Commission Business Session
Thursday, March 21, 2019
New Orleans, LA

Chairman Joe Spraggins was unable to attend the meeting. **Vice Chairman Dan Ellinor called the meeting to order at 10:33.**

The following Commissioners and/or Proxies were present:
Dan Ellinor, FWC, Tallahassee, FL *(Proxy for Nick Wiley)*
Paul Mickle, MSDMR, Biloxi, MS *(Proxy for Joe Spraggins)*
Read Hendon, USM/GCRL, Ocean Springs, MS
Scott Bannon, ADCNR/MRD, Gulf Shores, AL *(Proxy for Chris Blankenship)*
Chris Nelson, Bon Secour Fisheries, Bon Secour, AL
Jerry Mambretti, TPWD, Austin, TX *(Proxy for Carter Smith)*
Troy Williamson, Corpus Christi, TX
Jason Froeba, LDWF, Baton Rouge, Louisiana *(Proxy for Jack Montoucet)*
Senator Brett Allain, Jeanerette, LA
John Roussel, 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
Debbie McIntyre, *Staff Assistant*, Ocean Springs, MS

Others
Roy Crabtree, NOAA Fisheries, St. Petersburg, FL
Glen Constant, UFWS, Baton Rouge, LA
Jessica Stephens, NOAA Fisheries, St. Petersburg, FL
Darin Topping, TPWD, Rockport, TX
Cisco Werner, NOAA Fisheries, Miami, FL
Mandy Karnauskas, NOAA Fisheries, Miami, FL
Laura Picariello, Texas Sea Grant, Corpus Christi, TX
John Fallon, Audubon Nature Institute, New Orleans, LA
Laura Deighan, Audubon Nature Institute, New Orleans, LA
Jamie Reinhardt, NOAA Restoration Center, Silver Spring, MD
Lori Rounds, NOAA Restoration Center, Silver Spring, MD
Ed Swindell, Marine Process Services, Hammond, LA

Brief Overview of Commission Voting Procedures
D. Donaldson gave a brief overview of the Commission's voting procedures and stated there is a quorum.

Adoption of Agenda

D. Donaldson asked to include watching the video, ***The Biologist and the Boy***, under Other Business if time allows. ***S. Bannon moved to adopt the Commission Business Session Agenda with the addition under Other Business. T. Williamson seconded and the motion passed.***

Approval of Minutes

T. Williamson moved to approve the October 18, 2018 minutes as submitted. S. Bannon seconded the motion and the minutes were approved as submitted.

Public Comments

There was no public comments.

GSMFC Standing Committee Reports

Law Enforcement Committee (LEC)

S. VanderKooy reported the LEC met jointly with the Council's LETC and stated the majority of the agenda was council items. He said they discussed JEA funding and Scott Pearce will be the LEC representative for the Red Drum Profile. This is Doug Boyd's last year as a GMFMC member and he expressed his appreciation of having worked with this group for so many years. The Commission publications, *License and Fees* and the *Law Summary*, will be completed over the summer and will be available through the GSMFC website.

S. Bannon moved to accept the LEC Report. B. Allain seconded and the motion passed.

Technical Coordinating Committee (TCC)

D. Topping gave the TCC report. He reviewed the presentations that were given in each Subcommittee meeting. There were no motions/action items presented that needed approval from the TCC Subcommittees. He stated Ken Brennan was elected Chairman of the GulfFIN Committee and Beverly Sauls was elected Vice Chairman.

D. Topping stated that after the Subcommittee Reports, the TCC discussed different options for future TCC meetings such as meeting once a year, having the General Session during the meeting, agenda items, etc. He said the Committee asks the Commissioners for guidance on agenda items for the Committee and Subcommittees for future meetings. He said the Committee also discussed developing an Oyster Subcommittee. The Committee approved two motions:

> ***To ask staff to develop multiple options for the future of TCC meetings and present them at the October meeting.***
>
> ***To recommend to the Commission the establishment of an Oyster Subcommittee under the TCC.***

The Commissioners discussed both motions.

C. Nelson moved to ask staff to develop multiple options for the future of TCC meetings and present them at the October meeting. Staff should research when and why each Subcommittee was established, the SOPs of each Subcommittee, and how agendas were originally developed. R. Hendon seconded and the motion passed.

C. Nelson moved to establish an Oyster Subcommittee. The Commissioners discussed the motion further. C. Nelson withdrew the motion.

J. Roussel moved the TCC develop a formal charge/purpose and any other pertinent direction as well as the membership for an Oyster Subcommittee, and then bring that to be approved by the Commission. J. Mambretti seconded the motion and it passed.

S. Bannon moved to accept the Technical Coordinating Committee Report. J. Roussel seconded the motion and it passed.

State-Federal Fisheries Management Committee

Menhaden Advisory Committee

S. VanderKooy reviewed the presentations made in the MAC. There were no motions for the Commission to approve.

P. Mickle moved to accept the MAC Report. S. Bannon seconded and the motion passed.

Sea Grant Fisheries Extension Meeting Report

L. Picarrelli reported the main topic of their meeting was the various Seafood Rating Systems and how they are creating conflicting opinions in the Gulf. They discussed the need for more dialog on this topic amongst the different Sea Grant Programs and how it can be communicated across the Gulf. They will discuss this issue again at the next meeting. Each state gave a report on the current issues they are involved in except Mississippi/Alabama who did not have a representative in attendance. The Audubon Nature Institute provided an update on the status of their shrimp fishery improvement projects which are going very well and are highly rated. The Audubon Nature Institute is also working on a plastics campaign with other aquariums across the country to reduce plastic straw use and a NFWF Project with the tuna industry.

NOAA Fisheries Southeast Regional Office Comments

R. Crabtree stated the detailed NOAA Fisheries SERO report is in the Briefing Book under Tab B. He reported NOAA Fisheries has not yet decided if they are going to appeal the U.S. District Court for the Eastern District of Louisiana's ruling stating NOAA Fisheries does not have the authority to regulate aquaculture as fishing under the Magnuson/Stevens Act vacating the rule implementing the Gulf Council's Aquaculture Plan. He said the ruling only applies to the Gulf aquaculture program and does not prohibit marine aquaculture from occurring either nationally or in the Gulf of Mexico. He said NOAA Fisheries continues to help coordinate with other federal agencies in the permitting process for aquaculture operations in the Gulf. He said they are currently working on the Velella Epsilon pilot project which proposes to culture almaco jack in submerged cages about 45 miles southwest of Sarasota, and a commercial project which is in the preliminary stages of applying for federal permits to culture several finfish species in the northern Gulf of Mexico.

In December of last year NOAA Fisheries issued updated Terms and Conditions to the exempted fishing permits enabling the five Gulf States to manage private recreational anglers targeting red snapper in state and federal waters during the 2018-2019 fishing seasons. He said they issued the updated quota amounts to each of the states. There was an overrun of the quota in 2017 and there are payback provisions in the plan. All information on this is available on the website.

R. Crabtree reported the Council is working on Reef Fish Amendment 50 that would create a state management strategy for red snapper. They expect final action will be taken at the April meeting. The Council has selected a preferred alternative for state by state allocations. There was a final rule published recently that increased the red snapper catch limit for this year. The Council is also working on an amendment to allow carryover on unharvested quota in one year and carry it over to the next year and add it into the catch levels for that year. He said they are scheduled to take action on that at the April meeting as well. The Council is also working on an amendment that would modify the shrimp effort threshold so more shrimp effort can be accommodated. He said the red snapper for-hire season for the coming year will be for 62 days, from June 1 to October 2. This is the longest season for-hire operators have had in years. The quota for Greater amberjack was caught in the fall season so that fishery will remain closed until August 1.

B. Allain asked if the payback for overruns on the exempted fishing permit quotas would be by a state by state basis and **R. Crabtree** said yes.

USFWS Region 4 Office Comments

G. Constant reported A. Brown could not attend but he wanted the Commission to know he appreciates the administration of the USFWS Aquatic Nuisance Program. **G. Constant** stated that Leo Miranda is the new Region 4 Regional Director. **G. Constant** reported on the reorganization of the DOI. He stated the administration is undergoing changes and there are now 12 new regional boundaries. Detailed information on the reorganization is on the USFWS website.

Update on GSMFC Aquaculture Activities

Briefing on Oyster Symposium

S. VanderKooy briefed the Commission on the Oyster Symposium General Session. He said presentations were given by the recipients of the 2018 Off Bottom Aquaculture Grants. He stated the symposium was very well attended and it generated quite a bit of discussion. The afternoon session was hosted by the Gulf of Mexico Alliance and each state gave an overview on their Onbottom oyster programs. Proceedings of the general session are available at http://www.gsmfc.org/publications/GSMFC%20Number%20286.pdf.

Status and Overview of Aquaculture RFPs

S. VanderKooy reported they are in the third year of the NOAA Small Grants Program and all three Commissions have sent out RFPs requesting partnership project proposals for oyster aquaculture. The project could last three to five years. The new award was issued February 1 and closed March 15. The review process is ongoing and they hope to start the new projects August 1, 2019. He said they also have a second round of Pilot Projects for offshore non-oyster projects. The RFP went out the first of March and closes April 15. They expect these projects to start July 1, 2019.

NOAA Fisheries and Fish and Wildlife Service Budge Update

D. Donaldson reported the FY2019 Omnibus Budget is in Tab D of the Briefing Book. He said the President's budget came out last week but the Briefing Book had already been distributed so it is not in the Briefing Book. He said there are large cuts but not as bad as it has been in previous years. He stated once again, the President eliminated Sea Grant and Enforcement and made minor cuts to data collection. He said he is not too concerned with the data collection cuts because the House and Senate supports these programs. **D. Donaldson** said that in the Omnibus Budget for the NOAA Fisheries Budget, data collection and aquaculture were funded at reasonable levels and there is actually a $4M increase in the regional Councils and Commissions line items. He thinks the $4M will be divided equally between the Commissions and Councils. He expects to know the

final allocation for IJF shortly. He said he feels the annual trip with the Gulf State Directors to DC was a success. They thanked staffers for their support and for maintaining or increasing the programs. He said he is working with Allan Brown and Glenn Constant, USFWS, to receive additional funding for the SFRP and Invasive Species Program. **D. Donaldson** stated he will keep the Commission informed of any changes.

Discussion of Legislative Issues and Actions

D. Donaldson reported the Modernizing Recreational Fisheries Management Act passed and became law December 31, 2018. The legislation is in Tab E of the Briefing Book. The Commission is obviously focused on the data collection aspects of the law and is in the unique position of implementing the objectives of the legislation and continue the longstanding coordination of data collection efforts in the Gulf of Mexico. **D. Donaldson** also discussed Senate 1514 and House 6660 establishing a National Fish Habitat Board. He said it is proposed through the legislation that the board will have 25 members including the 3 interstate Commissions. He said this is still in the beginning stages but he will keep the Commission informed.

Review and Approval of Changes to GSMFC Administrative Manual.

D. Donaldson stated that at the last Executive Committee meeting, they directed staff to pursue changing the travel policy to a daily per diem rate in an effort to simplify the travel expense reimbursement process. **D. Donaldson** explained the new guidelines for the daily per diem rate and reviewed the new language for the Administrative Manual in Tab F of the briefing book.

S. Bannon moved too approve changing to a daily per diem rate and to change the Administrative Manual language to what was presented in the briefing book. J. Froeba seconded and the motion passed.

Discussion of Southeast For-Hire Integrated Electronic Reporting (SEFHIER) Program

Jessica Stephen gave a presentation on the Southeast For-Hire Integrated Electronic Reporting Program (SEFHIER). She stated the Gulf Council put forth an amendment that all federal Gulf of Mexico for-hire permit holders will be required to submit electronic logbooks. In addition to submitting electronic logbooks, they are also required to provide hail-out notification as well as having a permanently affixed location device on the vessel. She said the anticipated benefits are census based reporting, increased accuracy of data, reduction in recall bias and near real time access to preliminary data. She reviewed the requirements of the amendment and the process of implementing the mandatory electronic logbooks. She stated relevant stakeholders have been involved in the process including representatives from the Councils, FINs, Commissions and NMFS. She said the proposed rule has already went out and they are expecting the Final Rule to go out in June or July. They expect implementation of the logbooks and hail-out requirement to start around August 15 and adding the location technology by October 1. A copy of the full presentation can be obtained upon request to the GSMFC office.

P. Mickle stated he had concerns on the mandatory reporting requirement to NOAA and asked if the data reported to NOAA will be made available to the states immediately. He said Mississippi has a mandatory reporting requirement and was concerned with burdening the captains with multiple reporting requirements. He asked that the appropriate NOAA personnel contact him to discuss this before the requirement is implemented. **R. Crabtree** asked J. Stephen to ensure P. Mickle is contacted before implementation.

Presentation of NOAA Fisheries Stock Assessment Improvement Plan (SAIP)

Cisco Werner gave a presentation on the Next Generation Stock Assessment Improvement Plan. He reviewed background information, discussed the next generation SAIP, science innovations, balancing the four T's of assessment (Throughput, Timeliness, Thoroughness and Transparency), and stock assessment prioritization. The presentation can be obtained upon request to the GSMFC office.

Presentation of NOAA Fisheries Ecosystem-Based Fisheries Management Road Map

Mandy Karnauskas gave a presentation on the Gulf of Mexico Ecosystem-Based Fishery Management (EBFM) Road Map Implementation Plan. She said there has to be collaboration between state and federal partners if advances are to be made in EBFM. She said EBFM can be considered within a spectrum of approaches: EBM, Ecosystem Based Management; EBFM, Ecosystem Based Fisheries Management; EAFM, Ecosystem Approach to Fisheries Management; and SS, single species management. She said in practice there is not a one size fits all approach to EBFM as it is region specific. She then reviewed NOAA Fisheries EBFM Road Map Policy and Purpose. The presentation can be obtained upon request to the GSMFC office.

Deepwater Horizon NRDA Open Ocean Update

Lori Rounds and **Jamie Reinhardt** gave an update on the Deepwater Horizon NRDA Open Ocean Restoration Plan. **L. Rounds** gave background information on the BP NRDA Settlement, and reviewed the partners in the Open Ocean TIG and their responsibilities. **J. Reinhardt** gave an update on the fish restoration planning. The presentation can be obtained upon request to the GSMFC office. All information on DWH NRDA is also available at www.gulfspillrestoration.noaa.gov.

***Lyles-Simpson Award* Recipient Selection for 2019**

Nominations were opened for the ***Lyles-Simpson Award*** recipient for 2019.

C. Nelson moved to nominate Borden Wallace for the Lyles-Simpson Award recipient for 2019. R. Hendon seconded the motion. There were no other nominations and the motion passed.

GSMFC Program Reports

Interjurisdictional Fisheries Program

S. VanderKooy stated the detailed report is under Tab H of the Briefing Book. He reported the Management Profile for Cobia in the Gulf of Mexico was completed and approved by the TCC. The next species profile is for Red Drum and they have asked the states and other agencies to designate a member for the Task Force. Work is continuing with the Atlantic States on the Otolith Manual Revision and they are hoping for a final draft this summer. The IJF program has entered into a contract with Dr. Eric Saillant to begin analyzing the tissue samples collected for Tripletail. He said staff has begun working on the Gulf Fishery-Independent Database (GFID) which is an effort to centralize all of the five Gulf States' databases for potential use in future stock assessments.

