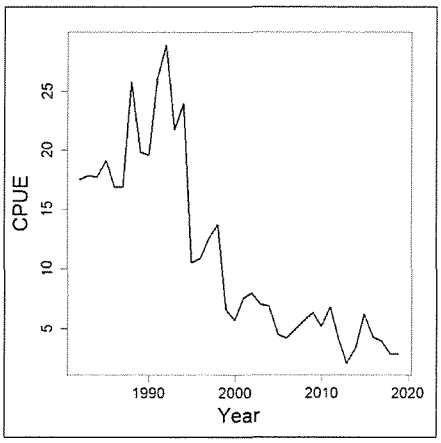

Figure 3. Blue crab catch-per-unit-effort (CPUE) in bay trawls.

Commercial Landings

Total commercial landings of blue crab have significantly declined since the 1980's. This is, in part, due to commercial license buy-back that began in the late-1990's. When adjusted for effort, landings of blue crab (per trip) in Texas have been relatively consistent over the last five years (2016-2020), though a slight decreasing trend is evident since the most recent peak in 2016 (Figure 4). In 2019, total landings of blue crab in Texas were 3,912,577 lbs. which is 31% lower than the 37-year annual average of 5,672,167 lbs; however, landings in 2019 were actually 2% greater than the previous 20-yr annual average (1999-2018: after buyback), and an increase of 17% from the previous 10-yr average. With reduced commercial landings and high demand, value has shown an increasing trend since 2014. The value of total landings in Texas in 2019 was $5,529,154 which is 57% higher than the 20-year average of $3,505,524, and still 40% higher than the 10-year annual average value. In 2020 (preliminary), both landings and value decreased slightly from 2019, but were almost identical to 2018 (pre-covid), so blue crab landings did not appear to be significantly affected by COVID-19 impacts (Figure 5).

