The charge of the Louisiana Department of Wildlife and Fisheries is to protect, conserve and replenish the natural resources, wildlife and aquatic life of the state.

Administration for fiscal year 2017-2018

JOHN BEL EDWARDS, GOVERNOR
JACK MONTOUCET, SECRETARY
Bryan McClinton, Undersecretary
Patrick Banks, Assistant Secretary
Randy Myers, Assistant Secretary
Scott Longman, Deputy Assistant Secretary

DIVISION ADMINISTRATORS
Harry Blanchet, Fisheries
Jason Froeba, Fisheries
Kenneth Ribbeck, Wildlife
Buddy Baker, Coastal & Nongame Resources
Col. Sammy Martin, Enforcement

Commission for fiscal year 2017-2018

WILDLIFE AND FISHERIES COMMISSION
Chad J. Courville, Chairman
William D. “Bill” Hogan, Vice-Chairman
William J. “Joe” McPherson
Robert J. Samanie III
Alfred R. Sunseri
Jerri G. Smitko
Bart R. Yakupzack
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ORGANIZATIONAL OVERVIEW

OFFICE OF SECRETARY
The Office of Secretary is administered by LDWF’s chief administrative officer, who oversees all scientific operations as organized by the Office of Wildlife and the Office of Fisheries. The Secretary also has ultimate authority over the operation of LDWF's fiscal and business matters as administered by the Office of Management and Finance. Support operations of LDWF report directly to the Secretary. These include the Enforcement Division, LDWF's Legal Section and Public Information.

ENFORCEMENT DIVISION
The Law Enforcement Division is responsible for enforcing laws enacted by the Louisiana Legislature, rules and regulations adopted by the Louisiana Wildlife and Fisheries Commission, and federal laws relative to fish and wildlife resources, boating safety, waterways enforcement activities, search and rescue, and homeland security missions.

PUBLIC INFORMATION
The Public information section is responsible for media relations, all print publications (regulation brochures, “The Conservationist” magazine, annual report, etc), the agency website, social media, video production, photography, press conference organization, as well as speech writing and talking points as needed.

LEGAL SECTION
The Legal Section represents the department and the Wildlife and Fisheries Commission in all legal matters involving promulgation, enforcement and administration of the state’s fish and game laws and regulations, litigation involving department programs, daily advising and counsel, and drafting of contracts, legal documents and legislation.

OFFICE OF MANAGEMENT & FINANCE
The Office of Management and Finance is directed by the Undersecretary. This unit is responsible for the following functions: human resources, accounting, budget forecasting and control, strategic and operational planning, property control and fleet management, boat registration, motor and boat titling, federal grant reporting, license and permit administration and issuing, fees, taxes and penalties collections.

LICENSING
The Licensing Section administers the issuance of all licenses, harvest tags and most other permits, boat and motor titles and registrations, and is responsible for the collection and deposit of related fees.

PROPERTY CONTROL
The Property Control Section is responsible for LDWF’s movable property program, fleet management program, and managing property, marine, general liability, aviation and vehicle insurance claims.

FISCAL
The Fiscal Section is responsible for all financial operations of LDWF.

HUMAN RESOURCES
The Human Resources section handles all matters of employee relations, processes all employee personnel actions, processes all retirement/benefits related actions, develops related policies and procedures, coordinates all training activities for the agency, conducts new employee orientation, administers the performance planning and review program, handles all FMLA related matters and manages the safety program which includes worker’s compensation processing.

OFFICE OF WILDLIFE
The Office of Wildlife consists of the Wildlife Division, Coastal & Non-game Resources Division, Education, Habitat Section and Minerals Management Section.

WILDLIFE DIVISION
The Wildlife Division is responsible for the state’s wildlife conservation program and gathering biological data to properly manage wildlife resources.

COASTAL & NONGAME RESOURCES DIVISION
Conservation of coastal wildlife species and their marsh habitats, along with statewide responsibility for nongame and threatened and endangered species are the primary division responsibilities. This is addressed through major programs: Rockefeller Wildlife Refuge; White Lake Wetlands Conservation Area; Fur Advisory Council; Natural Heritage Program; Oil Spill Response; Natural Resource Damage Assessment; Alligator and Furbearer Program; Alligator Advisory Council; and Coastal Operations Program.

OFFICE OF WILDLIFE (cont.)

EDUCATION
The Hunter & Aquatic Education programs provide mandatory hunter training to thousands of students annually and promote hunting, fishing, archery, firearm safety and conservation. The Environmental Education Program provides information and resources to PK-16 educators and students and acts on behalf of the Environmental Education Commission.