S. VanderKooy reported that he has been reviewing revisions of various species profiles for the Monterey Bay Seafood Watch Program. He stated he spends substantial time providing input but it is not incorporated into their profiles. It seems that groups such as this have a predetermined narrative and do not use information that is provided. **D. Donaldson** stated he and S. VanderKooy have discussed not participating in any further requests for information and asked the Commission

if this is acceptable. **The Commissioners agreed it would be acceptable to not comment on future requests.**

SEAMAP

J. Rester stated the detailed SEAMAP report is under Tab I of the Briefing Book. He reported SEAMAP will begin its 38th year of sampling in 2019. SEAMAP is holding a trawl work shop in Pascagoula to review trawling protocols, discuss gear specifications, review data entry and QA/QC procedures, and review species identification. The group will also discuss recent taxonomic changes and how to handle historical species identifications when taxonomists have determined what was believed to be one species could actually be two to three species that look similar. SEAMAP partners have been riding with other partners for the past few years to make sure trawling operations are being conducted consistently amongst all partners. FY2019 SEAMAP appropriations were $5.125M which is level funding. The Gulf component will receive $1,950,274 M. He stated in order to save money, state SEAMAP funds that would have been used for vessel time will now go to the Commission. The Commission will pay for vessel time for the states and will not charge overhead on these funds. This will allow another three to four days of vessel time during the trawl surveys. The 2017 SEAMAP Environmental and Biological Atlas of the Gulf of Mexico was completed and is available on the website. Various SEAMAP databases have been downloaded 43 times since the October 2018 meeting.

J. Rester reported the Commission will receive $500K in NMFS funding to optimize fishery independent sampling in the Gulf of Mexico. NMFS would like the Commission to develop optimal fishery independent surveys that would collect data for stock assessments and ecosystem management. The Commission will hire a statistician and possibly a stock assessment person to help in designing these surveys. A steering committee will be established and a series of workshops will be held to develop the types of data needed and how to go about collecting those data in the most economical way.

Sportfish Restoration Program

J. Ballard stated the SPRP detailed report is under Tab J of the Briefing Book. The final draft of the third edition of the ASMFC's and GSMFC's ***Guidelines for Marine Artificial Reef Materials*** has been distributed to the Joint Committee. The deadline for review is April 1. If it is decided to finalize the document, it will be distributed to the TCC for approval and then to the Commission for approval. When the document is approved, it will be made available electronically through the GSMFC's website. The document will be dedicated to Jimmy Sanders and Jim Francesconi who were committee members that passed away during the revision of this document. He said the Gulf Committee discussed doing a tribute to Jimmy Sanders and one of the contractors that attends the meetings, Eternal Reefs, offered to donate one of their eternal reefs in Jimmy's honor. The proceedings from the ***Marine Artificial Reef Research and Development: Integrating Fisheries Management Objectives*** symposium at the American Fisheries Society's 147th Annual Meeting and the ***11th Conference on Artificial Reefs and Related Habitats*** are available from the AFS website. **J. Ballard** said he is still working on establishing a Gulf-wide Lionfish Removal Program and they are supporting the second year of the Jimmy Sanders Lionfish memorial Challenge in Mississippi. He gave a summary of the ***America's Wildlife Values Study*** and the report is available at www.wildlifevalues.org.

Fisheries Information Network (FIN)

G. Bray stated the FIN report is in Tab K of the Briefing Book then gave a presentation on the FIN Activities for 2018. He stated there are 5 FIN programs throughout the country and this is a cooperative state/federal fishery dependent data collection and dissemination program. He said

they work in both the commercial and recreational sectors. He reviewed the recreational catch/effort, the commercial Trip Ticket Programs, the FIN Data Management System, and biological sampling for 2018. He said for 2019 the Gulf FIN is level funded and are in the 5th year of the 5 year cooperative agreement. He said they have a small amount of unallocated funding that will go towards the 2019 cooperative agreement. The presentation may be obtained by request to the GSMFC office.

Aquatic Nuisance Species Program (ANS)

J. Ballard stated the ANS report is under Tab L in the Briefing Book then gave a presentation on the ANS Program. He said the GSARP meeting was in San Antonio, Texas on October 30-31. The Aquatic Nuisance Species Task Force met on December 12-13 in Falls Church, VA. The meeting focused on Goal Team breakout sessions that continued to develop strategies and outputs to meet the objectives in the ANSTF's new 2018-2022 Strategic Plan. They are continuing their partnership with USFWS to administer their AIS small grants program. The Traveling Trunk was utilized for over 70 days since the fall 2018 meeting. He then reviewed the new GSARP Website and recent Invasive Species Legislation. The presentation may be obtained by request to the GSMFC office.

State Directors' Reports

Given the time constraints, the State Directors did not give reports. ***S. Bannon moved to accept the State Reports as submitted in the Briefing Book. J. Froeba seconded and the motion passed.***

Future Meetings

N. Marcellus stated the fall meeting will be in Mississippi. She anticipates it will be in the Gulfport/Biloxi area and asked if the Mississippi Commissioners have input on where they would like to hold the meeting, to contact her.

Review of Committee Listings

D. Donaldson stated each state Committee Listing is in the briefing book and asked the Commissioners to review their information and to send any updates to C. Noble.

Publications List and Web Statistics

D. Donaldson stated the available publications list is in the Briefing Book. He said if anyone is interested in obtaining any publication to contact D. McIntyre and all publications are available on the website. He said J. Ferrer was going to give a brief presentation on the website but due to the time he will not give the presentation. The information is in the Briefing Book and if anyone has questions they can contact J. Ferrer.

Other Business

D. Donaldson said there was not enough time to show the video but a link to the video will be emailed to each Commissioner.

There being no further business, the meeting was adjourned at 4:55.

State Reports

Alabama State Report to the Gulf States Marine Fisheries Commission
Spring 2019

Fisheries Section

The Alabama Marine Resources Division (AMRD) completed the fourth year and started the final year of fisheries monitoring projects funded by the National Fish and Wildlife Foundation's Gulf Environmental Benefit Fund (NFWF). Phase two of the artificial reef and habitat enhancement work was implemented and will add additional structures to the offshore environment with increased monitoring of the evolution of the reef sites.

AMRD biologists continue to monitor oyster densities on Alabama's public oyster reefs. From June 22, 2018 through October 3, 2018, a total of 450 SCUBA quadrat samples were collected and processed. Samples were collected from reefs that were planted with cultch between 2009 through 2016 and from non-planted reefs for comparison. Very low oyster densities were observed on all reefs surveyed along with oyster drills and evidence of drill predation. After data analysis, it was determined that the oyster density on the public reefs was too low to open reefs up for harvest in the fall of 2018.

AMRD biologists participated in 8 observer trips on 2 commercial blue crab vessels working Portersville Bay and the Wolf Bay/Perdido System between July 11 and December 5, 2018. A total of 500 of 516 crab traps fished were sampled and 2,534 individual blue crabs were sexed and measured. External parasites and abnormalities found on sampled crabs were documented and bycatch was recorded. A total of 161 crabs were randomly selected and retained during the 8 trips. Selected crabs were kept on ice after each trip until they were measured, weighed, and examined to verify sexual maturity, the presence of internal/external parasites, and for other abnormalities.

The AMRD continued to create reef fish habitats within the nearshore area of Alabama (Gulf of Mexico beach to 9 miles offshore). A $1,200,000 contract using NFWF funds was executed to construct new reef habitat in the nearshore waters of the Gulf of Mexico. The project was completed and 600 concrete reef modules were deployed. Additionally, a $1,600,000 project was completed to create new juvenile reef fish habitat within the newly permitted artificial reef zones between 6 and 9nm offshore. A total of 15,000 tons of 6"-10" limestone aggregate was deployed at 20 reef sites to create low profile, complex reefs.

The AMRD continues its at-sea sampling program funded by NFWF. The program consists of one sampler riding on a volunteer federally permitted for-hire vessel operating out of Mobile or Baldwin counties, to monitor fishing activities and collect biological data on targeted reef fish. The program, temporarily suspended during winter months due to low activity and participation, is expected to resume during the spring for its final year.

The AMRD continued mapping historical oyster reef locations in Mobile Bay using side scan sonar to determine possible locations of live oyster reefs. Several areas of potentially hard substrate have been identified and ground-truthing has been conducted to verify if live oysters exist in these areas or if the area is just a remnant of a past reef.

AMRD's Claude Peteet Mariculture Center (CPMC) continued stock enhancement efforts of red drum, Florida pompano, and southern flounder. Over 168,000 1-2-inch red drum fingerlings were released at 9 different sites throughout coastal Alabama. These releases occurred over two spawning periods. More than 55,000 1-2-inch Florida pompano fingerlings were released at locations along Baldwin County beaches over one spawning period. Modifications to existing larval rearing systems are be being conducted to accommodate flounder hatchery activities. Funding for these modifications has been provided, in part, by the Alabama chapter of the Coastal Conservation Association. Flounder spawning activities are anticipated during early 2020.

The AMRD obtained funding for the construction of an Eastern oyster hatchery and remote larval setting facilities. Plans are currently in development with construction anticipated to begin in 2019.

Fall 2018 SEAMAP activities were completed for bottom long line, vertical line, ichthyoplankton and trawl surveys. Red snapper remain most abundant species in the vertical line catch. Atlantic sharpnose and black tip sharks were the most abundant from the bottom long line gear. Annual report was submitted to NOAA with results.

A joint three-year research project with Auburn University and Clemson University continues through 2020. This study focuses on southern flounder growth rate and sex ratio based on specific estuarine habitats. Thirty-six flounder were collected in 2018, but samples were not sufficient to investigate how habitat specific conditions affected sex ratios of juveniles.

The AMRD continued the collection of dockside Access Point Angler Intercept Survey interviews and validation of charter. From September through January, AMRD APAIS samplers completed a total of 227 assignments and interviewed 853 anglers. Training and fish tests were provided to APAIS staff in January and will be held again in August.

The AMRD and Gulf States Marine Fisheries Commission have collaborated to re-instate the Biological Sampling Program for the collection of otoliths from recreationally harvested marine finfish. The program was re-implemented on September 1, 2018 and will continue for 18 months. Through January 2019, a total of 63 pairs of otoliths with 123 additional measurements representing 9 out of the 13 primary targeted species were collected by AMRD's staff.

The reporting requirement for captains of recreational vessels landing red snapper in Alabama continued for the fifth year. During the 2018 red snapper season, 8,935 landings reports were submitted by representatives from charter boats, headboats, and private fishing vessels through the Snapper Check Program. Approximately, 1.80 million pounds of red snapper were estimated to have been landed in Alabama during 2018. In 2018, the Snapper Check Program was certified by NOAA Fisheries as a statistically valid method to estimate Alabama red snapper landings. Alabama is using Snapper Check to monitor red snapper landings in near real-time to stay within a state quota issued through a NOAA Fisheries' Exempted Fishing Permit (EFP). The EFP will continue through 2019.

The AMRD continues to register anglers through Alabama's Angler Registry Program. Anglers who are not required to purchase a license must register annually with AMRD if they intend to fish in Alabama's waters or transit through Alabama's waters in possession of fish. Exempted individuals such as lifetime license holders and residents over the age of 64 receive the angler registry at no cost. These data are provided to NOAA Fisheries monthly.

The AMRD continues to operate its Adopt-a-Reef program. Currently, 50 scuba divers have registered to become Adopt-a-Reef members and 57 reef reports have been submitted to the online database. Reports include information about offshore artificial reefs such as the subsidence of the reef, the structural integrity of the reef, lionfish abundance and removals, and the degree of anthropogenic fouling.

The AMRD developed and bid plans to replace the existing finger piers at two coastal boat ramps in Baldwin County. Construct activities are expected to begin in March 2019 and be completed prior to June 2019 at Boggy Point Boat Launch in Orange Beach and Bay Watch Boat Launch located at Weeks Bay.

The AMRD is working with Alabama Department of Conservation and Natural Resources engineering staff, the Alabama Historical Commission, and Volkert, Inc. to develop construction plans to replace the existing fishing pier located at the site of historical Ft Morgan in Baldwin County. The existing pier, constructed in the late 1960's, was closed several years ago due public safety concerns relating to the condition of the structure. The new pier will be constructed in the footprint of the existing pier and is expected to be publicly bid in the spring of 2019 with construction commencing shortly thereafter.

The AMRD participated in several outreach events by providing educational opportunities to learn about the marine environment through interactive exhibits. These events included the Alabama Coastal Birdfest and the multiday Mobile Boat Show.

The Alabama Seafood Marketing Program continued under the direction of the Alabama Seafood Marketing Commission. The Alabama Seafood Marketing Program consists of public relations, television commercials, print ads and articles, radio ads, billboards, speaking appearances, distribution of marketing materials, sponsorships of events and participation at community festivals and chef events to promote the benefits of seafood consumption. The marketing program's website is www.eatalabamaseafood.com. The program to date has been very successful.

Enforcement Section

From September 2018 through January 2019, AMRD enforcement officers conducted 998 commercial fishermen intercepts, 4,464 recreational fishermen intercepts, 731 seafood dealer and processor inspections, 5,632 hours of patrol (combined vessel patrol and shore patrol), and 1,385 vessel boardings.

Between September 1st and January 31st, the Enforcement Section participated in many outreach events including multiple boat shows and National Night Out programs, as well as, visiting area schools and fishing tournaments to provide education opportunities.

AMRD officers continue to partner with Bryant High School in Bayou La Batre and Baker High School in Mobile to support their Career Academy programs. This upcoming summer intern opportunities will provide up to four students the ability to gain valuable, paid, part-time work experience in the diverse career fields that are conducted by the AMRD.

In August 2018, the Enforcement Section was awarded a Port Security Grant totaling more than $313,000 to be used towards updating and expanding the capabilities of the current Coastal Remote Monitoring system, a network of video cameras throughout Coastal Alabama. AMRD Enforcement is continuing the construction updates and expansion provided by the grant.

Mississippi Department of Marine Resources (MDMR)
Activity Report: July 1, 2018 – December 31, 2018
Gulf States Marine Fisheries Commission (GSMFC)
70th Annual Spring Meeting – New Orleans, LA
March 18 – March 21, 2019

Artificial Reef Bureau

The Artificial Reef Bureau (ARB) continued monthly monitoring of fish assemblages and physiochemical parameters at selected inshore reef sites. Personnel inspected 28 and replaced five inshore reef marker signs to assist boaters in locating the low-profile reefs. Juvenile reef fish sampling was performed in July. A total of 22 juvenile reef fish were captured, tagged, and released. ARB staff collaborated with the Mississippi Gulf Fishing Banks to monitor artificial reefs via roving SCUBA diver surveys. From July through December, a total of 24 dives were performed by the club's members and data was collected regarding species assemblages and physiochemical parameters. ARB staff also assisted the Shellfish Bureau in square meter sampling. In conjunction with the Gulf States Marine Fisheries Commission, the first annual Jimmy Sanders' Memorial Lionfish Challenge took place from May through September. Participants harvested 26 lionfish during the 2018 challenge. Biological data as well as harvest location was collected for each fish.

In addition to monitoring artificial reefs, the ARB worked on securing more structure to be deployed off the coast of Mississippi. The ARB secured approximately 47 deliveries, totaling 1,282 pieces of clean concrete material. This material is stockpiled at the Gulfport staging site for future offshore deployments.

The ARB staff represented the MDMR by contributing to outreach events and educational meetings. In July, staff represented the agency at the annual Mississippi Deep Sea Fishing Rodeo as well as the Croaker Classic in Biloxi. In August, staff represented the agency at the Mississippi Wildlife Extravaganza in Jackson MS.