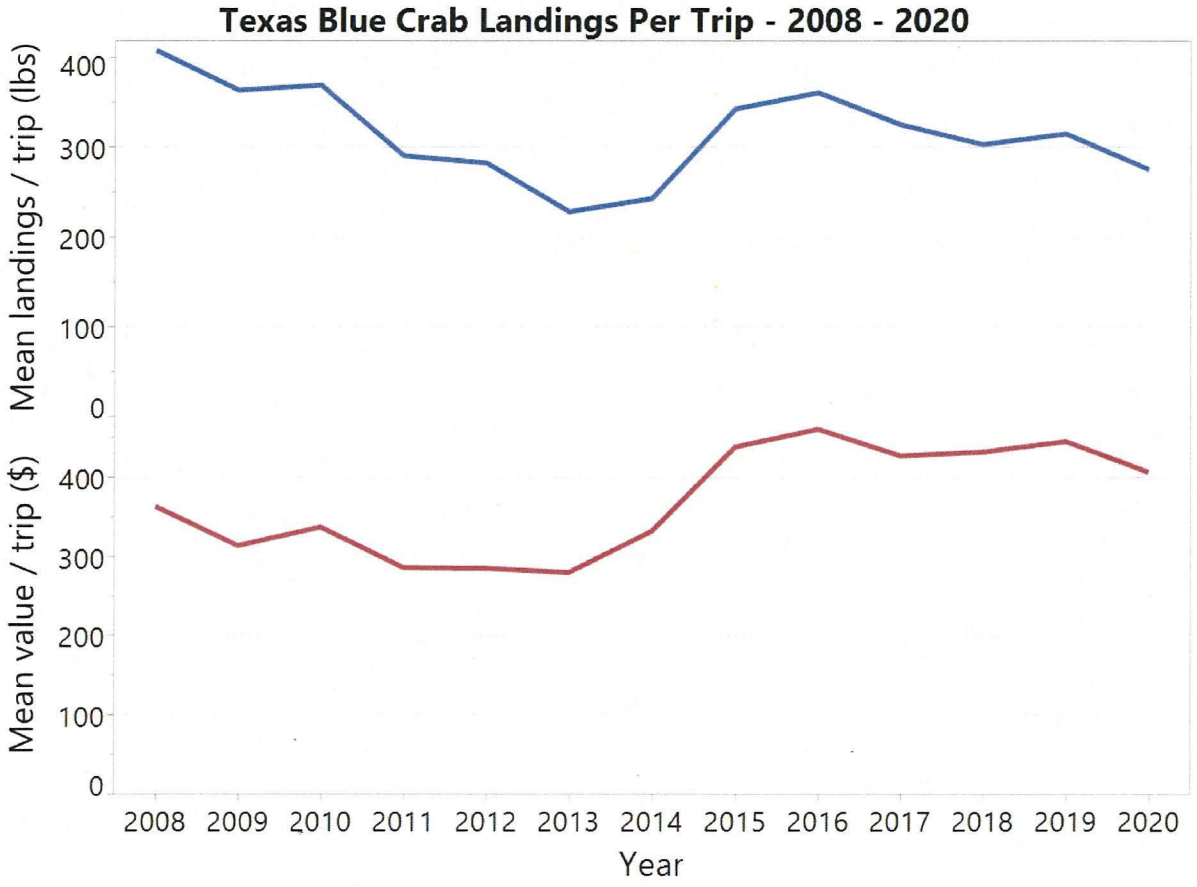

Figure 4. Mean Landings and value of blue crab per trip.