MINERALS MANAGEMENT & HABITAT SECTIONS
Minerals Management is responsible for ensuring that oil and gas activities on all LDWF properties are carried out in a manner that is compatible with the environment and management area goals and objectives. By administering regulatory programs or by coordinating regulators, the Habitat Section seeks to conserve fish and wildlife resources, in particular wetlands.

OFFICE OF FISHERIES
The purpose of the Fisheries program is to manage aquatic resources and their habitat, to support the fishing industry, and to provide access, opportunity and understanding of the Louisiana aquatic resources to the state’s citizens and others beneficiaries of these sustainable resources. The Office of Fisheries is comprised of six sections: Marine Fisheries, Inland Fisheries, Fish Management, Fisheries Extension, Fisheries Oversight, and Fisheries Administration.

INLAND FISHERIES
The Inland Fisheries Section is responsible for the monitoring and management of the state’s freshwater resources. This includes sportfish population monitoring and management, providing boating access through aquatic vegetation control, sportfish production and stocking through the hatchery system, and aquatic nuisance species monitoring and outreach.

MARINE FISHERIES
The Marine Fisheries Section is responsible for the monitoring and management of the state’s estuarine and nearshore marine fishery resources. This includes both fishery-dependent (recreational and commercial) and fishery-independent monitoring of fish and shellfish populations. Section personnel annually develop recommendations for seasons, harvest limits, and other management measures to ensure sustainable populations.

FISHERIES RESEARCH & ASSESSMENT
The Fisheries Research and Assessment Section is responsible for conducting research on the state’s estuarine and marine fishery resources. The section includes the Fisheries Research Laboratory on Grand Isle which, in addition to research, also conducts monitoring of offshore fishery stocks through cooperative sampling programs. The Section also includes the Fisheries Stock assessment program, responsible for developing modern measures of the health of fish stocks statewide to ensure sustainable populations and estimate effects of regulatory changes.

FISHERIES EXTENSION
Fisheries Extension provides guidance and assistance to Louisiana’s valuable commercial and recreational fishing sectors through assistance, education and outreach. The artificial reef program enhances the state’s abundant marine resources by developing additional habitat utilizing clean, durable and stable materials.

OYSTER LEASE PROGRAM
The Oyster Lease Section is responsible for the administration of oyster lease agreements and alternative oyster culture permits, in addition to the collection of revenue generated by these processes. This is done through a Geographic Information System (GIS) that the section manages and maintains.

FISHERIES HABITAT SECTION
The Fisheries Habitat Section is responsible for the coordination of Oyster, Crab, Shrimp and Fish Task Forces for LDWF. The Habitat Section interacts with all LDWF sections and divisions and state and federal entities in planning and implementation of restoration initiatives for fulfillment of NRDA and resource recovery agreements from oil spill settlements, reviewing and commenting on regulatory and consistency permit applications, and efforts to conserve and restore fish and wildlife habitats.
A Word from the Secretary

The Louisiana Department of Wildlife and Fisheries (LDWF) faced many challenges during fiscal year 2016-2017. The dedicated employees of LDWF were, again, able to meet those difficulties and continue our outstanding service to the people of Louisiana in the ways they have come to expect.

LDWF prides itself on scientific research to manage Louisiana’s abundant natural resources. Simultaneously, our department is nimble enough to take care of problems that crop up unexpectedly.

This previous fiscal year once again highlighted the work of LDWF employees in those areas and many others.

The “Great Flood of 2016” dominated the headlines in August and during the fall in southeast Louisiana. The Louisiana Department of Wildlife and Fisheries Law Enforcement Division was front and center during the rescue efforts and after the flood that dropped more than 20 inches rain in several areas of the state.

LDWF-LED is responsible for providing and coordinating search and rescue response and maritime security activities for the state. During the devastating flood in 2016, agents rescued 3,152 people and 612 pets from Aug. 13-17, 2016.

The agents performed their duties in dangerous conditions with little to no sleep and sometimes working through the night. Navigating vessels in flooded urban areas also can be difficult and dangerous because of unseen obstacles, especially at night.

Enforcement agents made 792,145 contacts with the public in 2016-2017, the majority of whom complied with state and federal wildlife regulations. Agents issued 10,624 criminal citations and 5,760 warnings during the period.

The LDWF Law Enforcement Academy graduated its 31st class of cadets on April 26, 2017. Twenty-three newly commissioned agents joined the force.

The Office of Wildlife made several notable achievements during the fiscal year and continues to keep a close eye on threats that could harm wildlife resources.

One of those achievements was the completion of a North American Wetland Conservation Act (NAWCA) project on Russell Sage Wildlife Management Area’s Wham Brake. Enhancement of the 3,597-acre impoundment included construction of a large weir, installation of two large screw-gates, construction of an emergency spillway and replacing a dilapidated bridge. Construction was completed in April of 2017.