ARB staff worked on renewing permits for all nearshore artificial reefs, keys, and the Cat Island artificial reef zone, and applied for two new artificial reef zone permits. This process includes: permit application, Section 7 Endangered Species checklist, and environmental assessments. Likewise, staff continued the process of obtaining permits for two new artificial reef zones in the vicinity of three other existing reef zones. These new zones will be known as Mississippi Reef Zone 1 and Mississippi Reef Zone 2 (MRZ 1 and MRZ 2).

Lastly, the ARB is currently preparing for and working on future deployments of artificial reef material. MDMR continues to work with several companies as they contribute to artificial reef development by donating clean concrete material. The material is being stockpiled at a five-acre staging site in Gulfport, MS. This material will be deployed at a later date.

Finfish Bureau

The Finfish Bureau (FB) continued to oversee the Marine Recreational Information Program (MRIP) in Mississippi. Assignments from July to December were obtained, reviewed, and processed before being sent to the GSMFC office. A total of 237 assignments and 1,230 surveys were completed July 1, 2018 through December 31, 2018 in Jackson, Harrison, and Hancock Counties. Survey site validations were conducted at all active sites to update the site registry for 2018 as state-wide site effort estimates continue to be refined to improve the accuracy of the survey design. The for-hire vessel frame was evaluated and edited to better reflect our most recent and updated state license file. This will allow FB staff to develop a more comprehensive and accurate active vessel frame to estimate for-hire effort more precisely.

Long term fishery independent sampling continued in conjunction with the NOAA Project "Monitoring and Assessment of Mississippi's Interjurisdictional Marine Resources." With cooperation from the Gulf Coast Research Laboratory (GCRL) a total of 323 otoliths were collected July 1, 2018 through December 31, 2018. Samples were collected from ten different species: Atlantic Croaker, Black Drum, Red Drum, Sheepshead, Southern Flounder, Spanish Mackerel, Spotted Seatrout, Southern Kingfish, Sand Seatrout and Striped Mullet. Additionally, 388 samples were collected and processed as part of the MDMR biological sampling program from 15 species: Black Drum, Sheepshead, Florida Pompano, Southern Flounder, Red Snapper, Spotted Seatrout, Southern Kingfish, Striped Mullet, Sand Seatrout, Gray Snapper, Atlantic Croaker, King Mackerel, Cobia, and Vermillion Snapper. The data collected through these programs will aid in management decisions for our state and are submitted to the Gulf States Marine Fisheries Commission (GSMFC).

The otolith reference sets for Sheepshead and Gray Triggerfish have been read by MDMR staff. No other reference sets are currently in-house at MDMR.

Commercial landings data was collected from fishermen and dealers utilizing Mississippi Trip Ticket program to monitor the quota on Red Drum, Southern Flounder, and Spotted Seatrout. FB staff continued working with commercial fishermen and dealers on trip ticket concerns. From July 1, 2018 through December 31, 2018 there was 1,987 paper trip tickets scanned and 2,297 tickets that were submitted electronically. All commercial landings data for 2018 has been verified and sent to GSMFC. Mississippi currently has 226 active commercial fishermen and 127 dealers participating in our trip ticket program.

FB staff continued to tag Red Drum in Mississippi coastal waters as part of an ongoing research project aimed at filling in age and size information gaps of Red Drum in Mississippi waters. The Red Drum project began in February 2014 and targeted fish of sizes of 20-30 inches, however Red Drum collected from past and current monitoring projects have not captured this size range. In addition, fishery dependent samples have been collected on a voluntary basis from recreational fishermen and for-hire captains who relinquish the carcasses to MDMR staff. These samples will be used to enhance existing data sets to complete a Red Drum stock assessment currently underway. With all Red Drum processed, additional samples are collected in relation to stomach contents (Trophic analyses), gonad samples (histology), and otoliths (ages).

FB added a new component to capturing information from Red Drum last year by tracking their movements through acoustic telemetry. The study is focused on the Biloxi Bay area and tagging

began in May of 2017. The acoustic array consists of 34 acoustic receivers placed at strategic locations throughout the project area. Staff successfully tagged 50 Red Drum from July 1, 2017 through December 31, 2018. Three additional Red Drum were recaptured between July 1, 2018 through December 31, 2018 and reported by anglers for a total of 13 fish recaptured since the project began in May of 2017.

Mississippi's recreational Red Snapper electronic reporting system, Tails n' Scales, completed another successful landings program for the 2018 season. This year, the National Marine Fisheries Service (NMFS) encouraged each of the five Gulf States to submit Exempted Fishing Permit (EFP) applications to test state-based recreational red snapper management programs, and in response, each gulf state developed a proposal for a pilot study. On April 16th, NMFS issued the permits, allowing Mississippi and the other four gulf states to set their own seasons for private recreational anglers and state charter for-hire vessels. Mississippi's private recreational season lasted for 76 days with a few closures and openings during that period. The season length for state charter for-hire vessels was 17 days and the federal for-hire season was 51 days, although vessels with federal reef fish permits were not included in the EFP. Mississippi's quota was 137,949 lbs., which was split proportionally between the private recreational and state for-hire sectors. The state for-hire quota was 2,800 lbs. Along with Mississippi's EFP being accepted for the 2018 and 2019 seasons, Tails n' Scales completed the certification process and became the second program to have its survey design accepted by NOAA Fisheries in June, after Louisiana. The Red Snapper reporting system "Tails n' Scales" was certified by NOAA in June of 2018.

MDMR in conjunction with GCRL completed Year 3 sampling for the offshore reef fish National Fish and Wildlife Foundation project. From July 1 through December 31, 2018, a total of 90 sites (DMR 34, GCRL 56) were sampled with fish and water quality samples currently being processed.

MDMR in conjunction with GCRL started discussing a Southern Flounder stock assessment and sampling protocol in February of 2018. Sampling by fyke nets began in May of 2018 and is still ongoing. A total of thirty net sets over three stations (Deer Island, Belle Fontaine Beach, and Davis Bayou) were performed from July 1 through December 31, 2018. Thirty-Two Southern Flounder have been collected during this time.

Eight recreational fishing records were approved by the CMR as state records between July 1, 2018 through December 31, 2018.

Angler	Catch Month	Common Name	Scientific Name	Weight
Matt Glen	July	Graysby	*Cephalopsholis cruentata*	9.93 oz
(Y) Kyson Blocker	August	Striped Burrfish	*Chilomycterus schoepfii*	1 lbs. 5.62 oz
(Y) Margaret Schindler	August	Red Drum	*Sciaenops ocellatus*	26 lbs. 8 oz
Michael Garrett	August	Tiger Shark	*Galeocerdo cuvier*	675 lbs.
(Y) Reagan McGarvey	September	Gulf Kingfish	*Menticirrhus americanus*	1 lbs. 8.72 oz
Brennan Sanders	September	Inshore Lizardfish	*Synodus foetens*	5.50 oz
Junie Creel	October	Lowfin Pomfret	*Brama dussumieri*	4.37 oz
Kevin Sikes	October	Gulf Flounder	*Paralichthys albigutta*	1 lb. 7.68 oz

(Y) = Youth Record

Seafood Technology Bureau

The Seafood Technology Bureau (STB) conducted 179 inspections including pre-operational, follow-up, certification, standardization, and routine inspections. The required bi-annual water quality sampling for seafood processing facilities for September was completed with a total of 49 samples taken.

In June, the Food and Drug Administration (FDA) conducted a Program Element Evaluation of the Plant and Shipping Element of the Mississippi Shellfish Sanitation Program. During the evaluation, 11 processors were inspected. The result of the evaluation was a "conformance" rating. This is the highest rating a program can receive. Since 2001, the Mississippi Shellfish Sanitation Program has been evaluated by the FDA 10 times. The program has received a conformance rating nine times out of 10.

In accordance with the Interstate Shellfish Sanitation Conference's National Shellfish Sanitation Program, the STB conducted several illness investigations. None of the illnesses were epidemiologically linked to the consumption of Mississippi harvested oysters.

The STB in collaboration with the FDA conducted four workshops - two Basic Seafood Hazard Analysis Critical Control Point (HACCP) and two Sanitation Control Procedures (SCP) workshops. The workshops were held free of charge for Mississippi residents. They were made possible through a grant from the Mississippi Tidelands Trust Fund Program FY 2016/FY 2018 which is administered by the Mississippi Secretary of State's Office and the Mississippi Department of Marine Resources. A total of 39 students attended the HACCP workshops and 28 attended the SCP workshops.

In July, staff from the STB participated in a tabletop exercise simulating a water contamination event with the Mississippi Department of Health, The Centers for Disease Control & Prevention, the FDA, and the Center for Food Safety and Applied Nutrition, in Jackson. The exercise enabled discussions on how all agencies involved would react in a real-world water contamination event. Several staff members completed ServSafe training. ServSafe is a five-year certification for food handlers on safe practices. Scholarship funds that were secured from the Association of Food and Drug Officials (AFDO) also allowed one staff member to attend the AFDO Southern States Conference in Gatlinburg, Tennessee in September.

Two staff members are currently participating in the Certified Public Manager (CPM) program taught by the Mississippi State Personnel Board. The program is a nationally recognized leadership development program for public managers and supervisors.

In August, staff participated in an oyster dissection class at Harrison Central High School. Students were instructed on the link between oyster anatomy and seafood safety. The STB also participated in the annual Jackson County Fair in October, educating thousands of residents

about the importance of seafood safety in their everyday lives. In November, staff from the STB participated in a Smithsonian public outreach event at the Ocean Springs Library.

Shellfish Bureau

The 2018-2019 Oyster Season opened to the harvest of oysters on November 10, 2018. The season has opened for a total of seven days from November 10 to December 8, 2018. There was a total of 3,852 sacks harvested and a total of 247 trips taken during this time. The only areas open for harvest at this time was Area 1 and Area 2. These areas are in the westernmost portion of the Mississippi Sound.

During Spring and Fall 2018, Shellfish Bureau deployed cultch materials for oyster restoration over approximately 290 acres of public oyster reefs. Since June 2018, the Shellfish Bureau deployed approximately 145 acres of cultch material over the public reefs throughout the Western MS Sound and Biloxi Bay. In the Western MS Sound, 137 acres of limestone (#4 size) and oyster shell were deployed over St. Joe, Pass Marianne, Pass Christian, Henderson Point, and St. Stanislaus reefs. In Biloxi Bay, a variety of cultch types including oyster shell, limestone, crushed concrete, and spat-on-shell were deployed over eight approximately one-acre sites. MDMR plans to monitor and study the effectiveness of different cultch materials for restoration of oyster reefs using the one-acre sites in Biloxi Bay.

From June through December 2018, the Shellfish Bureau collected 722 fecal coliform water samples. These samples are used to manage the opening and closing of oyster reefs. The samples are collected by boat, in sterile bottles, one-half meter below the surface on the windward side. The samples are placed on ice and transported to an FDA certified microbiology laboratory. The samples are analyzed using the 5-tube, 3 dilution, modified A-1 method.

Oyster License Sales for the 2018-2019 fiscal year include: eight recreational Licenses, 50 commercial tonging licenses, 135 commercial dredging licenses, nine commercial out of state tonging licenses, and nine commercial out of state dredging licenses.

In August 2018, two members of the HAB task force attended the US Harmful Algal Bloom Taxonomy Course held at Bigelow Laboratory in East Boothbay Maine. The course is designed to educate state and federal workers that respond to HAB events in the interest of public safety. MDMR staff learned how to distinguish various species of dinoflagellates, diatoms, and other flagellates that are considered harmful in blooms due to morphological characteristics. Staff had extensive training of; algal classification through lectures and examination of over 100 species of live and preserved samples, use of light and electron scanning microscopes, use of a FlowCam®, and net sampling.

The Shellfish Bureau held a Harmful Algal Bloom Identification Training Workshop October 11-12, 2018. There were 15 participates from the MDMR, GBNERR and ALDH. Jennifer Maucher Fuquay with NOAA's Phytoplankton Monitoring Network in Charleston, South Carolina, traveled to Biloxi, MS to present a training session on how to identify harmful algae. The first day of the training focused on marine phytoplankton identification. The second

day of training focused on freshwater phytoplankton identification with a presentation followed by preserved and live sample identification.

The Pascagoula oyster relay began on December 10, 2018 and concluded on December 17, 2018. On Friday, December 14th, the relay was closed at 1:00 p.m. due to adverse weather conditions. It reopened on Sunday morning at legal sunrise, December 16th.

Pre-Registration for the Pascagoula relay took place on December 4th through 7th at the Bolton Building in Biloxi. There was a total of 146 harvesters qualified to participate and there were 80 harvesters that registered to participate. Two MS Dealers participated in the relay: Joe Jenkins with Crystal Seas Seafood and Jeremy Forte with Jerry Forte Seafood.

During the relay, a total of five barges were deployed onto the restoration site located in Biloxi Bay utilizing contractor barges to spray the oysters off the deck with high powered water monitors. Method of deployment was slightly different than traditional methods, whereby the barge dropped a spud into the substrate and rotated around its axis while spraying oysters from the barge. This method of deployment should have resulted in a more concentrated distribution of oysters in a circular pattern. JE Borries, Inc was the bidder for the barge contract. The dates for this contract are: December 10 – 14 and 16 – 18.

Total Sacks Harvested and Total Boats Working by Day

Date	Total Sacks Harvested	Total Boats
12/10/18	1,509	?*
12/11/18	2,228	31
12/12/18	2,598	32
12/13/18	1,524	28
12/14/18	2,010	?*
12/16/18	5,085	42
12/17/18	3,624	43
Total Relay Harvest	18,578	

*Still working to gather this data

Between May 23, 2018 and August 9, 2018, the Shellfish Bureau conducted an annual oyster stock assessment of 14 reef complexes located in the Mississippi Sound between the mouth of the Pearl River and the Pascagoula River. Reef assessments help to determining a sustainable harvest, monitor predation and disease, calculate mortalities and recruitment, record environmental conditions including hydrology and bottom type, and determine where and how to focus future restoration efforts. Square meter dive samples are employed to provide a quantitative assessment of each reef across the entire spectrum of oysters' sizes to achieve the assessment goals. Random points were selected for each reef based on reef size and reef density variations. A total of 200 sampling locations were created with 2 replicate dives performed at each location for a total of 400 square meter samples across the 14 reefs. Below are the results of the 2018 oyster reef assessment.

2018 Mississippi Oyster Stock Assessment

Reef	2018 Est. Sack Total	Sacks @30% Harvest	Status
Pass Tonging	652	196	Near depletion
Pass Dredging	0	0	Near depletion
Henderson Point	2,064	619	Near depletion
Pass Marianne	1,309	393	Near depletion
Telegraph	0	0	No resource
St. Joe	21,230	6,369	Fished heavily
St. Stanislaus	1,427	428	Fished heavily
Waveland	29	9	Recovering (limited resource)
Between the Bridges	550	165	Resource recovering
Western Reefs	27,261	8,178	
Biloxi Bay Cultch Plant	675	203	
TOTALS	**27,936**	**8,381**	

[1]Includes additional acreage identified in 2017 side-scan image

2018 Mississippi Oyster Stock Assessment (Eastern Reefs)

Reef	2017 Est. Sack Total	2018 Est. Sack Total	Comments
Biloxi Bay Cultch Plant	**1,651**	**675**	**Recovering (limited resource)**
Shearwater	**1,674**	**651**	**Restricted waters**
Graveline	**830**	**904**	**Restricted waters**
Pascagoula West	**10,013**	**5,245**	**Restricted waters**
Pascagoula Causeway	**26,745**	**21,601**	**Restricted waters**
TOTALS	**40,913**	**29,076**	**Recommend No Harvest**

Shrimp and Crab Bureau Mississippi Department of Marine Resources (MDMR)

Mississippi territorial waters opened to shrimping at 6:00 a.m. on June 6, 2018. An aerial survey counted 254 boats trawling in the Mississippi Sound on opening day as fishermen reported catching moderate numbers of 40/50 count brown shrimp. Preliminary landings for July through December 2018 show 5.88 million lbs. of shrimp (all species head-on) landed in Mississippi with a dockside value of $11.5 million. Shrimp landings increased from the same period (July-December) of the 2017 season (5.75 million lbs.).