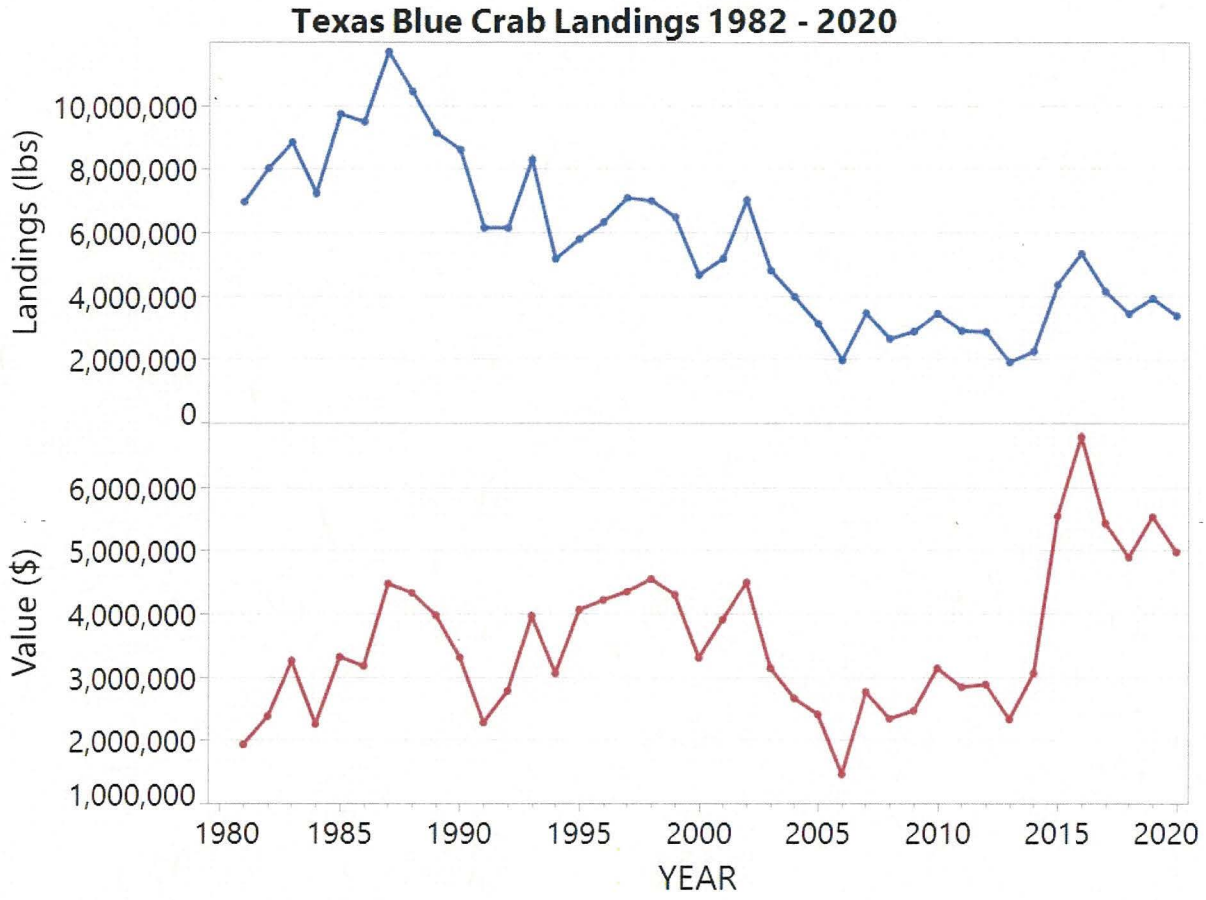

Figure 5. Total annual landings and value of blue crab in Texas.

Regulatory Proposals

Current Regulations for Blue Crab

Recreational – no bag limit, 5-inch minimum length, no more than 5% by number of undersized Blue Crab may be possessed for bait. May not possess egg-bearing females or female crab with abdominal apron removed. Only 6 crab traps at a time may be fished for non-commercial purposes.

Commercial – same regulations as recreational, but commercial license holders may fish a maximum of 200 crab traps at a time. A commercial finfish license holder may fish 20 crab traps at a time for the use of bait on trotlines.

Proposed changes to regulations - Aransas Bay Crab Fishing

- Allow recreational use only of up to three crab traps in areas of Aransas County
- Securely tethered to a fixed object (dock, pier, or bulkhead), no open-water traps

4. Activities Related to Fisheries Dependent Data Collection.

Fishery-Dependent harvest data collection (creel surveys)

During the Texas Parks and Wildlife Department's 2019-20 creel survey year (15 May 2019 through 14 May 2020), 1,034 surveys were conducted at boat-access sites along the coast. From March 26, 2020 to May 13, 2020, procedures for conducting 87 surveys were modified to minimize contact with anglers due to the COVID-19 pandemic. Specifically, landings were not enumerated. These surveys were excluded from the estimation process and the survey count above.

For private-boat bay-pass anglers, an estimated 5,177,000 man-hours were expended to harvest an estimated 1,329,800 fishes. Staff conducted 10,643 target interviews involving 26,493 anglers. Of the 65 species encountered, Spotted Seatrout, Red Drum, and Black Drum were most frequently landed. Mean party size was 2.5 people and mean trip length was 5.5 hours. Staff observed 35,058 fishes and measured the length for 26,508 of them.

For private-boat Texas Territorial Sea anglers, an estimated 156,400 man-hours were expended to harvest an estimated 59,400 fishes. Staff conducted 466 target interviews involving 1,390 anglers. Of the 44 species encountered, Red Snapper, Spotted Seatrout, Sand Seatrout, and King Mackerel were most frequently landed. Mean party size was 3.0 people and mean trip length was 6.1 hours. Staff observed 2,773 fishes and measured the length for 1,645 of them.

For private-boat Exclusive Economic Zone anglers, an estimated 215,300 man-hours were expended to harvest an estimated 56,400 fishes. Staff conducted 422 target interviews involving 1,607 anglers. Of the 49 species encountered, Red Snapper, King Mackerel, Vermilion Snapper, and Dolphinfish were most frequently landed. Mean party size was 3.8 people and mean trip length was 7.7 hours. Staff observed 2,890 fishes and measured the length for 1,930 of them.

Fishery-dependent collection of otoliths for the Gulf States Biosampling program

We are collecting otoliths from multiple species in conjunction with the GSMFC biosampling program. Otoliths are being collected from recreational anglers and aged via independent contractors paid by GSMFC. To date, the following samples have been processed at our facility:

Table 3. Summary of otoliths collected from recreational species at boat ramps for Gulf States Biosampling program.