The Wildlife Division continues its work to keep the highly contagious Chronic Wasting Disease out of the state’s white-tailed deer herd. The Louisiana Wildlife and Fisheries Commission enacted a regulation in March of 2017 governing the importation of cervid carcasses into Louisiana. CWD has been discovered in 24 states and two Canadian provinces.

Our Forest Management Program received good news last fiscal year when LDWF’s 490,000 acres of forestland was certified through the Sustainable Forestry Initiative Program. LDWF was audited and
found to be in accordance with the requirements of the Sustainable Forestry Initiative Standard 2015-2019. The mission of the program is to improve forest and wildlife habitat on wildlife management areas through sound forest management.

Our non-migratory whooping crane population continues to flourish. Twenty-five juvenile cranes, the largest shipment yet, were sent to Louisiana in 2016 from the U.S. Geological Survey Patuxent Wildlife Research Center and the International Crane Foundation during November and December.

The Archery in Louisiana Schools program, our state’s version of the National Archery in the Schools Program (NASP), gets bigger each year. Some 191 schools participated in the program with an estimated 22,920 students taking part in the curriculum. A state tournament was held with many of those archers advancing to the NASP tournament during the summer.

The LA Creel program continues to produce critical survey information to LDWF fisheries biologists. Through in-person interviews of recreational fishing trips along Louisiana’s coast LA Creel surveyed more than 26,000 anglers and counted more than 87,000 fish. The program also utilized telephone surveys to gauge fishing effort by anglers.

Our inland fisheries staff continues to use a survey method developed in 2010 to survey waterbodies with important largemouth bass fisheries. This method involves surveying more intensively during a three-year sampling period with the overall goal to develop a statewide database of largemouth bass population and fishery characteristics to guide future LDWF fishery management decisions.

The battle against invasive species choking our inland waterways is a fight we continue to undertake. Our Aquatic Plant Control Program strives to provide the public with safe and usable fishing and boating access. Aggressive treatment of affected waters, using chemical, mechanical and biological techniques, continued during this year to improve the aquatic habitat and natural balance of plants and fish.

The Office of Management and Finance served in excess of 800,000 customers in 2016-2017, issuing more than 2.5 million recreational hunting, fishing, trapping and non-consumptive use licenses and permits. OMF also handled 213,000 boat registration/title transactions while maintaining more than 1 million records.

These are but a few of the highlights of a busy fiscal year for the Louisiana Department of Wildlife and Fisheries.

The following details provide a clear picture of what is involved in LDWF’s natural resource management effort.

Jack Montoucet, LDWF Secretary
ENFORCEMENT DIVISION

The Louisiana Department of Wildlife and Fisheries Law Enforcement Division (LDWF-LED) is responsible for enforcing laws enacted by the Louisiana Legislature and federal laws relative to fish and wildlife resources, boating safety, waterways enforcement activities, search and rescue, and homeland security missions.

LDWF-LED is a fully-commissioned statewide law enforcement agency with the primary mission of protecting Louisiana’s natural resources and serving the people who utilize them. Beyond the traditional role of ensuring compliance with licensing and harvesting regulations, LDWF-LED also conducts search and rescue missions, enforces boating safety laws, investigates boating crash incidents and hunting accidents, and provides boater education classes for thousands of citizens each year.

The Law Enforcement Division is responsible for enforcing laws as provided for in the:
- Constitution of the State of Louisiana
- Louisiana Revised Statutes
- U.S. Department of Commerce, National Oceanic and Atmospheric Administration/LDWF Law Enforcement - Cooperative Enforcement Agreement - Law Enforcement Services under:
  - Magnuson-Stevens Fishery Conservation and Management Act
  - Endangered Species Act of 1973
  - Marine Mammal Protection Act of 1972
  - Lacey Act
- U.S. Department of Interior, U.S. Fish and Wildlife Service/LDWF Law Enforcement - Memorandum of Agreement - Law Enforcement:
  - Migratory Bird Treaty Act
  - Lacey Act; Migratory Bird Hunting and Conservation Stamp Act
  - Bald and Golden Eagle Protection Act
  - Airborne Hunting Act
  - National Wildlife Refuge System Administrative Act
  - Endangered Species Act
- Marine Mammal Protection Act
- Archeological Resources Protection Act
- African Elephant Conservation Act
- Antarctic Conservation Act
- Wild Bird Conservation Act and Recreation Act
- U.S. Coast Guard/LDWF Law Enforcement - Statement of Understanding - Boating Safety Regulations:
  - BWI
  - Public Education and Training
  - Boating Accident Investigations
  - Search and Rescue
  - Regattas and Marine Parades
- Louisiana Department of Health and Hospitals/LDWF Law Enforcement - Memorandum of Understanding - Louisiana Shellfish Sanitation Program
- National Shellfish Sanitation Program