Preliminary Blue Crab landings for July through December 2018 were 556,291 lbs. with a dockside value of $800 thousand, an increase for the same period of the 2017 season (464,283 lbs. with a value of $600 thousand). A public derelict crab trap clean-up is planned in

Mississippi from February 14-16, 2019. MDMR staff continues to remove derelict traps reported to the agency by the public, and also continues to retrieve submerged derelict traps using side scan sonar technology. Utilizing NOAA Disaster Recovery funds from the 2011 opening of the Bonnet Carré spillway, the MDMR has been able to provide 60,934 crab trap escape rings and 6,740 terrapin excluder devices to resident crab fishermen at no cost.

The third annual Mississippi Crab Newsletter, *The Blue Crab Beacon*, was distributed to resident commercial crab fishermen. The newsletter contained information Mississippi Blue Crab landings, the Mississippi Derelict Crab Trap Removal Program, Mississippi's Trip Ticket Program, Gulf Coast Research Laboratory's (GCRL) Crab Tagging Program, TEDs/Escape Rings, Crab Processing and other informative topics. The 11th annual edition of *Shrimping the Sound* was also distributed to resident commercial shrimpers. The newsletter included information on TED Enforcement, Audubon's G.U.L.F. Initiative, USGS Hydrological Monitoring Program, Marine Mammal Authorization, American Shrimp Processors Annual meeting, Mississippi Shrimp Landings, as well as environmental conditions influencing shrimp abundance this year. Both newsletters are available on the MDMR website at www.dmr.ms.gov.

Long term fishery independent trawl sampling continued in conjunction with the NOAA Project "Monitoring and Assessment of Mississippi's Interjurisdictional Marine Resources." Cooperation with GCRL on the commercial and recreational Blue Crab Catch per Unit Effort projects is also ongoing. Bureau personnel coordinated and administered six U.S. Fish and Wildlife Service Sport Fish Restoration Projects, issued 34 Scientific Research Permits per Title 22 Part 18, and inspected and licensed 16 Live Bait Camps and ten vessels per Title 22 Part 6.

Gulf States Marine Fisheries Commission
69th Annual Spring Meeting
Technical Coordinating Committee
March 21, 2019

LOUISIANA STATE REPORT

Resource Management:

LA Creel

Through the La Creel program, 3,179 recreational fishing trips, comprised of 7,527 individual anglers, were surveyed during 2018 Sample Weeks 40 - 52 (October 1, 2018 through December 30, 2018) and 2019 Sample Weeks 1 – 3 (December 31, 2018 – January 20, 2019) (the sample period). Forty-eight different interviewers completed 487 assignments during the sample period.

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 reporting period, there were 21,769 Type 1's and 5,756 Type 2's, which means that 79 percent of all fish in possession of the angler at the time of survey were identified and counted by staff.

On January 21, 2019, La Creel began capturing the time spent onsite. The purpose is to determine if variations in the time on site have any unforeseen impacts on the data, particularly with PM assignments, which are often shorter than AM assignments due to sunset. This was also a suggestion made by the NMFS contracted La Creel review committee.

Also in January 2019, a new SAS assignment draw program was developed to make the process more efficient. The new program was used to generate the February 2019 assignment list.

The iPad application used for data entry for dockside surveys will undergo a rebuild in the spring of 2019. The rebuild entails moving the app from one platform to another so that future maintenance and changes to the app can be done in-house by state IT staff.

Stock Assessments:

An updated stock assessment of striped mullet was completed in November 2018 and presented to the Louisiana Wildlife and Fisheries Commission (LWFC) for transmittal to the Louisiana Legislature in February 2019. 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 fishery-independent relative abundance index are the primary model inputs. Current status of the stock is determined with estimates of reproductive potential. Based

on results of this assessment update, the stock is currently not overfished and not experiencing overfishing.

Age and Growth:

BIOFIN funding returned this year, starting on September 1, 2018. Since the new BIOFIN agreement covers recreational species only, we rely on NOAA's TIP sampling for our commercial otoliths. All otolith collection and ageing data has been transferred to GSMFC through the month of October. Staff are currently working on November and December otolith processing. The lab is also starting to receive reference sets for group reading for the upcoming Otolith Processors Meeting in May 2019.

From the beginning of September 2018 to the end of January 2019, the Age and Growth laboratory in Baton Rouge has received 3,791 Marine Fisheries otoliths. From that otolith total, 2,930 have been aged. During this same time period, 1,323 Inland Fisheries otoliths have been collected and transferred to the lab. All of these Inland otoliths are Largemouth Bass, Channel Catfish, Black and White Crappie. The Fisheries Research Lab processes Blackfin Tuna, Tripletail, Wahoo, and Yellowfin Tuna. The numbers for those species are not included in the Age & Growth lab's total for this time period. However, their individual totals are listed. The totals received for each species are: Black Crappie-511; Black Drum-646; Channel Catfish-15; Cobia-0; Gray Snapper-3; Greater Amberjack-0; Gray Triggerfish-0; King Mackerel-6; Largemouth Bass-605; Red Drum-968; Red Snapper-104; Sheepshead-345; Southern Flounder-267; Spotted Seatrout-1,214; Striped Mullet-111; Tripletail-26; Vermilion Snapper-0; Wahoo- 0; White Crappie-192; Blackfin Tuna-0; Yellowfin Tuna-101.

Fisheries Research Lab:

The Grand Isle Fisheries Research Lab (GI-FRL) is the base for offshore fisheries independent monitoring and research projects conducted by the Fisheries Research and Assessment Section. GI-FRL also performs a significant outreach capacity, as the Lab serves as a point of contact for the public, visiting researchers, and educational programs.

Southeast Area Monitoring and Assessment Program (SEAMAP)

SEAMAP is a cooperative state, federal and university program designed for the collection, management and dissemination of fishery-independent biological and environmental data of the coastal waters (state and EEZ) off the southeastern United States, Caribbean and northern Gulf of Mexico. Since 1981, SEAMAP has collected data on fish stocks that are managed by either state or federal governments. Louisiana takes part in four components of the SEAMAP program: shrimp/groundfish, icthyoplankton, vertical line and bottom longline. These surveys are conducted by teams of three to nine fisheries biologists who collect, process and enter data. In addition, all surveys collect environmental parameters including a water column profile and water samples from bottom, middle and surface depths for chlorophyll measurements. These surveys are

conducted from April through October with data management and reporting conducted during the winter. During the reporting period, final reports and data packets were submitted to the Gulf States Marine Fisheries Commission (GSMFC) for all four surveys. The LDWF TCC-SEAMAP representative participated in the Fall GSMFC meeting. SEAMAP final grant reports were submitted to the National Oceanic and Atmospheric Administration (NOAA).

Spotted Sea Trout Life History Study

Previous assessment analyses (Assessment of spotted seatrout in Louisiana waters: 2011 Report by Joe West, Jason Adriance, Melissa Monk and Joseph Powers) provided estimates of female spawning potential ratio and spawning stock biomass based on limited data sets. New information has allowed for greater data resolution, which allows for more accurate estimates within the assessment model. Production estimates of the spawning stock are important inputs into the stock assessment model. During the reporting period, reproductive histological analysis was completed with 11 batch fecundity completed thus far. Female ovary tissue samples have been processed. By supplementing collections with charter catches, we have increased the total number of older individuals in our sample population, which will aid in providing a better estimate of age-specific fecundity. The calculation of annual fecundity within age will allow for a more accurate representation of the spawning stock as a production input into the model and will more accurately assess the status of the Louisiana spotted seatrout spawning potential ratio. Future collections will focus on older spotted seatrout (ages 3+), obtaining females in spawning condition, and expanding the study from its current Barataria Basin focus to a statewide project that incorporates monthly samples from throughout the spawning season from each Coastal Study Area.

Offshore Red Drum Age Structure

The red drum (*Sciaenops ocellatus*) is one of the most harvested marine recreational fishes, both across the northern Gulf of Mexico and specifically in Louisiana (National Marine Fisheries Service (NMFS) 2017). However, before 1988, red drum were overfished and undergoing overfishing. According to a red drum stock assessment conducted by the Southeast Fisheries Science Center in 1987, the chance of juvenile escapement to the spawning stock was less than 2 percent (Goodyear 1987). The Gulf of Mexico Fisheries Management Council (GMFMC) implemented regulations that prohibited the retention of red drum from the Exclusive Economic Zone (EEZ; Red Drum Fishery of the Gulf of Mexico 1988). While the moratorium on EEZ harvest, which is still in effect, has increased spawning stock biomass in the Atlantic, the status of the Gulf of Mexico stock is unclear (SEDAR 2015, Porch 2000). Trammel net data from LDWF indicates an upward trend in mean size through sampling years, but it is difficult to determine whether this is the result of estuaries becoming more open water habitat or a recovering drum population. Additionally, the collapse of the offshore commercial purse seine fishery has impaired biological sampling of older or larger red drum for otolith or gonad sampling to determine age composition or fecundity. The 2000 red drum stock assessment lists

age composition of the adult population as a research priority for the Gulf of Mexico while both the 2000 Gulf of Mexico and 2015 Atlantic stock assessments are still using fecundity estimates from 1994 (Wilson and Nieland 1994, Porch 2000, SEDAR 2015). There is a clear need for biological samples from the offshore red drum stock to inform future assessment attempts.

The portion of the Southeast Monitoring and Assessment Program (SEAMAP) bottom longline (BLL) survey conducted by LDWF could provide a solution to red drum stock assessment needs. The SEAMAP BLL survey redesign was effective for the 2015 sampling season and resulted in greater sampling effort along the entire Louisiana coast inside the 10m contour. This survey has caught at least 100 red drum per year from 2015 through 2017 in offshore coastal waters adjacent to the Louisiana coast, with over 20% of the 90 stations recording of red drum catches. The lack of a consistent biological sampling source for offshore red drum has hindered stock assessment, but the LDWF portion of the SEAMAP bottom longline survey could provide a fishery independent source of otolith and gonad samples. Otoliths would provide abundance of age or year classes within the population while gonad samples would deliver spawning frequency and fecundity estimates. The abundance indices from standardized sampling coupled with age and reproductive analysis from the otolith and gonad samples would more accurately assess the adult population of Red Drum off Louisiana.

In 2018 LDWF collected otoliths from 160 red drum during offshore randomized BLL sampling. Though the majority of those landings occurred outside of the spawning season during spring sampling, 29 gonads were collected from female red drum closer to the spawning season during summer and Fall BLL sampling. Ages for red drum collected offshore ranged from 5 to 40 years (Figure 1). We expect that these data will be critical in characterizing the offshore spawning stock of red drum off the Louisiana coast in future stock assessments.

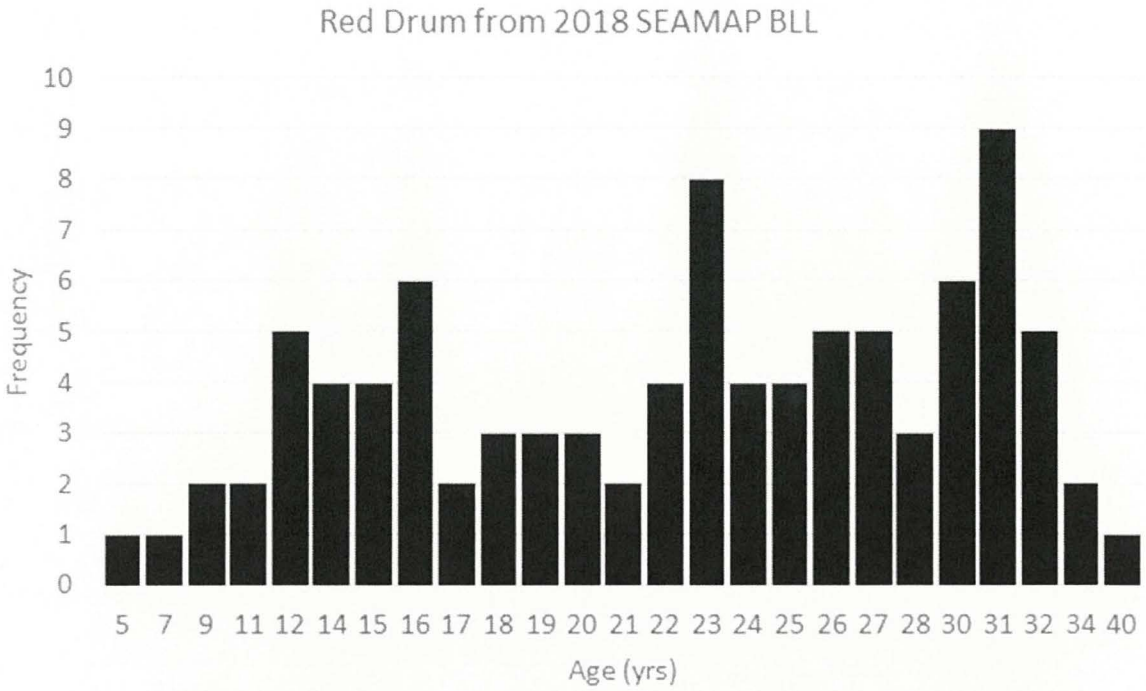

Figure 1. Age distribution of red drum collected offshore during 2018 SEAMAP bottom long-line surveys. Red drum sampled ranged from 5 to 40 years old.

Southern Flounder Tag Retention

In an effort to assess perceived declines in southern flounder stocks, LDWF began to explore a pilot field tagging study in Barataria estuary where a large number of southern flounder could be captured using fishery-independent survey methods, tagged, and released. Fishery recaptures could then be monitored through time and space to provide information on mortality rates, population size, and movement. Gear tests for this potential survey were completed during the reporting period.

A tank-study was conducted to determine the optimal tag-type (T-bar or dart) and tag-location (dorsal fin or caudal peduncle region) for the southern flounder field experiment. Biologists at the GI-FRL collected 44 southern flounder using drop rings at night. Following a quarantine procedure, these flounder were alternately double-tagged with t-bar and dart tags and separated in equal numbers into 4 tanks where they were kept for up to 6 months. The tank trial was competed in December 2018 and data analysis is underway.

Offshore Artificial Reef Monitoring

The Artificial Reef (AR) Monitoring Grant has three main goals: 1) analysis of GoPro video from previous (2015-17) and current vertical line (2018; VL) surveys, 2) conduct VL surveys on LDWF AR structures to enhance SEAMAP survey coverage of these structures, and 3) develop

and conduct roving diver surveys on LDWF AR reef structures. While these surveys are all ongoing, progress can be reported toward the objectives of each.