Common Name	Scientific Name	Processed	Requested
Gray Snapper	*Lutjanus griseus*	22	100
Vermillion Snapper	*Rhomboplites aurorubens*	50	200
Red Snapper	*Lutjanus campechanus*	288	400
Triggerfish	*Balistes capriscus*	0	50
King Mackerel	*Scomberomorus cavalla*	1	300
Sheepshead	*Archosargus probatocephalus*	122	100
Southern Flounder	*Paralichthys lethostigma*	178	200
Black Drum	*Pogonias cromis*	463	400
Red Drum	*Sciaenops ocellatus*	744	800
Spotted Seatrout	*Cynoscion nebulosus*	1616	1700

iSnapper – mobile reporting app

Despite the global pandemic, Red Snapper anglers were still out fishing during the federal season. As such, a total of 102 trips were submitted using the app, 93 occurring during the Federal season. However, we did not secure funding for the project for 2021. We are looking into the possibility of running the app for this season on a limited budget, since we have been collecting data for the last 5 years and would like to continue to provide private anglers the opportunity to self-report their catch.

5. Activities Related to Fisheries-Independent Sampling.

SEAMAP

Bottom longline and Vertical line sampling

2020 SEAMAP operations were cancelled due to COVID. Operations are planned to begin again during Spring 2021. We were able to acquire a longline winch for the field lab vessel in stat zone 21, so once sampling can commence, we can expand sampling into south Texas areas.

6. Other State Activities.

Fisheries Enhancement Program (Hatcheries)

During this fiscal year, the saltwater enhancement program has stocked 5,613,975 fingerlings in Texas' public waters. Hurricanes, the COVID pandemic, and a winter freeze have impacted this production season. (Note, most fingerlings are stocked during the summer).

Table 4. Total Red Drum, Spotted Seatrout, and Southern Flounder fingerlings produced and stocked into various Texas water bodies during FY 2021 (9/1/2020 – 2/23/2021).

FY 2021 Water Body	Red Drum Fingerlings Stocked	Spotted Seatrout Fingerlings Stocked	Southern Flounder Fingerlings Stocked
Aransas	0	142,337	16,766
Corpus Christi	43,705		
East Matagorda	125,527		
Galveston	1,039,059	134,883	606
Lower Laguna Madre	264,302	54,790	
Sabine Lake		445,601	
San Antonio		16,006	
West Matagorda	875,059	1,112,041	
Upper Laguna Madre	125,878		
Freshwater			
Calaveras	652,312		
Kleberg Park	4,876		
Lake Bryan	196,724		
Victor Brauning	363,503		
Total	**3,690,945**	**1,905,658**	**17,372**

License Buyback Program

Shrimp

Buyback Round 39

- Application period closed January 18, 2021 (Open approximately 60 days)
- 13 applications received
- Currently reviewing bids
- Purchased a total of 8 (5 bay and 3 bait)
- Total purchase price was $65,000
- Avg. purchase price was $8,125

Finfish

Buyback Round 27

- Application period closed January 18, 2021 (Open approximately 60 days)
- 1 application received
- Total purchase price was $3,000

Crab

Buyback Round 24

- Application period closed January 18, 2021 (Open approximately 60 days)
- No applications received

Oyster

Buyback Round 4

- Application period closed January 18, 2021 (Open approximately 60 days)
- No applications received

Perry R. Bass Marine Fisheries Research Station Updates

PRB Projects

Sciaenidae otolith collection

Data analysis is ongoing for the Spotted Seatrout and Red Drum otoliths age/length data. Significant trends in growth among years and among Texas estuaries have been observed, and these trends are being used to assess drivers of growth and mortality in Red Drum. Currently, work is ongoing on a publication dealing with spotted seatrout age and body growth over a near 30-year span. Spotted seatrout otolith collections were discontinued due to COVID-19, and these collections are unlikely to resume in the near future. Similarly, we are likely to discontinue Red Drum otolith collections in 2021.