LDWF-LED conducted 316,093 patrol hours in FY 2016-2017: 239,948 on land and 76,145 on water. Agents made 792,145 contacts with the public, the majority of whom were in compliance with state and federal wildlife and fisheries regulations. LDWF-LED agents issued 10,624 criminal citations and 5,760 warnings during this period. The most common types of citations were fishing without a license, failure to comply with personal flotation device requirements, not abiding by rules and regulations on wildlife management areas, and failure to comply with deer tagging or harvest record regulations.

ORGANIZATIONAL STRUCTURE & PERSONNEL

LDWF-LED is organized in a paramilitary structure to assure the efficient use of resources, consistent statewide enforcement policy, and an effective, coordinated response to urgent needs (Figure 1). LDWF-LED is commanded by one colonel, the Chief of Enforcement, who reports directly to LDWF’s Secretary and oversees administration of the division. Reporting to the colonel are two Lieutenant Colonels. One Lieutenant Colonel serves as assistant chief of administration which includes state boating law administrator, statewide strikeforce, covert, public information, and aviation sections supervisor. The other Lieutenant Colonel serves as the assistant chief of patrol and supervises all state regional field operations. There are three majors: one over the even-numbered enforcement regions of the state who serves as policy and procedure administrator; one over the odd-numbered regions who serves as safety coordinator; and one over the emergency services, training, support and budget sections.

The LDWF Enforcement Division headquarters staff works out of Baton Rouge and was headed by Col. Joey Broussard, who was promoted to the head position in July 2014, in FY 2016-2017. Col. Broussard, a native of Pointe Coupee Parish, graduated from the LDWF cadet academy in 1991, receiving his POST certification from LSU, and has been an agent for over 25 years.

The Enforcement Division is divided into eight enforcement regions (Figure 2) and one statewide strikeforce region. Each numbered enforcement region is composed of two or three multi-parish districts. Each region is managed by a captain who supervises two or three district supervisors of the lieutenant rank. Regions have between 16-25 agents, depending on regional size, resident population and participant population. Current funding provides a field enforcement staff of two to four agents per parish, according to the nature of wildlife-based activities in the area, the number of people participating, the frequency of their participation, and other factors.

Total division head count is 257 positions including 234 enforcement agents, 15
administrative staff, six communications officers and two pilots. The actual number of filled positions (as of July of 2017) is 251.

REGIONAL ENFORCEMENT PROGRAMS

Most of the law enforcement activity performed by LDWF-LED is conducted by regional agents. Regional agents work a schedule assigned by their supervisors to address seasonal needs, reported violations, weather conditions and predominant activities. Agents are on-call 24 hours per day and must be willing to change their work hours and locations as circumstances require. Schedules are often changed due to weather and reported violations, and agents are often called out to respond to violations in progress, boating and hunting accidents, and calls for search and rescue.

Agents use a variety of vehicles during land patrols, primarily four-wheel drive trucks and all-terrain vehicles. The primary patrol vessels used during water patrols are outboard bay boats and 19-to-40-foot marine patrol vessels. LDWF-LED also deploys go-devils, airboats, surface river mudboats, bass boats and flatboats.
SPECIALIZED UNITS
LDWF-LED contains four specialized units with selected missions or purposes: the Special Operations Section; the Statewide Strike Force; the Maritime Special Response Team; and the Aviation Section. Agents in specialized units have developed specific skills, expertise and knowledge appropriate for their particular operational fields. Agents in specialized units operate in relatively broad geographic areas and may work alongside regional enforcement agents when appropriate.

SPECIAL OPERATIONS SECTION
The Special Operations Section houses covert operations in which undercover agents work to stem the illegal sale of fish and wildlife, develop information about ongoing criminal enterprises, and address major violations of state and federal law.

STATEWIDE STRIKE FORCE
The Statewide Strike Force is assigned to work problem areas statewide. They devote attention to commercial fisheries operations, license fraud and white collar crimes. Violations include smuggling, interstate commerce violations, and false reporting and under-reporting of commercial fish harvests. These agents provide regional patrol with additional manpower on wildlife management areas and places of high seasonal utilization, such as Grand Isle and other locations throughout the state. Strike Force agents also assist regional agents with oyster harvest enforcement, which primarily addresses harvesting oysters in closed waters, stealing from oyster leases and state grounds, and oyster size regulations.