Previously, 430 unique GoPro videos were compiled from SEAMAP VL surveys (2015-2017). These videos were filtered for visibility and pre-read to define video read time bounds, with 43 of 247 videos readable from 2015, 37 of 97 videos readable from 2016, and 18 of 86 videos readable from 2017. Of the total collected, 98 videos were determined to be readable and these were read by two independent readers for finfish species identification on a 'min count' basis. Concurrently, GoPro videos were collected (SEAMAP funding for field work) from 2018 VL survey sites. 2018 videos were processed and read during the reporting period. Data management is underway and final results are expected in 2019.

LDWF also sought to enhance the monitoring of LDWF AR sites using the established SEAMAP VLL survey protocol. Ten percent of the AR structures in the LDWF Offshore AR Program were randomly selected and added to the 2018 survey. The 2018 survey was completed in fall of 2018, with 46 AR sites sampled following the SEAMAP VL protocol.

Additionally, LDWF sought to include a roving diver survey component to the LDWF AR Monitoring effort. While LDWF has previously conducted dive surveys at standing platforms, no dive surveys had been conducted at AR sites until this year when roving diver surveys were completed in the VR and ST block areas. Biologists surveyed finfish species at the AR site and the nearest standing platform. Diver observations and video counts were completed during the reporting period.

Offshore Invasive Species Monitoring

LDWF conducted roving diver surveys at offshore structures to document the presence, abundance, and habitat preferences of the invasive lionfish (*Pterois sp.).* Survey zones were the areas east of the Mississippi River Delta (Delta East), the area west of the Mississippi River Delta to Port Fourchon (Delta), Fourchon to Marsh Island (Central LA), and Marsh Island to the western LA state line (West LA). LDWF biologists conducted seven survey dives in 2018, five of which were in the Delta West and two in the West LA zones. Lionfish were observed at all three platforms in the ST-131 lease block but not at ST-152 or the ST-130 reef. Video, counts, and habitat descriptions were recorded. Lionfish were present at both sites, with video, counts, and habitat description recorded. Twenty-four lionfish were collected on the West LA surveys and tissue, otoliths, and stomachs were retained for species identification, age analysis, and stomach content identification, respectively. Video counts, ageing, and analysis of gut contents were completed during the reporting period with similar surveys and expanded biological collection planned for 2019.

Life History and Population Structure of Snowy and Warsaw Grouper in US Waters

Snowy and Warsaw groupers are both valuable and vulnerable components of the deep-water grouper assemblage in the norther Gulf of Mexico. LDWF participated in a NOAA-MARFIN funded research grant with Texas A&M Galveston, Texas A&M Corpus Christi, and the

University of Florida to use tissue, hard parts, and reproductive samples to address existing data gaps for these commercial and recreationally important species that are both either overfished (Snowy) or experiencing overfishing (Warsaw), according to the National Marine Fisheries Service (SEDAR 4 and 36). By using both archived samples and active collection, the participants in this study were able to amass one of the largest sample sizes ever collected for these two deep-water species, which are often difficult to sample. Final 2018 collections of otoliths tissue, and gonads were distributed during the reporting period with final analysis underway.

Michael C. Voisin Oyster Hatchery

The Michael C. Voisin Oyster Hatchery located on Grand Isle, Louisiana is operated through a collaborative effort between the Louisiana Department of Wildlife and Fisheries (LDWF) and Louisiana Sea Grant (LSG). LSG is contracted to assist with facility operations and to provide recommendations to LDWF for hatchery operations. Hatchery staff work together to produce oyster larvae and algae feed. Furthermore, LDWF and LSG produce diploid, triploid, and tetraploid oyster larvae and seed for industry orders, restoration projects, breeding program, and research projects.

The focus for fall 2018 larval production was to produce diploid pediveligers for setting on whole oyster shell and deploying hatchery-produced spat-on-shell on restoration test plots designated by the LDWF Oyster Program Manager. The fall production had low pediveliger larval production and only produced a small amount of diploid seed of approximately 35,637 seed. Diploid seed was provided to LSG for research and broodstock purposes. Large spawns occurred in the hatchery during the fall; however, the larvae did not survive or grow well. LDWF and LSG hatchery staff conducted a series of feed experiments and water quality sampling to determine if feed and/or bacteria was the cause of mortalities. Feed experiment results suggested that bacteria in the hatchery-produced algae and larval tanks might be a primary cause of mortality. LDWF and LSG staff collaborated with a professor and honors student from Nicholls State University (Thibodaux, Louisiana) in the fall and winter to analyze hatchery seawater and hatchery-produced algae samples to determine if bacteria (specifically *Vibrio* species) was present during the time of larval mortalities. Results are pending.
The 2018 hatchery season finished in late November. Refer to Table 1 for total 2018 hatchery production.

2018 Total Hatchery Products* Summary

	Diploid	Triploid	
Total D-stage	n/a	n/a	
Total Veligers[a]	522,666	662,666	
Total Pediveligers & Veligers[b]	n/a	2,570,333	
Total Pediveligers	17,845,163	5,309,199	
Total Pediveligers Set on Shell (Shellbags)	n/a	63,570,745	
Total Pediveligers Restoration	16,196,666	25,102,732	
Total Pediveligers Sales	n/a	97,000,334	
Total Seed Restoration[c]	n/a	3,371	
Total Seed Restoration	602,545	512,287	
Total Seed Research	35,637	n/a	
Total Seed Sales	354,000	259,667	
Total Spat-on-Macrocultch	56,775	128,059	
Total Spat-on-Shell	n/a	3,799	***Grand Total***
Total larvae by ploidy	34,564,495	194,216,009	228,780,504
Total seed by ploidy	956,545	775,325	1,731,870
Total spat by ploidy	56,775	131,858	188,633

*Products here do not include LSG research brood data or tetraploid brood data

[a]Veligers were terminated because of poor quality, typically resulted at end of brood life

[b]Includes PV,V set on aragonite test cultch

[C]Ploidy either diploid or triploid, seed from floor screen from bottle nursery

Table 1. LDWF 2018 total hatchery products summary. These are the end-products delivered or used for sales, restoration, or research. Products are characterized by ploidy (diploid or triploid), life cycle stage (larvae, spat, or seed), and purpose.

From December 2018 through January 2019, hatchery staff completed off-season maintenance and prepared for the 2019 hatchery season. The Algal Stock Room started back up mid-

December with new stock cultures and the Algal Production Room began algal bag production at the end of January. Staff expect the 2019 larval production to begin in mid to late March.

Marine Mammal and Sea Turtle Monitoring:

LDWF continues to maintain a stranding and rescue response program for the state, working closely with our federal counterparts at the NOAA/NMFS and the United States Fish and Wildlife Service (USFWS). LDWF Staff receive and investigate reports of live and dead marine mammals and sea turtles. These reports are received from members of the public, various law enforcement agencies, local government officials, property managers, and other entities including barrier island restoration construction crews working on remote islands and beaches along the Louisiana coast. Where logistically possible and appropriate, depending on state of decomposition, marine mammal and sea turtle carcasses are field-sampled if very decomposed, necropsied in the field on-site, or are recovered for necropsy to be performed by a veterinarian and trained staff in a laboratory based setting to investigate the cause of strandings and mortality following established protocols.

LDWF continues to monitor beaches, where appropriate and as schedules allow, conducting active surveillance for any stranded marine mammals or sea turtles. Beach surveys are conducted where staff can access beaches with state equipment (4x4 trucks or UTVs), and in remote locations where reports may go undetected by the public. During this reporting period, LDWF conducted 16 beach surveys.

In December of 2018, an oil spill occurred in eastern Barataria Bay near Port Sulphur, LA. LDWF Staff worked through the Wildlife Branch and coordinated marine mammal and sea turtle response surveys. These surveys covered open waters and areas of shoreline within and along the Bay assessing animals in the impact area. Additionally, areas identified as potential sea turtle habitat were assessed including rock jetties and breakers within the impact area. Dolphins observed within the impact area were photographed and environmental oiling conditions were documented during sightings for each group of dolphins observed. Upon conclusion of surveys, staff examined photographs taken during the surveys to sort by individuals based on dorsal fin photographs to document numbers of animals. Daily summary reports were then completed for submission to Unified Command. Further, staff assessed oil spill impacted area maps and overflight images and associated information to determine targeted search areas, and monitored weather and sea state conditions to determine days of response surveys. Communications with LDWF staff, National Marine Mammal Foundation, and NOAA regarding response surveys, target areas, debrief calls, known animals in the area from previous captures and tagging work, and observations occurred during the response.

Marine Mammals

LDWF covered 7 marine mammal strandings during this period. Staff conducted 3 external marine mammal exams and collected minimal samples, due to decomposition level of the

carcasses. Additionally, two carcasses including one fetus were collected and frozen pending necropsy.

Sea Turtles

LDWF responded to stranding reports and documented a total of 3 green sea turtles from October 2018-present. Of those, one green sea turtle carcass was frozen for future necropsy. Two of these green sea turtles reflect two lethal takes for consumption by members of the public and are associated with an ongoing LDWF Enforcement investigation.

LDWF accepted a frozen green sea turtle carcass that was a lethal take from a shrimp trawl vessel that was retained by an observer onboard. The carcass was retained frozen at LDWF and shipped to Dr. Brian Stacy, NOAA for a necropsy to be performed.

All carcasses that were retained frozen over the past year were necropsied during a batch sea turtle necropsy session. The session was held on November 27 and 28, 2018 at the Louisiana State University (LSU) School of Veterinary Medicine (SVM), Louisiana Animal Disease Diagnostics Laboratory (LADDL), BSL-3 Lab. LDWF and NOAA personnel coordinated along with participation from Anatomic Pathology Resident Students from the Department of Pathobiological Sciences LSU, SVM, and representatives from Audubon Nature Institute. NOAA personnel went through one carcass/case and the corresponding paperwork, photographing, and sampling procedures. All attendees then broke out into two three person teams to perform necropsies on the remaining cases. A total of 31 sea turtle carcasses were necropsied during the batch sea turtle necropsy session.

Table 2. Total number of sea turtles necropsied by species at a batch sea turtle necropsy session held on November 27th and 28th, 2018 at Louisiana State University School of Veterinary medicine in baton Rouge, LA.

Species	***Number Necropsied***
Kemp's ridley	*23*
Green	*6*
Loggerhead	*2*
TOTAL	*31*

As part of a Sea Turtle Early Restoration Gear Management Team/Turtle Exclusion Device (TED) Coordination Project, LDWF's TED outreach coordinator met with the NOAA Gear Monitoring Team (GMT) at an outreach event in Lafayette. LDWF's TED outreach coordinator also attended a Louisiana Shrimp Task Force Meeting. The TED outreach coordinator has also been working on organizing a 2019 schedule for outreach events.

Type of event	**Location**	**Date**
LFF outreach event	Lafayette	12/13/18

LDWF's TED outreach coordinator is providing background information on the reasons for TED requirements at outreach events, including interpretation of technical reports from NOAA.

In December of 2018, LDWF and collaborating researchers from the United States Geological Survey (USGS) completed another live sea turtle capture/mark/recapture survey near Fourchon, Louisiana. A total of 21 green sea turtles were captured, sampled, tagged, and released; four of these were released with satellite tags during the December survey. These efforts, initiated in December 2014, take place annually in May and December, and are part of a long-term study to document juvenile sea turtle presence and habitat utilization in the northern Gulf of Mexico. Sea turtles are captured (NMFS Permit Number 17304-03) and are temporarily held for biological sample collection, including: skin biopsies, a carapace biopsy and blood. Additionally, all turtles captured are scanned to determine if they were previously tagged. If no tags exist, all individuals receive external flipper tags (small metal tags on both front flippers) and an internal Passive Integrated Transponder (PIT) tag. In particular, these surveys document juvenile sea turtle recruitment to nearshore habitats in southeast Louisiana and allow comparisons between the Louisiana site and other northern Gulf of Mexico study sites. Biologists also collect growth data and other life history parameters of sea turtles captured in Louisiana to compared to those from other Gulf of Mexico study sites.

Shrimp Program:

The 2018 spring shrimp season closed in shrimp management Zone 2 and portions of shrimp management Zone 1 at 6:00 p.m. on June 27, 2018. This closure included the portions of state inside waters from the western shore of Freshwater Bayou Canal eastward to the Louisiana/Mississippi state line, except for Lake Pontchartrain, Chef Menteur and Rigolets Passes, Lake Borgne, the Louisiana portion of Mississippi Sound, and the open waters of Breton and Chandeleur Sounds. The remaining portions of state inshore waters closed at 6:00 p.m. on July 2, 2018. The open waters of Breton and Chandeleur Sounds outside of the double-rig line remained open.

The 2018 fall shrimp season opened in portions of state inside waters on August 13, 2018, at 6:00 p.m. as follows: from the Louisiana/Mississippi state line westward to the Atchafalaya River Ship Channel at Eugene Island. Due to the prohibition of shrimping at night, the following state inside waters were opened at 6:00 a.m. on August 13, 2018: from the Atchafalaya River Ship Channel at Eugene Island westward to the western shore of Freshwater Bayou Canal. The portion of shrimp management Zone 3, from the western shore of Freshwater Bayou westward to the Louisiana/Texas state line, opened at 6:00 a.m. on August 27, 2018.

The 2018 fall shrimp season closed in all state inside waters at official sunset on December 17, 2018 except for Chef Menteur and Rigolets Passes, Lake Borgne, Mississippi Sound, Mississippi River Gulf Outlet (MRGO), a section of the Gulf Intracoastal Waterway (GIWW) in Orleans parish from the GIWW East Closure Sector Gate westward to the GIWW intersection with the

Inner Harbor Navigation Canal, and the open waters of Breton and Chandeleur Sounds as bounded by the double-rig line described in R.S. 56:495.1(A)2.

Portions of Louisiana territorial seas closed on December 24, 2018, at official sunset between Calliou Boca and Freshwater Bayou Canal

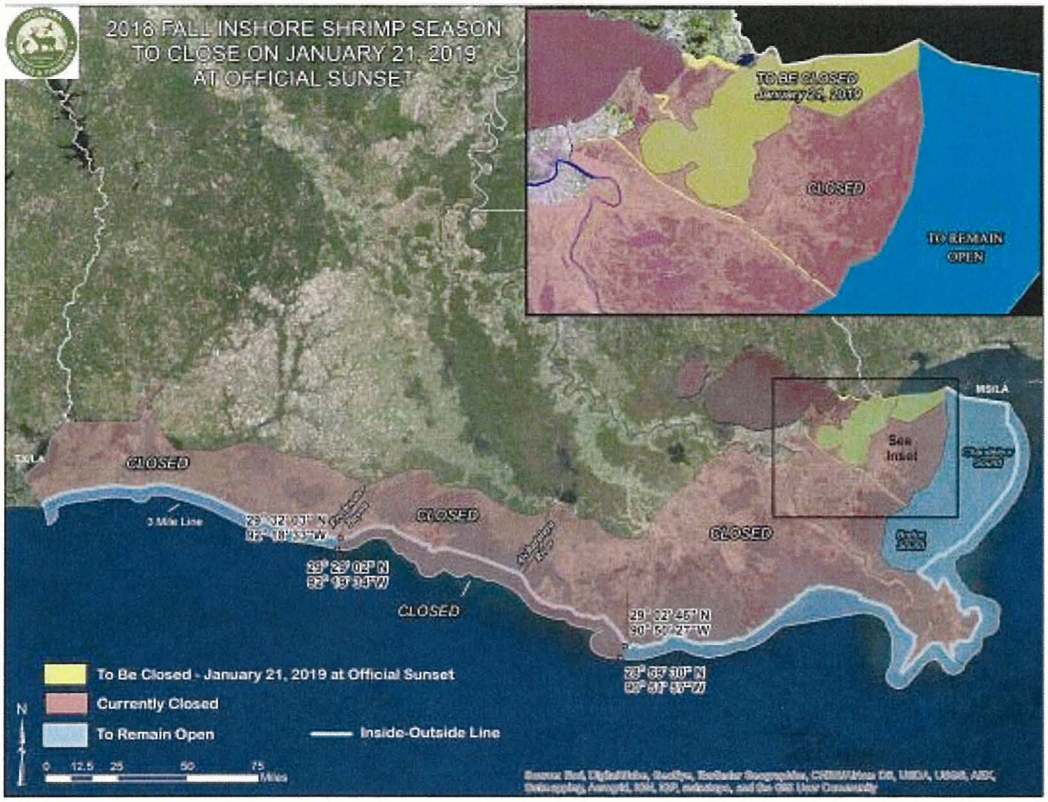

Figure 2. 2018 Fall inshore shrimp season closures

Shrimp Landings

All 2018 shrimp landings (heads on unless specified otherwise) and dockside values are preliminary and subject to change after a thorough review of trip ticket data. Preliminary statewide annual shrimp landings (all species combined/heads on weight) totaled approximately 96.8 million pounds with a dockside value of $119.4 million (Source: LDWF Trip Ticket Data).). Annual shrimp landings in 2018 indicated a gain of 3% when compared to annual landings in 2017 with a loss of nearly 5% compared to the five-year average. The 2018 dockside value was lower than the dockside values in 2017 and the five-year average by approximately $14 million and $43.5 million, respectively.