Eastern oyster (*Crassostrea virginica*) population genomics

This project consists of sampling oysters throughout the Gulf and using high-throughput "next generation" approaches for generating a high resolution SNP genomic data set. This will allow us to assess patterns of migration and gene flow (stock structure) as well as potential genetic loci under localized natural selection. To date, we have received samples from Florida (n = 3), Louisiana (n = 2), Alabama (n = 1) and Texas (n = 11), and sampling has been completed. Genomic sequencing has also been completed. Sequencing and bioinformatics are being supported by the Marine Genomics lab at Texas A&M Corpus Christi (MGL). We anticipate final data analysis will

continue this year in cooperation with staff at MGL. We conducted a side project using these oyster samples, examining morphological (shell shape) differences among oysters at the sample and regional scale. This analysis yielded interesting results that validate previous analyses of population structure based on genetics, and the findings have been reviewed favorably by the editors at Marine and Coastal Fisheries (AFS). Revisions are ongoing.

Black Drum (*Pogonias cromis*) high-resolution population genomics

Previously noted life history differences between Black Drum from Baffin Bay as compared to other Texas inshore areas suggests the possibility of genetic divergence on a relatively small geographic scale. We have used microsatellite data, mtDNA and discriminant analysis of principle components (DAPC) to demonstrate weak but significant genetic divergence between Baffin Bay and other Texas bays. Samples were selected for a high-resolution genomic library, and these samples have now been sequenced using the reduced-representation "ddRAD" method. Two papers have resulted from this work, one is accepted at N. Am. J. Fish Mgmt., the second has been reviewed favorably by the same journal.

Detection of white spot syndrome virus (WSSV) in wild Gulf shrimp

We measured the presence and prevalence of white spot syndrome virus (WSSV) in Brown and White shrimp from Texas. We collaborated with Dr. Arun Dhar of the aquaculture pathology laboratory, University of Arizona, in obtaining an infection-positive control sample of *Litopenaeus vannamei* (Pacific white shrimp). Additionally, we identified and utilized an appropriate PCR-based laboratory assay for detecting WSSV in Texas shrimp. Sampling has been completed for this study, data is analyzed, and the manuscript has been reviewed favorably at J. Aquatic Animal Health. We do not intend to collect additional samples for this project.

Detection of shrimp black gill disease in wild Gulf shrimp

We are continuing work on a study on the presence and prevalence of shrimp black gill (sBG) in White (*Litopenaeus setiferus*) and Brown (*Farfantepenaeus aztecus*) shrimp in Texas. We have identified the pathogen that seems to drive this condition in Texas, using DNA sequencing technology. In 2019, n = 1,605 shrimp (White and Brown shrimp combined) were sampled and sBG detection was conducted using a PCR test coupled with lab examination/diagnosis. Seasonal patterns in prevalence were identified, as was linkage between prevalence, temperature, and salinity. A paper detailing these findings has been submitted and received favorable reviews at Marine and Coastal Fisheries (AFS journal). We are continuing and expanding our sampling effort for this project. In an effort to assess impacts to Gulf commercial shrimping, we have partnered with Texas Agrilife Sea Grant extension and the offshore shrimp trawl fishing community to expand sampling offshore and link it directly to the industry.

Observation of growth in two sizes of post-release Red Drum *Sciaenops ocellatus*

We are cooperating with the TPWD stock enhancement branch to determine whether there are differences in growth and body condition between stock enhancement Red Drum that are above versus below the size targeted at the time of harvest (35 mm). Samples of fish were collected at harvest, and individuals were fit with coded wire tags and released into wet lab tanks. Three trials have been completed (May, August, November 2020) and data analysis is ongoing. Preliminary

results suggest that fish below target have a higher mortality rate post-harvest, and there are also differences in daily growth between individuals above and below harvest targets.