MARITIME SPECIAL RESPONSE TEAM
The Maritime Special Response Team cooperative endeavor by LDWF-LED and the Louisiana State Police SWAT team addresses maritime security threats within the state of Louisiana. The team provides a maritime tactical response capability at the state level in order to effectively provide public safety, officer safety, Chemical, Biological, Radiological, Nuclear and High-yield Explosives (CBRNE) prevention, and response and tactical support for LDWF’s federal, state and local partners.

AVIATION SECTION
The Aviation Section contains two pilots and four total planes which include one Kodiak, one Cessna 210 and two Cessna 206 amphibians. The Aviation Section’s aircraft provide a valuable platform for detecting illegal hunting and fishing activities and frequently play a vital role in search and rescue operations. The Aviation Section also contributes its services to other divisions for biological missions, such as waterfowl counts and the monitoring of commercial fisheries.

BOATING SAFETY PROGRAM
With 15,000 miles of tidal coastline, 5,000 miles of navigable waterways, three of the busiest ports in the country, a thriving shipping industry, a large commercial fishing fleet, and over 327,000 registered boats, Louisiana contains many geographic, demographic and economic features that pose special challenges for boating safety enforcement. LDWF-LED agents made 212,974 public contacts during the course of 58,999 patrol hours dedicated to boating enforcement, education and accident investigation in FY 2016-2017. Of those hours, 45,231 patrol hours were performed in vessels on the water.

The adoption of “Rules of the Road” regulations for boaters has enhanced the enforcement of boating safety regulations and boating under the influence laws. These regulations provide the boating public with clear rules for the manner in which boats are operated and are an important tool in determining fault in boating accidents. The “Rules of the Road” also enhance the ability of agents to address reckless and careless oper-
The statewide LDWF-LED boater education course teaches safe, legal and responsible boat operation and is approved by the National Association of State Boating Law Administrators (NASBLA). This program provides a vital outreach to the community and has greatly improved the awareness of and compliance with boating safety practices and regulations in Louisiana. Agents hold monthly classes in each region for anyone who wishes or is required by Louisiana law to take them. In FY 2016-2017, 8,270 citizens were certified in classroom and online classes. LDWF-LED continues to recruit and train additional volunteer instructors to complement and enhance the efforts of its own agents. Since the inception of the boating safety education course in 2003, LDWF has certified 104,311 students.

LDWF-LED remained committed in marketing and promotion of boating education courses by creating special events and activities for students attending courses.

LDWF participated in several national campaigns including “Wear your PFD to work Day” on May 19, “Ready Set Wear It” on May 20, and the “Safe Boating Week” in Louisiana from May 20-26. LDWF Enforcement Division agents were out in full force as always during the safe boating week to perform boating safety checks and driving or operating a vessel while intoxicated (DWI) patrols.

LDWF sponsored a summer day camp for children 11 to 13 years old at the Waddill Outdoor Education Center in Baton Rouge. The camp was held from July 18-22, 2016. The camp was completely free of charge and allowed participants to receive their official boater and hunter education certifications. A total of 14 children received their boating and hunting education certificates during the camps.

LDWF certified 112 students during the NASBLA “Spring Aboard” national marketing campaign from March 19-25 to promote opportunities for boaters to enroll in a boating education course.

LDWF also certified 202 boaters statewide after their seventh “Boating Education Lagniappe Day” on April 22. Lagniappe Day ran from 9 a.m. to 5 p.m. at nine locations across the state and consisted of the NASBLA boating education course, food and drinks, giveaways and door prizes, all free of charge to the public.

LDWF once again participated in NASBLA’s Operation Dry Water from June 30 - July 2, 2017. During Operation Dry Water, agents stepped up patrols looking for operators of vessels who were impaired or under the influence of alcohol or drugs. During that weekend, agents made five boating under the influence cases and issued 157 safe boating citations with 155 safe boating warnings.

Media interviews, news release articles, public relation events and social media comments occurred throughout the state during all listed campaigns.

SEARCH & RESCUE OPERATIONS

LDWF-LED is responsible for providing and coordinating search and rescue response and maritime security activities for the state. This activity supports the state’s goal of hurricane recovery and emergency preparedness by planning, training and coordinating local, state and federal response for search and rescue associated with natural or man-made disasters. Preparedness and efficient execution of search and rescue response events is essential to saving lives and swift recovery efforts. Providing maritime security on our state’s waterways is essential to protection of critical infrastructure located in maritime environments throughout Louisiana.

LDWF-LED agents rescued 3,152 people and 612 pets from Aug. 13-17, 2016 after the Baton Rouge area received over 20 inches of rain from Aug. 11-14, 2016.