Brown shrimp annual landings in 2018 resulted in 41.9 million pounds with a dockside value of $34.5million. Total annual brown shrimp landings in 2018 were well above 2017 and the five-year average; 2018 brown shrimp landings were 41% higher than 2017 and 22% higher than the five-year average. Dockside value in 2018 was approximately $12.9 million greater than 2017,

but was $7.4 million less than the five-year average. While brown shrimp landings increased in 2018, the same cannot be said for white shrimp landings. White shrimp annual landings in 2018 totaled 54.2 million pounds with a dockside value of $84.4 million. White shrimp landings decreased by 22% when compared to 2017 (69 million) and by 19% compared to the five-year average (67 million). With lower white shrimp landings in 2018 comes a lower dockside value. The dockside value in 2017 was $111.4 million and the five-year average was $120 million, which indicates the 2018 dockside value was lower by approximately $27 and $35 million. White shrimp average price per pound in 2018 totaled $1.56, which is $0.06 and $0.23 less than the average price per pound in 2017 and the five-year average.

All shrimp data in this section will represent a time period for each respective year or multiyear average from July through December. All shrimp species combined totaled 49.8 million pounds with a dockside value of $73.5 million in 2018. This is a decrease when compared to 2017 landings and dockside value (51.3 million pounds, $77.9 million) and the five-year average (61 million pounds, $107.2 million). Brown shrimp landings in 2018 (6.7 million pounds) were slightly higher than those in 2017 (5.6 million pounds), but were below the five-year average (9.4 million pounds). The largest difference between these three time periods can be viewed in the dockside values (2018 = $10 million, 2017 = $7.8 million, 5yr average = $16.8 million). The average price for pound for brown shrimp in 2018 was $1.49, which was $0.09 higher than 2017; the five-year average price per pound for brown shrimp was approximately $0.29 higher than in 2018. White shrimp landings in 2018 totaled 42.9 million pounds and had a dockside value of $63.3 million. This represents a decrease in landings of 6% compared to 2017 and 15% compared to the five-year average. White shrimp dockside value in 2017 was approximately $6.6 million higher than 2018, while the five-year average was $26.5 million higher than 2018.

Crab Program:

In 2016, the LWFC approved a rule that would impose a three-year regulation on the commercial blue crab industry in order to improve the declining blue crab biomass. The original rule banned the commercial harvest of immature female blue crab and consisted of a 30-day closure for the commercial harvest of blue crab. After the 30-day closure, and subsequent negative feedback received from the industry, this rule was altered for the 2018 blue crab season by eliminating the 30-day closure and implementing a 60-day ban on the commercial harvest of mature female blue crab beginning March 1, 2018.

After the 60-day female restriction, negative input from the crab industry was again received by LDWF. The majority of feedback received was that the female restriction took place during the months that blue crab prices are at their highest. This loss in income greatly affected the full time commercial crab fishermen. LDWF presented the Louisiana Crab Task Force (LCTF) and crab industry with three alternative regulations at the March task force meeting. After a two-month public comment period, the LCTF voted in favor (8-1) on a 35-day female restriction that would take place beginning the second Monday of September for the 2019 harvest season. This management option was estimated to reduce total harvest by approximately 1.6 million pounds,

similar to the two previous alternative actions. The LWFC promulgated the Notice of Intent for the rule change at their September 2018 meeting and this rule was published in the January register, following the APA process. The LWFC requested that LDWF complete an updated blue crab stock assessment in early 2019 and present this data in order to verify that the current blue crab stocks required the 35-day mature female restriction.

Louisiana Blue Crab Landings

All 2018 blue crab landings and dockside values are preliminary and subject to change due to incomplete trip ticket data. Preliminary annual crab landings in 2018 totaled 43.6 million pounds with a dockside value of $61.8 million. Landings in 2018 decreased by less than 500,00 pounds compared to 2017, but increased by approximately 1.9 million pounds compared to the five-year average. Dockside value in 2018 showed an increase of 11% compared to 2017 and nearly 9% compared to the five-year average. The average blue crab price per pound in 2018 totaled $1.42, which was $0.18 and $0.07 higher than the 2017 and five-year average blue crab price per pound. Two factors that likely affected blue crab landings in 2018 was the freezing early year temperatures and the 60-day mature female prohibition that took place in March and April, which reduced commercial landings by approximately 1.9 million pounds. Reports from the industry state that many commercial crab fishermen were unable to, or chose not to, fish during these two events.

All blue crab data in this section will represent a time period for each respective year or multiyear average from July through December. Blue crab landings in 2018 (26.2 million pounds) increased by approximately 1.6 and 1.1million pounds compared to 2017 and the five-year average, respectively. Dockside value in 2018 ($30.7) was very similar to 2017 ($30.1) and the five-year average ($30.2). As it is typical to see the average price per pound of blue crab decrease in summer and fall, the average blue crab price per pound in 2018 was $1.17, which was slightly lower than 2017 and the five-year average. As it was stated in the previous Gulf States report, the largest decline in blue crab landings in 2018 was seen in January-April.

Derelict Crab Trap Removal Program

At the October 2018 Commission meeting, the LWFC adopted a Notice of Intent (NOI) allowing the removal of derelict crab traps from five different areas along Louisiana's coast in 2019. These five defined derelict crab trap closure areas were in the following basins: Barataria Basin (1), Pontchartrain Basin (2), Sabine Basin (1), and Terrebonne Basin (1). These closure areas ranged from 10-14 days and were distributed throughout February and March. In order to reduce negative economic impact of the blue crab commercial industry, four out of the five closures will be in February, allowing the fishery to be completely active during Mardi Gras holiday and Lenten season.

Two volunteer days are planned to take place during the 2019 derelict crab trap closures. The first event (Barataria) will be held on February 2, 2019, at the Plaquemines Parish public boat

ramp located behind the Port Sulphur School on Civic Drive. The second event (Terrebonne) will be held on February 16, 2019, at a privately owned dock in Dularge. These events host multiple volunteer organizations and members of the public. Lunch will be provided for the first event by LA 23 BBQ and by CCA for the second event.

Table 3. Derelict crab trap results by year

Year	Area(s)	Traps	Boat-days
2004	2	6,894	90+
2005	4	4,623	50+
2006	1	2,935	31+
2007	2	1,495	15
2008	1	1,234	3
2009	1	788	NA
2010	1	477	NA
2011	1	1,100	NA
2012	2	2,798	66
2013	2	969	32
2014	1	1,051	24
2015	1	422	9
2016	3	2,580	50+
2017	6	5,674	68
2018	5	4,061	68
Total	**33**	**37,101**	**506+**

Oyster Program:

Oyster Stock Assessment

Sampling for the 2018 oyster stock assessment for the Public Oyster Seed Ground (POSG) areas in Louisiana was completed in July 2018. Sampling consisted of 116 sample sites, totaling 580 meter-squared samples collected in the POSG areas. The LDWF 2018 oyster stock assessment indicated that Louisiana is experiencing the lowest stock size ever recorded on the POSG areas. This stock assessment of approximately 277,723 barrels of oysters represents a 6% decrease from already depleted 2017 levels and an overall decrease of 91% from the long-term average (compared to prior stock assessments without Sabine Lake public oyster area). This resulted primarily from a combination of degradation of habitat in POSG areas, extreme weather events,

harvest pressure, and hydrologic and environmental changes. No stock assessment was conducted in Sabine Lake public oyster area for 2018 season due to Act 159 (2018) that instituted a moratorium on oyster fishing in Sabine Lake: meter-square sampling will only occur every other year, skipping July 2018 and starting with July 2019. Additional sampling may occur as needed to monitor for possible mortality events associated with significant freshwater input events.

Additional stock assessment (meter-square) sampling was conducted in the Lake Pontchartrain and Barataria basins in April/May and Sept/October 2018 as part of an agreement with the Coastal Protection and Restoration Authority (CPRA). In the Barataria basin, additional sampling was also conducted on private lease areas per the CPRA agreement to further characterize oyster resources in that basin.

LDWF also conducts year-round dredge sampling on oyster seed grounds state wide—sampling events conducted on 80 sampling stations (2 replicates per station) to monitor size frequency, presence and/or absence, and mortality. In September 2018, sampling frequency changed to once a month from January - June and August - December, eliminating the second rounds in the months of September and October for a total of 13 events in 2018. For the entirety of 2018, a total of 2080 dredge samples were taken.

Oyster Season

The table below contains a summary of the 2018-2019 oyster seasons for the major public oyster areas of Louisiana. This year, the goal was to delay the season to maximize potential oyster reproduction, avoid concentration of the fleet through uniform opening/closure dates, and close areas as recommended by the shell budget model thresholds; all of which should help minimize reef degradation.

The 2018-2019 Oyster Season opened October 29, 2018, with some areas still open through the start of 2019. Below shows the 2018-2019 season summary to date. Note: closed areas during 2018-2019 oyster season include all public seed grounds east of Mississippi river and south of MRGO (CSA1), Barataria Bay (CSA3), Deep Lake, Lake Chien, Lake Felicity, Lake Tambour, Sister Lake (CSA5).

Table 4. The 2018-2019 oyster season summary.

Area	Season Opening	Season Closure	Season/type	CSA
N of MRGO	Oct- 29	Oct- 29	1-day Seed harvest	1
	Oct- 29	TBD	Market Oyster Harvest *LDH Area 3, Drum Day and 3-mile cultch plant CLOSED as of Jan 20, 2019	
Hackberry Little Lake	Oct- 29	Oct- 29	1-day Seed harvest	3
	Oct- 29	Nov-3	Market Oyster Harvest	
Lake Mechant	Oct- 29	Oct- 29	1-day Seed harvest	5
	Oct- 29	TBD	Market Oyster Harvest	
Bay Junop	Oct- 29	Oct- 29	1-day Seed harvest	
	Oct- 29	TBD	Market Oyster Harvest	
Vermilion Atchafalaya Bays	Oct- 29	Oct- 29	1-day Seed harvest	6
	Oct- 29	TBD	Market Oyster Harvest	
Calcasieu Lake	Oct- 29	TBD	*East Cove*: Market Oyster Harvest ** closed between Dec 31, 2018 and Jan 20, 2019	7
	Oct- 29	TBD	*West Cove*: Market Oyster Harvest	

Transplants

As mentioned in previous reports, on November 15, 2017, a 3.65-acre area was planted with remotely-set hatchery-produced oyster spat on what was determined to be water bottom suitable for oyster production in Lake Fortuna (Lake Machias). During the May 2018 evaluation of the spat plant site, survival of spat was calculated at just around 1.7%. Growth rates for surviving spat were estimated at near 1.02 mm/week. The 12-month evaluation was conducted in November 2018. There was a calculated 0.8% survival rate of the hatchery spat, and a growth rate of 1.68mm/week. As a result of the minimal rate of survival observed at the 12-month evaluation, it was decided that the 18-month analysis would not be needed.

In the fall of 2018, LDWF conducted a small transplant study in Barataria POSG to see if oysters can survive and grow as part of a larger spat on shell project also planned for the area. The basic design used modified crab traps containing 20 oysters, transplanted from Hackberry Bay, per trap. Oysters were numbered and measured, and spat plates attached to a trap to account for natural spat set. Six traps were deployed in October to be measured and recorded every month for growth and mortality. Unfortunately, the project was terminated in December 2018 due to continued loss of samples and replacement of traps. Future attempts may involve lighted buoys or some other marker to help protect the study site from high fishing and trawling activity.

Finfish Program:

LDWF conducts biological monitoring for finfish statewide in the coastal, nearshore, and offshore areas of Louisiana. During FY 2017-2018, the fishery-independent finfish sampling program collected 933 (100 percent) gill net samples, 1,234 (100 percent) seine samples, and 269

(100 percent) trammel net samples for a 100 percent overall completion rate statewide. Electro-fishing samples are being conducted within some Louisiana estuarine environments to provide fisheries data to CPRA.

Louisiana waters closed the commercial season for the harvest of king mackerel on October 5, 2018, at 12:00 p.m. (noon) concurrent with a closure in federal waters.

Louisiana waters closed the commercial season for the harvest of gray triggerfish on October 10, 2018, concurrent with a closure in federal waters.

Louisiana waters opened to the commercial harvest of striped mullet with strike nets on October 15, 2018.

Louisiana waters re-opened for the commercial harvest of king mackerel on November 12, 2018, concurrent with a re-opening in federal waters.

Louisiana issued a special permit for the recreational harvest of red snapper from November 13, 2018, through December 31, 2018, for wounded or disabled military veterans. A special Secretarial permit was issued to the Wounded War Heroes organization, which coordinated fishing trips under the permit. Mandatory electronic reporting of all red snapper caught under this permit was required through the ROLP application.

Louisiana waters closed to the commercial harvest of king mackerel on December 5, 2018.

Louisiana waters closed to the commercial harvest of small coastal sharks on December 31, 2018, concurrent with a closure in federal waters.

Louisiana waters closed to the commercial harvest of spotted seatrout on December 31, 2018.

Louisiana waters closed to the recreational harvest of gag on December 31, 2018, concurrent with a closure in federal waters.

Louisiana waters closed to the recreational harvest of gray triggerfish on January 1, 2019, concurrent with a federal closure.

Louisiana waters opened to the commercial harvest of small and large coastal sharks on January 1, 2019, concurrent with an opening in federal waters.

Louisiana waters opened to the commercial harvest of gray triggerfish on January 1, 2019, concurrent with an opening in federal waters.

Louisiana waters opened to the commercial harvest of greater amberjack on January 1, 2019, concurrent with an opening in federal waters.

Louisiana waters opened to the commercial harvest of spotted seatrout on January 2, 2019.

Louisiana waters closed to the commercial harvest of striped mullet with strike nets on January 21, 2019.