Determination of hatching dates in wild Southern Flounder (*Paralichthys lethostigma*)

Young-of-the-year Southern Flounder are being collected during fishery independent sampling (TPWD). Otoliths are being extracted from all individuals and daily increment rings are being used to determine hatching dates for southern flounder. Hatching dates will be related back to environmental (water quality) conditions to understand spawning and hatching conditions for Southern Flounder in the wild. Daily rings are present and countable. We have also observed accessory growth centers that might be associated with metamorphosis. This year we included a collaborative component to this project with the TPWD stock enhancement program, and we have received and aged an additional n = 50 YOY flounder spawned in captivity, with known birth dates. Hatchery-reared flounder will be used to validate growth rings and accessory growth centers, and growth and timing of metamorphosis will be compared between wild and hatchery fish. Analysis is ongoing.

Taxonomic uncertainty in ladyfish (*Elops saurus versus E. smithi*) in the western Gulf of Mexico

Research conducted in the last decade described a new species of ladyfish, *Elops smithi*, which occurs in sympatry with *E. saurus* in the Gulf of Mexico. It is unknown with what regularity this species occurs in Texas waters. Preliminary observations based on DNA sequencing (in our lab) of ladyfish previously collected in Texas suggest that both species are present. We are in the process of collecting additional specimens *via* TPWD fishery independent sampling, paired with occasional angling. Morphological characters which diagnose each species are being counted and paired with mtDNA sequencing to take census of these species in Texas' waters. Additionally, if both species are present with regularity, we intend to construct a reduced-representation genomic library in an effort to identify historical admixture or contemporaneous hybridization between species. Expansion of this project to include other Gulf states will be considered, and coordination of this effort *via* GSMFC would be beneficial. To date, approximately 200 specimens have been received and processed. Preliminary results suggest that both species are present in Texas, although *E. saurus* seems to be considerably more common than *E. smithi*.

Determination of factors driving metamorphosis in Southern Flounder (*Paralichthys lethostigma*) (NEW)

We are working collaboratively with staff at TPWD's two salt water fish broodstock-holding hatcheries (CCA Marine Development Center in Corpus Christi and Sea Center Texas in Lake Jackson), to run wet lab trials to determine the factors involved with the timing and rate of metamorphosis in flounder reared in captivity. Hatched flounder will be transitioned to Artemia feed at one or both hatcheries (depending upon availability) and reared under different experimental densities. Trials are expected to commence in February 2021 for this work.

Investigating the use of environmental DNA (eDNA) for assessing presence and abundance of marine finfish in the coastal waters of Texas (NEW)

We are conducting a proof-of-concept study to test the efficacy of eDNA as a sampling methodology in the various estuarine habitats in Texas. We are testing both a species-specific assay (Red Drum, quantitative PCR approach) as well as holistic community assay (genetic

metabarcoding) to detect marine species. Study sites will include water sampling aquaria at Sea Center Texas (TPWD fish hatchery in Lake Jackson) where various tank finfish populations are known, water sampling alongside our routine fishery-independent gill nets (for comparison to know species catch), and the Lavaca River in Calhoun and Jackson counties (where it is expected that we will see a transition from marine/estuarine associated organisms to more freshwater associated organisms). This work is supported by IJF grant funds and is expected to be concluded in 2021.

Collaborative projects

Range-wide population genetic structure of Alligator Gar (*Atractosteus spatula*)

In collaboration with Dr. Brian Kreiser, (University of Southern Mississippi), we are analyzing mitochondrial DNA (mtDNA) sequence data already on hand in our lab, in an effort to examine the range-wide population structure of the species. Dr. Kreiser is analyzing a microsatellite DNA data set, and together we will attempt to compare and contrast historical versus contemporary patterns of movement and demographic exchange among drainages in the Gulf of Mexico basin. Sampling has been completed, and all genetic data has been collected and analyzed.

Taxonomic uncertainty of *Menidia* sp. in Aransas and Galveston Bays

We are supporting the work of Dr. James Derek Hogan who is conducting targeted sampling for a rare all-female silverside species, *Menidia clarkhubbsi*. Dr. Hogan's group is looking for morphological characters that might distinguish this species from other species of *Menidia* and pairing his analysis with genomic sequencing in an effort to compare genomic loci among *M. clarkhubbsi* and the more common species *M. peninsulae* and *M. beryllina*.