The following are the rescues by parish for the August floods:

- Tangipahoa - 305 people and 108 animals
- Washington - 3 people
- Livingston - 214 people and 82 animals
- St. Helena - 25 people
- East Baton Rouge - 1,442 people and 230 animals
- Iberia - 41 people and 3 animals
- Lafayette - 837 people and 114 animals
- East Feliciana - 49 people and 5 animals
- West Feliciana - 2 people
AGENT TRAINING PROGRAM
LDWF-LED began construction on a new training academy and emergency response facility. This project will support the mission of LDWF-LED agent training, continuing education, boating safety and waterway enforcement activities, and specialized enforcement training the agency provides to other state and local law enforcement. It will also support the state’s lead emergency support function agency for search and rescue response and maritime security. In addition, this project will further develop existing training infrastructure to maximize benefits for LDWF-LED, aids in the support of the training needs of local, parish and marine enforcement agencies, and provides a facility to meet the needs for providing boating safety course instruction.

IN SERVICE TRAINING PROGRAM
The LDWF-LED in-service training program is conducted in three phases and consists of “annual in-service,” “spring firearms” and “fall firearms.” The in-service training is necessary in order to meet federal and state training requirements and to advance individual officer capability.

Annual in-service is usually around 40 hours and consists of 10 training sessions conducted over a 10-month period. During these sessions, agents receive training in firearms, defensive tactics/use of force, officer survival, legal, first aid and electives. Spring and fall firearms training sessions focus on firearms qualification and training.

At the end of 2016, agents completed their annual and fall/spring firearms in-service training requirements, which consisted of the following:

**SPRING/FALL: IN-SERVICE**
- Firearms

**ANNUAL: IN-SERVICE**
- First Aid/Blood Borne Pathogens/CPR for the Professional Rescuer
- Defensive Tactics/Officer Survival/Use of Force
- Firearms
- DWI (Intox. 5000, Intox. 9000, Standardized Field Sobriety Testing (SFST), Boating Under the Influence (BUI) Seated Test Battery, LA Drive)
- Taser
- Vehicle Stops (scenario based force on force training)
- Maps and Navigation
- ARIDE Retrainer (Advanced Roadside Impaired Driving Enforcement)

**FIREARMS**
LDWF added one agent to its cadre of firearms instructors. This agent completed the selection, qualification and training process to become a certified LDWF and Peace Officer Standards and Training (POST) firearms instructor. They will be able to provide the other instructors with assistance in providing the required firearms training to all agents and cadets throughout the enforcement division.

**DWI**
Two agents were certified as Drug Recognition Experts, bringing the LDWF-LED total to 13 Drug Recognition Experts.

**MARINE LAW ENFORCEMENT TRAINING PROGRAM**
At the end of 2016, all agents had completed their annual recertification as Boat Operators for Search and Rescue in the National Association of the NASBLA Boat Operations and Training Program.

**CRISIS INTERVENTION OR CRITICAL INCIDENT TRAINING**
LDWF has four agents trained in Crisis Intervention and Critical Incident as part of the Agents Crisis Team. The Agents Crisis Team team consists of agents who are specially trained as skilled listeners. The objective of the Agents Crisis Team is to provide support for law enforcement personnel, and their immediate family, who have experienced a critical incident or traumatic event. A critical incident is defined as any incident,

*LEFT: Agents participating at the gun range for Maritime Special Response Team training. RIGHT: Cadets training at the gun range.*
action or event, which has the potential for producing significant emotional trauma that may adversely affect the psychological well-being of law enforcement personnel.

ACADEMY
The LDWF Law Enforcement Academy on April 26, 2017 graduated its 31st class of cadets into the ranks of LDWF-LED Agents. A ceremony for the graduating class was held in Baton Rouge.

After completing over seven months of intensive physical and academic training at the academy, the 23 newly commissioned agents are ready to begin enforcing hunting, fishing and boating regulations that govern the use of the state’s natural resources. Agents are also trained to provide emergency services as the state’s lead agency for search and rescue and maritime security. At the academy, cadets train to enforce the state’s recreational boating laws, the state and federal wildlife and fisheries laws, and general law enforcement work on the state’s many wildlife management areas. The academy also covers general law enforcement training equal to that of other state law enforcement officers.

JOINT ENFORCEMENT AGREEMENT
LDWF-LED again entered into a Joint Enforcement Agreement with the National Oceanic and Atmospheric Administration’s Office for Enforcement. LDWF-LED received approximately $910,867 in FY 2016-2017 to patrol for compliance with federal commercial and recreational fisheries regulations, primarily in the Gulf of Mexico.