Louisiana waters closed to the recreational harvest of red grouper, black grouper, yellowmouth grouper, scamp, and yellowfin grouper from February 1, 2019, through March 31, 2019, seaward of the 20 fathom line concurrent with a closure in federal waters.

The 2019 annual stock assessment report for striped mullet was presented to the LWFC at its February 2019 meeting and was accepted for transmittal to the Louisiana Legislature.

Finfish Task Force

The Louisiana Finfish Task Force did not meet between October of 2018 and March of 2019. Finfish task force meeting minutes, agendas, and membership can viewed at http://www.wlf.louisiana.gov/fishing/finfish-task-force.

Fishing Access and Opportunity:

Artificial Reef Program

The Artificial Reef Program continues to assess and permit reef deployments related to offshore oil and gas structures. The program has accepted four new structures. There are 32 structures permitted for deployment as permanent artificial reefs, and two new reef sites have been recently proposed. Permitting of an additional 22 structures is currently underway. Multi-beam surveying of the program's offshore reefs is ongoing (annually) and is made 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.

The Program holds two permits to enhance existing nearshore reefs. The Pickets and Grand Isle 9 are nearshore reefs that have been approved for Recreational Use Restoration funding. The Program holds four permits to create new nearshore reefs. The Ship Shoal 94, Ship Shoal 108, and South Marsh Island 233 West and East reefs are being funded by the Artificial Reef Fund. The work to deploy SS-94 & SS-108 has been awarded and should be completed by end of the calendar year; the work for SM-233 W & E will be awarded shortly. Two additional permits have been applied for—Vermilion-119 & Vermilion-119-124.

All 29 inshore artificial reef sites have been surveyed using multibeam-sonar to ensure proper clearance and monitor bottom-type. The program has initiated the permitting process for 4 new inshore reefs in the Lake Borgne and Mississippi Sound area.

The program continues to hold nine permits to enhance existing inshore artificial reefs using NRDA Recreational Use Funds: East Calcasieu, Cypremort Point II, Rabbit Island, Point Mast, Independence Island, California Point, Lake Front, and West End. All sites have been approved for Recreational Use Restoration Funding. East Calcasieu and California Point will be enhanced through a cooperative endeavor agreement, while the remaining reefs are currently out on bid.

Boating and Non-Boating Access Projects

- Port Sulphur Civic Drive Fishing Pier – design phase
- Burns Point Recreational Area Fishing Pier – construction phase
- St. Tammany Fishing Pier – design phase
- West End – Breakwater Drive Boat Launch – construction phase
- New Iberia Boat Slips Boating Infrastructure Grant Program - grant compliance phase
- City of New Iberia CVA Sanitation Facility

Additional boating and fishing access projects were recently approved by the Louisiana Trustee Implementation Group for funding from the Deepwater Horizon oil spill.

Commercial Seafood Programs:

Professionalism

LDWF's intention is to give our seafood industry access and training to the latest trends, requirements, and technology in their profession. The seafood industry should have as much opportunity for training as any other industry in our state. LDWF believes expert training will yield higher quality products and give our 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 world fishing industries.

Year 3 of the current Louisiana Fisheries Forward contract is currently underway. Within phase III, two mini videos will be produced with corresponding flyers, several hands-on workshops will be offered to include new and trending topics, and the Louisiana Fisheries Forward Refrigeration Demo Unit will travel the state - a 6,500 lb. unit that consists of a brine freezer, plate freezer and chilled water system. Additionally, within phase III, leadership training workshops will continue to be launched for the LDWF taskforces.

In addition, work continues on the production of educational materials (referred to as fast fact sheets), the offering of in-person training sessions (referred to as dock days), a refrigeration demonstration project, and the Louisiana Fisheries Forward Summit. (https://www.lafisheriesforward.org/summit/).

Aquatic Plant Control:

Invasive aquatic weeds continue to threaten access and recreational activities throughout Louisiana. Fall surveys conducted from July - September 2018 revealed an estimated 245,367 acres of nuisance aquatic plant coverage. That total was mostly composed of water hyacinth (56,116 acres) and giant salvinia (47,527 acres). The fall surveys are conducted at the end of the growing season, and usually yield higher acreage of coverage than the spring estimates conducted at the beginning of the growing season. From October 1, 2018 through December 31, 2018, LDWF applied EPA-approved herbicides to 8,189 acres of nuisance vegetation across the state. The majority of plant control efforts focused on giant salvinia and water hyacinth, with 2,862 and 3,898 acres being treated, respectively. A major area of focus was the Intracoastal Waterway, which acts as a major stocking source for adjacent waterbodies. A total of 1,200 acres of nuisance aquatic vegetation were treated on the Intracoastal Waterway. Approximately 642 acres of giant salvinia in Black Bayou Lake were treated by LDWF.

Gulf States Marine Fisheries Commission
69th Annual Spring Meeting
Technical Coordinating Committee
Thursday, 21th March, 2019
New Orleans, LA

TEXAS REPORT

PROPOSED REGULATORY CHANGES

Statewide Recreational and Commercial Fishing

1. Reduction in daily bag limit for spotted seatrout from 10 to 5 fish per day in Galveston Bay and Sabine Lake;
2. Require the use of non-offset, non-stainless-steel circle hooks when fishing for sharks in state waters (except when fishing with artificial lures);
3. Increase the minimum size limit for cobia from 37 inches to 40 inches (TL); and

Statewide Oyster Fishery Proclamation

4. Temporary closure of oyster reefs that have recently undergone restoration (Pasadena and Pepper Grove Reef in Galveston Bay; Noble Point Reef, Lavaca/Matagorda Bay; and a reef in Copano Bay).

COASTAL FISHERIES PROGRAMS & PROJECTS

Oyster Updates

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, which can be adjusted by the Parks and Wildlife Commission depending on the most current cultch planting costs. Based on 2017-18 landings reported to the Texas Commercial Landings Program (LY18 Sep-Aug), 564,787 sacks of oysters were landed from TX bays. That total amounts to 9,805 cubic yards of cultch or $745,519 due from oyster dealers. Dealers worked with TPWD to place a total of 6,591 cubic yards of cultch back into TX bays, while remaining dealers paid $201,433 into the Shell Recovery Fund. Funds will be used to for further cultch planting. So far in LY19, 256,431 sacks have been landed through December 2018. Some dealers have paid their fees ($45,684), while others are planning on cultch plants to cover their requirements.

Legislative Oyster Related Bills Filed

1. HB 1098 (Rep. Guillen) – relating to the importation of Pacific oysters for sale for consumption;
2. HB 1300 (Rep. Hunter) – relating to oyster mariculture, authorizing fees, creating a criminal offense;
3. SB 682 (Sen. Kolkhorst) – relating to oyster mariculture, authorizing fees, and creating a criminal offense (companion bill to HB 1300); and

4. SB 761 (Sen. Hinojosa) – relating to the regulation of oyster harvesting and increasing a criminal penalty.

Texas Marine Sport-Harvest Monitoring Program

During the Texas Parks and Wildlife Department's 2017-18 creel survey year (15 May 2017 through 14 May 2018), 1,080 surveys were conducted at boat-access sites along the coast. One survey was cancelled due to Tropical Storm Cindy and 41 surveys were cancelled due to Hurricane Harvey. Fishing activity was depressed in fall 2017 in the aftermath of Hurricane Harvey.

For private-boat bay-pass anglers, an estimated 4,805,200 man-hours were expended to harvest an estimated 1,212,800 fishes. Staff conducted 10,796 target interviews involving 26,843 anglers. Of the 52 species encountered, Spotted Seatrout, Red Drum, Black Drum, and Southern Flounder were most frequently landed. Mean party size was 2.5 people and mean trip length was 5.5 hours. Staff observed 36,396 fishes and measured the length for 27,238 of them.

For private-boat Texas Territorial Sea anglers, an estimated 117,600 man-hours were expended to harvest an estimated 40,300 fishes. Staff conducted 389 target interviews involving 1,170 anglers. Of the 49 species encountered, Red Snapper, Spotted Seatrout, King Mackerel, and Spanish Mackerel were most frequently landed. Mean party size was 3.0 people and mean trip length was 5.8 hours. Staff observed 2,124 fishes and measured the length for 1,431 of them.

For private-boat Exclusive Economic Zone anglers, an estimated 135,000 man-hours were expended to harvest an estimated 42,800 fishes. Staff conducted 359 target interviews involving 1,286 anglers. Of the 52 species encountered, Red Snapper, King Mackerel, Spanish Mackerel, and Atlantic Spadefish were most frequently landed. Mean party size was 3.6 people and mean trip length was 7.5 hours. Staff observed 3,097 fishes and measured the length for 2,021 of them.

Fisheries Enhancement Program (Hatcheries)

2018 Fish Stocking Totals (complete)

16,401,534	Red Drum fingerlings
5,297,765	Spotted Seatrout fingerlings
107,123	Southern Flounder fingerlings
21,802,422	Total fingerlings stocked

The Flounder stocking season runs in the fall and winter so these numbers includes 90,325 winter 2018 and 16,798 Fall 2018. One calendar year includes two production seasons.

Artificial Reef Program

This annual report highlights reefing operations and activities conducted by the Texas Artificial Reef Program (Program) during calendar year 2018. The Program was formally established in 1990 and is self-funded through donations to the Rigs-to-Reefs program, private donations and grants. To date, there are 92 permitted reef sites with 1 additional site pending approval, enhancing over 7,300 acres of marine habitat. Reef sites range in size from 31 acres to 1,650 acres. The majority of reefs are part of the Rigs-to-Reefs program and are located in Federal waters (typically 40 acre sites).

Artificial Reef Sites in Texas Waters of the Gulf of Mexico		
Reef Type	Number Permitted	Number Pending Approval
Nearshore	11	1
Ships-to-Reefs	6	0
Rigs-to-Reefs	72	0
Other	3	0
TOTAL	92	1

Rigs-to-Reefs

The Reef Program received the following donations to the program in 2018:

Platform	Location	Size	Removal	Date	Donation
HI-A-309A	High Island	8-pile	Towed	7/13/2018	$230,000
HI-A-385C	High Island	3-pile	Partial	8/4/2018	$250,000
HI-A-385D	High Island	4-pile	Towed	8/10/2018	$375,000
HI-A-389A	High Island	8-pile	Partial	7/27/2018	$1,400,000
HI-A-510B	High Island	3-pile	Towed	7/28/2018	$75,000
MI-668A	Matagorda Island	8-pile	Towed	11/17/2018	$150,000
MI-669A	Matagorda Island	8-pile	Towed	10/29/2018	$150,000
MI-686A	Matagorda Island	8-pile	Towed	6/8/2018	$72,011.88
MU-A-121B	Mustang Island	8-pile	Towed	7/4/2018	$250,000
PN-A-42	North Padre Island	8-pile	Partial	8/5/2018	$675,000
TOTAL = 10					$3,627,012

Current Status to date:

- Total Petroleum Platforms reefed: 165
- Other Components reefed (e.g. net guards, decks, Mobile Offshore Drilling Unit legs, etc.): 11
- Total funds deposited into R2R account since program inception: $34.8m
- Material Donation Agreements signed but not reefed: 3
- Donations in various stages of completion (e.g. inquiries, donation amounts calculated, waiting on contract signatures, etc.): 7

Ships-to-Reefs

No new large ships were reefed in 2018. So far, 16 large ships have been reefed, not including smaller vessels (e.g. barges, tugboats, shrimp boats).

Nearshore Reefs

No new reef sites were permitted in 2018. However, TPWD is still in process of getting a new 160ac reef site (Kate's Reef) permitted in the offshore region of Galveston. The archeological survey was completed 26 November 2018. We hope to have all permits needed for reefing in summer 2019.

Sabine Nearshore Reef HI-20 (Sabine County): Reefing was completed for a contract with Eldridge Construction to reef over 100 quarry blocks and a barge at the Sabine Nearshore Reef site. Materials were deployed at the Sabine Reef Site at the end of October 2018.

Research Contracts

Biological monitoring and research was conducted with four universities and the U.S. Geological Survey. Periods of contracts are in parentheses.

Texas A&M University – Galveston: Biomass and community structure of reef fishes on TPWD artificial reefs in north Texas (2011-2018*).

Texas A&M University – Corpus Christi: South Texas artificial reef research (STARR) program: fish community assessment and reef site evaluations (2011-2018*)

University of Texas – Rio Grande Valley: 1.) Artificial reef biological monitoring and research program: FY 2015 – 2018* (continuation of 2007-2015). 2.) Rio Grande Valley reefing site pre- and post- deployment monitoring FY 2016-2018 (continuation of 2015 research).

U.S. Geological Survey: Water quality monitoring of offshore (Texas) artificial reefs (2013-2018).

*all university contracts are now expired due to budget restrictions; future plans for more university contracts are currently on hold.

Perry R. Bass Marine Fisheries Research Station

Otolith collection

Otolith collections from gill net samples continued, as was processing and ageing of otoliths collected in previous years. All otolith age files have now been compiled into a single database to promote efficient use of the data. Although physical samples go back to 1995, preliminary analysis of Spotted Seatrout otolith data has resulted in fishes back-aged to the 1990 cohort. Significant trends in growth among years and among Texas estuaries have been observed, and these trends are being statistically correlated with water quality data as well as long-term climatological and freshwater inflow data. Currently work has begun on a publication dealing with Spotted Seatrout age and growth over a near 30-year span.

Red Drum otolith shape study

In addition to age/growth work on otoliths, we have initiated a "proof of concept" study to determine whether otolith shape morphology can be used to indicate stock structure in Red Drum. This study takes advantage of already sampled Red Drum otoliths in our lab. The initial stage of this work will involve imaging and capturing shape data from otoliths sampled in various Texas bay systems. Shape characteristics will be captured using Fourier or wavelet analysis.

Black Drum high-resolution population genomics

Preliminary analysis has begun on Black Drum population genomics in the Upper Laguna Madre. 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 and discriminant analysis of principle components (DAPC) to demonstrate weak but significant genetic divergence between Baffin Bay and other Texas bays. We are in the process of selecting samples for a high-resolution genomic library in order to attempt to parse out patterns that are driven purely by geographic isolation ("neutral" genetic divergence) versus potential signatures of natural selection.

Atlantic Croaker life history and genetics

Results from our high-resolution single-nucleotide-polymorphism (SNP) genetic data set have now been published at the journal Marine and Coastal Fisheries. CITATION: Anderson, J. D., S. J. O'Leary, and P. T. Cooper. 2019. Population Structure of Atlantic Croakers (*Micropogonias undulatus*) from the Gulf of Mexico: Evaluating a Single Stock Hypothesis Using a Genomic Approach. Marine and Coastal Fisheries 11:3-16.

Gulf-wide Blue Crab population genomics study

Sampling of Blue Crab for our Gulf-wide genomics study has completed. Upon hearing of the advanced status of similar work going on at Texas A&M in the lab of Luis Hurtado, we have reached out to Dr. Hurtado to provide our samples as well as logistical support to answer this important management question. We are currently engaged in forming a collaboration with Dr. Hurtado to that end.

Sheepshead

We continue to support Pearce Cooper (Ph.D. candidate, Dauphin Island Sea Lab, Dr. Sean Powers, advisor) in his range-wide genomics study on sheepshead. To date all requested samples have been received and transported to Pearce.

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

We have initiated a new study on the presence and prevalence of white spot syndrome virus (WSSV) in brown and white shrimp from Texas. We have been in collaboration 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 have identified an appropriate PCR-based laboratory assay for detecting white shrimp. Sampling will begin in spring 2019 in select Texas bay systems in an effort to detect underlying presence of WSSV and evaluate the risks of imported exotic bait shrimp to wild populations. The presence of other shrimp pathogens may also be evaluated with this data collection.

Range-wide population genetic structure of Alligator Gar

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 basin. Sampling has been completed, and almost all genetic data has been generated. Analysis of both data sets is ongoing (mtDNA, Texas Parks and Wildlife; genomic microsatellites, University of Mississippi) and we are moving towards writing a manuscript detailing this effort and its findings.

License Buyback Program

Shrimp

Buyback Round 37

- Application period closed January 31, 2018 (opened approximately 60+ days)
- 16 individual bids were received

Finfish

Buyback Round 25

- Application period closed January 31, 2018 (Open approximately 60+ days)
- 4 applications received

Crab

Buyback Round 22

- Application period closed January 31, 2018 (Open approximately 60+ days)
- 1 application received

Oyster

- 4 application received in Round 1, but we did not purchase any oyster licenses

SPECIAL EFFORTS, STUDIES, AND TOPICS

iSnapper Project

The *iSnapper* project received funding for an additional two years which will cover the 2019 and 2020 Red Snapper seasons. Creel samples will be used to validate *iSnapper* landing reports. Sampling will be conducted using the same methods as 2018, with sites identified as having Red Snapper effort being randomly selected based on the angling pressure. We will stay at the current level (3x the pre-*iSnapper* level) of gulf-only creel surveys in order to encounter (i.e. validations) and remind anglers about the importance of self-reporting their data.

SEAMAP

Vertical line (VL) SEAMAP sampling for 2018 is completed, with Texas vessels completing 60 stations from July to October 2018. Sites were only sampled off central and south Texas coastlines, in order to collect samples within all three depth strata (10-20, 20-4, 40+). Sample sites in the 10-20 strata continue to be low as they are weighted by % of habitat in that depth strata. We continue to put a large number of artificial reefs in state waters within the 10-20' depth zone; however, the area of the natural banks reduces the proportion of these inshore samples.

Summary of Red Snapper catches from SEAMAP Vertical Line sampling over the last 4 years from each of the depth strata (completed 2018). We did not sample depth strata >40' in 2015 or 2016.

Year	Depth Strata	# of Stations Completed	# of Hooks Fished	# of Red Snapper	Mean TL (mm)	Mean Weight (kg)	# of Stations with Red Snapper	% Stations with Red Snapper
2015	10-20	27	750	93	291	0.44	20	74.1
	20-40	12	380	57	433	1.65	12	100.0
2016	10-20	18	380	65	362	0.75	11	61.1
	20-40	30	680	255	457	1.58	24	80.0
2017	10-20	9	260	17	273	0.39	7	77.8
	20-40	18	420	140	484	1.71	16	88.9
	40-150	32	960	198	504	1.78	29	90.6
2018	10-20	8	240	10	262	0.27	3	37.5
	20-40	19	570	152	476	1.69	13	68.4
	40-150	33	990	167	497	1.82	28	84.8

FLORIDA FISH & WILDLIFE CONSERVATION COMMISSION
Eric Sutton, Executive Director

DIVISION OF MARINE FISHERIES MANAGEMENT
Director: Jessica McCawley

The major responsibilities of the Division of Marine Fisheries Management include: (1) development and implementation of marine fisheries management and policies; (2) angler outreach and marine aquatic resource education; (3) commercial fisheries assistance; (4) the state artificial reef program; (5) monitoring compliance with the marine fisheries trip ticket reporting requirements through audits of applicable fish house records; (6) administrative penalty assessments for violations of specified fisheries regulations, and retrieval of lost and abandoned spiny lobster, stone crab and blue crab traps; and (7) issuance of Special Activity Permits. Highlights of staff efforts in 2018.

ANALYSIS AND RULEMAKING SECTION

The Marine Fisheries Management and Policy Development program develops regulatory and management recommendations for consideration by FWC Commissioners designed to ensure the long-term conservation of Florida's valuable marine fisheries resources.

FWC marine fisheries director Jessica McCawley named South Atlantic Fishery Management Council chair.

The South Atlantic Fishery Management Council is responsible for the conservation and management of fish stocks within federal waters of the Atlantic off the coasts of North Carolina, South Carolina, Georgia and east Florida to Key West. The Council includes representatives in the fishing industry as well as state and federal leadership.

Florida Fish and Wildlife Conservation Commission (FWC) approved several changes to recreational and commercial trap fisheries rules. These changes are part of a long-term project to evaluate and improve the management of Florida's saltwater trap fisheries.

Approved changes include:

- Creating mandatory, no-cost annual recreational blue crab and stone crab trap registrations for trap fishers age 16 and older, and requiring FWC-designated trap identification numbers to be placed on recreational traps (trap registration and marking requirements for recreational stone crab effective Oct. 1, 2019, and similar blue crab requirements effective Jan. 1, 2020).
- Requiring commercial stone crab fishers to maintain an active saltwater products license, restricted species endorsement, and stone crab endorsement to retain their stone crab trap allotment.
- Starting the commercial spiny lobster trap soak period each year on the Saturday following the recreational mini-season.
- Increasing the time allowed for commercial lobster fishers to remove spiny lobster traps from the water after the season ends from five days to 10 days.

Florida Fish and Wildlife Conservation Commission (FWC) approved changes to commercial shrimp fishery management that will eliminate barriers to participation in the expanding live seafood market. These changes are part of a long-term project to evaluate and improve the management of Florida's shrimp fisheries.

Approved changes include:

- Clarifying that icing requirements for shrimp do not apply to food shrimp kept alive prior to sale.
- Establishing live-well requirements for vessels and vehicles transporting live food shrimp.

Florida's shrimp fishery is one of the oldest and most valuable commercial.

FLORIDA CONSERVATION ORGANIZATIONS PARTNER TO SUPPORT THE RECOVERY OF WEST COAST SNOOK POPULATIONS FOLLOWING RED TIDE EVENT

Coastal Conservation Association Florida, the Florida Fish and Wildlife Conservation Commission and Mote Marine Laboratory launch initiative to enhance the snook fishery on Florida's southwest coast by stocking 10,000 juvenile snook during a two-year project.

The two-year initiative includes raising and releasing 10,000 hatchery-reared juvenile snook along Florida's southwest coast and will launch in April 2019 following the Florida red tide bloom and when waters are determined to be safe. Fundraising for the program, a cost of over $440,000, will include outreach to the community through an Adopt-A-Snook program and the formation of additional private-nonprofit partnerships.

The FWC is gathering input on management of the recreational spotted seatrout fishery. The status of the seatrout populations within each zone is assessed using a measure of population health known as the Spawning Potential Ratio. Research indicates seatrout populations should be kept to at least 20 percent SPR to maintain a sustainable population. The FWC manages spotted seatrout at a higher management goal of 35 percent SPR to provide a better fishery.

Florida Fish and Wildlife Conservation Commission (FWC) approved draft changes to shark fishing regulations, including management changes for the shore-based shark fishery. These changes will increase survival of released sharks, improve information gathering of the fishery and address some of the public safety concerns related to the fishery.

- Creating a mandatory, no-cost, annual shore-based shark fishing permit.
- Prohibiting chumming when fishing for any species from the beach.
- Prohibiting delaying the release of prohibited shark species when fishing from the shore.
- Requiring that prohibited shark species remain in the water (when fishing from shore and from a vessel).
- Requiring the use of non-offset, non-stainless-steel circle hooks with live or dead natural bait (when fishing from shore and from a vessel).
- Requiring the possession/use of a device capable of quickly cutting the leader or hook (when fishing from shore or a vessel).

- Cleaning up and updating the current rule language.

Lionfish Statewide Program
Overview

- Statewide program
- Recreational and commercial participant categories
- Checkpoints located statewide for harvest submission
- Tiered prize system to encourage continued harvest
- Cash prizes for largest and smallest lionfish

How to Qualify

- All participants required to register prior to participation.

Recreational Category

- Harvest 25 or more lionfish
- Submit photo of harvest
  - Photo requirement: Include harvester name, date of harvest, and signature. *Lionfish must be displayed clearly for staff to obtain an accurate individual count.*
  - ***Note: FWC reserves the right to deny submission if participant fails to fulfill the requirements for verification as described above.***
- Submit tails (after first 25) to checkpoint (listed below and online)
  - Place tails in a plastic sandwich bag(s): include harvester name, phone number, date of harvest, and number of tails.
  - Complete the *2019 FWC Lionfish Challenge Submission Form*. Checkpoints will retain bags for verification by FWC staff.
  - Send a copy of the Submission Form to Lionfish@MyFWC.com and keep an additional copy with tails.

Commercial Category

- Participants with active Saltwater Products License **and** lionfish sales within the last year will automatically be included in this category.
- Submit photo of electronic trip tickets
  - Trip ticket requirement: Harvester name, date of harvest, amount harvested (lbs.), and signature

Rewards

- All qualified participants (submission of 25 lionfish/lbs.) receive:
  - Commemorative coin
    - *Resource-based incentive:* 2019 coin is valid for 1 spiny lobster per person per day in addition to the daily bag limit during the 2019 sport season (July 24-25)

    - 2019 Lionfish Challenge performance fishing shirt
    - Entry in raffle
    - Feature in FWC Lionfish Hall of Fame
- Tiered Prizes
    - 75 lionfish (or 150 lbs.) – customized neck gaiter and reusable heat pack for stings
    - 150 lionfish (or 300 lbs.) – customized beach towel, Engel Coolers silipint cup, and fillet knife
    - 250 lionfish (or 600 lbs.) – Costa sunglasses, Neritic Diving polespear, and TurtleSkin puncture-resistant gloves
    - 400 lionfish (or 1,200 lbs.) – customized 85 quart Engel Cooler
- Raffle Drawings
    - Every 2 weeks for all qualified participants
        - Dates: June 5, June 19, July 3, July 17, July 31, August 14, August 28
    - Prizes include: HP 100 SCUBA cylinder, ZooKeeper Lionfish Containment Unit, $50 for SCUBA air fills, Lion Lift kits from Toothless Life, Lionator Polespears, and other items donated by sponsors
- Cash Prizes
    - Donated by sponsors: American Sportfishing Association, Yamaha Motors, Marine Industries of Palm Beach County, National Marine Manufacturers Association
    - Smallest lionfish
        - 1st place – $2,000
        - 2nd place – $1,000
        - 3rd place – $500
    - Largest lionfish
        - 1st place – $2,000
        - 2nd place – $1,000
        - 3rd place – $500

Lionfish King/Queen: Most lionfish (by number) submitted by a recreational participant

- Lionfish King/Queen trophy
- Feature article in FWC's January 2020 Saltwater Regulations publication
- Featured prominently in the FWC Lionfish Hall of Fame
- HP 100 SCUBA cylinder
- $500 for SCUBA air fills

2nd Place Lionfish King/Queen

- HP 100 SCUBA cylinder
- $250 for SCUBA air fills

3rd Place Lionfish King/Queen

- HP 100 SCUBA cylinder
- $100 for SCUBA air fills

Commercial Champion: Most lionfish (by weight) submitted by a commercial participant

- Lionfish King/Queen trophy
- Feature article in FWC's January 2020 Saltwater Regulations publication
- Featured prominently in the FWC Lionfish Hall of Fame
- HP 100 SCUBA cylinder
- $500 for SCUBA air fills

2nd Place Commercial Champion

- HP 100 SCUBA cylinder
- $250 for SCUBA air fills

3rd Place Commercial Champion

- HP 100 SCUBA cylinder
- $100 for SCUBA air fills

Florida Saltwater Angler Outreach Programs:

Angler Interactions

- Direct contact with approximately 100,000 anglers annually.
- Staff visits boat ramps, marinas and tackle shops to interact one-on-one with anglers.
- Staff presents information at fishing tournaments, fishing club meetings and other angler-related events.
- Staff answers marine fisheries questions, distributes literature, promotes marine fisheries conservation messages and discusses the SFR program and its benefits to Florida anglers.
- Staff disseminates saltwater fish information to anglers and provides observation from anglers about marine resources to research and management staff.

Public Events

- Staff attended more than 45 shows in the past 5 years and interacted with more than 500,000 anglers to provide information about the SFR program, showcase SFR-funded projects in Florida and distribute publications funded by the SFR program.

Marine Resources Education Programs:

Kids' Fishing Clinics

- One-day educational events established to create responsible marine resource stewards by teaching children the vulnerability of Florida's marine ecosystems.
- Teach fundamental saltwater fishing skills and provide a positive fishing experience for kids.

- Average of 3,000 children attend events each year.

Aquatic Resource Workshops

- Certify educators to collect aquatic species and conduct field activities.
- Over 1,200 teachers have participated; approximately 3,000 students have been involved in field activities.

Women's Fishing Clinics

- One-day, shore based events designed to introduce women to fishing and conservation.
- More than 1000 women have participated in 40 events in the past 5 years.

DMF Outreach and Education Partnerships of Importance:

- Partner with aquariums to provide technical expertise and fish-on-loan for exhibits, including the Florida Aquarium (Tampa), Secrets of the Sea (Port of St. Petersburg), Guy Harvey Outpost (St. Petersburg), Sea Life (Orlando), Clearwater Marine Aquarium (Clearwater), and Bass Pro Outdoor World (Brandon, Orlando, and Palm Bay).
- Coordinate with multiple Florida State Parks and County Parks to hold Saltwater Women's Fishing Clinics at various locations for no-charge to program participants.
- Collaborate with the Florida Marine Science Educators Association (FMSEA) to provide educators with a special activity license that allows them to conduct educational field exercises and collect aquatic organisms for educational purposes.

DMF Outreach and Education Highlights:

- A multitude of publications are created and disseminated to anglers, including:
  - ***Fishing Lines - An Angler's Guide to Florida's Marine Resources***: Contains information on SFR-funded projects, saltwater fish identification and marine resource stewardship.
  - **Sea Stats:** Brochures developed for a variety of Florida's marine fishes using information gathered from research conducted by FWC staff using SFR funds.
  - **Fish Identification Posters**: Aid anglers in identifying fish and provide life history and biological information (Jacks, Snappers, Inshore Fish, Baitfish, Groupers and Pelagics).
  - **Boating and Angling Guide pamphlets:** Brochures for more than 25 coastal regions in Florida. Over 2.7 million boating and angling guides have been printed to-date. The guides are available to anglers free-of-charge and are updated periodically.
- Staff make direct contact with nearly 15,000 people each year by attending three annual Florida Sportsman Fishing and Boat Shows (in Tampa, Fort Myers and Fort Pierce).

- The amount of Women's Fishing Clinics conducted in recent years has increased from 4 events to 14 events per year, and the program is still growing.

Artificial Reef Program:

- Over 3,500 artificial reefs have been deployed to-date.
- Approximately 100 new artificial reefs are constructed annually.
- Artificial reef locations and interactive map available electronically on MyFWC.com.
- Benefits of artificial reefs:
    - Tools for fisheries management and scientific research
    - Generate millions of dollars annually through tourism for fishing and diving
    - Reduce user pressure on natural and hard bottom sites
    - Reduce user conflicts by providing additional recreational fishing and diving destinations off both Florida's Gulf of Mexico and Atlantic coasts.
- Partnerships:
    - Coordination and cooperation with stakeholders to plan, construct and monitor artificial reefs, includes: local coastal governments (counties and municipalities), universities, recreational anglers, local diving clubs