OPERATION GAME THIEF
Louisiana Operation Game Thief, Inc. is a program which provides cash rewards to those providing information leading to the apprehension of wildlife violators. Violations can be reported anonymously by calling a 24-hour toll-free telephone number (1-800-442-2511) or by using LDWF’s tip411 program. To use the tip411 program, citizens can text LADWF and their tip to 847411 or download the “LADWF Tips” iPhone or Android apps from the Apple App Store and Google Play free of charge. The hotline and the tip411 program are monitored 24 hours a day by the LDWF Communications Center. Reports are immediately referred to agents for action.

During 2016, Operation Game Thief paid out $15,600 in rewards. In 2016 the Louisiana Operation Game Thief board reviewed 38 cases that led to 58 subjects getting cited or arrested and a total of 456 citations issued. From 1984 till the end of 2016 the Louisiana Operation Game Thief board has paid out a total of $391,300 in reward money to informants.

HOMELAND SECURITY
LDWF-LED is an active participant in Louisiana’s Homeland Security Plan and represents the state in waterborne emergencies. Through the Governor’s Office of Homeland Security and Emergency Preparedness (GOHSEP), LDWF-LED is the lead agency for search and rescue operations during natural disasters and maritime security of Louisiana’s vital business and government interests along the coast and major rivers. As members of the Governor’s Homeland Security Advisory Council and all major port security committees within the state, LDWF-LED agents frequently respond to requests to deploy LDWF marine resources for security concerns. LDWF-LED’s specialized training and equipment and its ability to operate throughout the state’s vast maze of waterways and wild areas has complemented Louisiana’s ability to respond to emergencies on land and water.

Emergency Support Function annual support plan for maritime and port security has been updated. LDWF-LED serves as the primary port and maritime security support partner.

LDWF-LED is a member of the First Responder Committee through GOHSEP which was legislatively created. LDWF-LED’s maritime security role coincides as a multi-mission responsibility and further enhances the agency’s core mission responsibilities to improve public safety services and protect natural resources and the supporting ecosystem while improving security in the state and nation.

MARITIME SPECIAL RESPONSE TEAM
The LDWF-LED Maritime Special Response Team partners with the Louisiana State Police SWAT team to address maritime security threats within the state of Louisiana. The team provides a maritime tactical response capability at the state level in order to effectively provide public safety, officer safety and
tactical support for LDWF-LED’s federal, state and local partners.

During this period the LDWF-LED Maritime Special Response Team team completed their annual training which consisted of:

- Close Quarter Battle Techniques
- Firearms Training
- Security Zone Enforcement Procedures
- Underway Training
- Hostage scenarios
- Large Vessel Training
- Rural Operations and Tactical Tracking
- Water Survival

At the end of 2016, Maritime Special Response Team members had completed their annual recertification as Tactical Operators Course in the NASBLA Boat Operations and Training Program.

PREVENTATIVE RADIOLOGICAL AND NUCLEAR DETECTION (PRND)

LDWF continues to work with key local, state and federal partners to implement a PRND program in the state of Louisiana. Through our partnership with the Domestic Nuclear Detection Office, the state has developed a statewide concept of operations plan, as well as standard operating procedures for individual agency partners. LDWF and PRND partners are currently planning a three-day training exercise as well as a full scale exercise.

ACQUISITIONS

EQUIPMENT:

- 6 search and rescue vessels
- 9 replacement outboard motors
- 41 (4x4) patrol trucks
- 3 administration SUVs
- 9 ATVs
- 40 replacement iPads
- 7 chart plotters
- 52 replacement/new personal ballistic vests
- 235 personal armor plate carriers (Level 4)
- 2 amphibious track vehicles with 2 personnel carrying trailers

PUBLIC INFORMATION

The LDWF-LED Public Information section does various media and public information related tasks. The public information section handles public emails, Facebook questions, media requests including setting up interviews, and gathering enforcement related information. The public information section also provides footage and photos to media outlets both in-state and nationally.

LDWF-LED issued 118 enforcement related press releases during FY 2016-2017. These press releases were issued to a media contact list via email both state and nationwide. They were also posted on the LDWF website. The press releases ranged from rewards for information on current cases, conviction results, announcements of event and upcoming cadet academies, highlighting important and unusual cases, enforcement division and agent achievements and awards won, and boating safety Information.

LDWF-LED public information also produces videos for both external and internal use. The videos range from public service announcements, cadet recruitment, hunting and boating safety and cadet training.

AGENT SHOT DURING PATROL

LDWF-LED Senior Agent Tyler Wheeler was shot multiple times on Jan. 7, 2017 while questioning a motorist on Hwy. 165 between Sterlington and Bastrop in Morehouse Parish. After numerous surgeries and countless hours of physical therapy, Wheeler was cleared to return to full time duty. His first day back on duty was Aug. 4, 2017.

Louisiana State Police detectives arrested 31-year-old Amethyst Baird of Monroe on one count of attempted first-degree murder of a police officer. They also arrested 34-year-old Jeremy Gullette, of Monroe, on one count of accessory after the fact to attempted first-degree murder. Baird pled guilty to attempted first-degree murder of a police officer, obstruction of justice, illegal possession of a stolen vehicle, and illegal possession of a stolen firearm on Oct. 23, 2017.

Senior Agent Tyler Wheeler
The Public Information Office handles the communication programs for the Louisiana Department of Wildlife and Fisheries (LDWF). These programs cover a variety of communication outlets including publications and brochures, media relations, press releases, social media, audio-video productions, photography, and website development.

**Social Media**
The department continues to strengthen constituent engagement by leveraging and enhancing its social media platforms and execution. Our constituents are taking a more active role in social media conversations and storytelling today, making our social media outlets one of the key methods of distributing department information. As our Facebook page audience continues to grow, the agency has shifted some of its social media focus to Instagram, to begin building a stronger audience base on this platform. Instagram is a great tool to showcase behind the scenes work at the agency, our constituents don’t typically get to see. Facebook remains one of the strongest social channels, and thousands of questions submitted annually through the messaging function, providing constituents another means of communicating with the department.

- Facebook Followers: 73,732
- Instagram Followers: 2,491
- YouTube Subscribers: 638
- Twitter Followers: 2,295

**Publications**
The Public Information staff is responsible for the production of specialized publications, all regulation pamphlets and the annual report. All pre-press functions, including graphic design and final printing approvals are handled by staff in this section.

Specialized publications include any publication not produced on a regular basis. These publications are used for educational, informational and promotional use for conservation management programs and special events.

**Annual Publications**
- Louisiana Department of Wildlife and Fisheries 2015-2016 Annual Report

**Regulation Pamphlets**
- 2017 Louisiana Commercial Fishing Regulations
- 2017 Louisiana Recreational Fishing
- 2016-2017 Louisiana Hunting Regulations
- 2016-2017 Louisiana Trapping Regulations

**Louisiana Conservationist Magazine**
Louisiana’s longest running outdoor magazine returned to print in the fall of 2016. The “Louisiana Conservationist” had been the long-standing outdoor publication for Louisiana’s wildlife and fisheries enthusiasts. The “Louisiana Conservationist” is a 90-year-old publication that began in 1927 when Lucy Powell Russell became the first female to serve as Secretary of the state’s wildlife agency.

The long-term goal of the magazine is to serve as an educational outlet for anyone yearning to know more about Louisiana’s outdoors, especially students. The print publication is a product of existing department staff, and available free of charge on a quarterly basis from LDWF field offices across the state. The current issue, and archived issues back to the magazine’s inception in 1927 are available on a newly developed website: LAConservationist.wlf.la.gov.

The following issues were released during last fiscal year:
- Fall 2016 - Louisiana Conservationist
- Winter 2016 - Passin’ a Good Time
- Spring 2017 - Spring is Here... Get out and Fish
- Summer 2017 - Whoop! Whoop! We Have Something To Talk About

**Specialized Publications**

**Brochures & Handouts**
- Fish Species Brochures (13 total)
- Sport Fish Restoration Brochure
- Commercial Fisheries Brochure
- Freshwater Artificial Reefs of Louisiana
- Invasive Species and Plant Brochures
- Wildlife Rehabilitation Program Brochure
- Get Out & Fish Community Fishing Program Brochure
- Aquatic VIP (Volunteer Instructors Program) Brochure
- Wildlife Tracking Workshop Flyer
- Migratory Bird Preservation Facility Guidelines Brochure
- ALAS Donation Flyer
- 2016 DMAP Brochure

**Newsletters**
- Wildlife Insider - Fall 2016
- Wildlife Insider - Spring/Summer 2017
- Friends of the Louisiana Whooping Cranes - March 2017
- Friends of the Louisiana Whooping Cranes - November 2017
- Bluestem - Vol. 4 Issue 1

**Posters**
- Common Freshwater Fish of LA Poster
- Common Saltwater Fish of LA Poster
- Common Offshore Fish of LA Poster
- Common Snakes of LA Poster
- Common Amphibians of LA Poster
- Common Turtles of LA Poster
- Common Waterfowl of LA Poster
- Common Mammals of LA Poster
- Sport Fish Restoration of LA
Giant Salvinia Management Posters
Pass-a-Loutré WMA Informational and Historical Posters

BOOKS
- 2017 Louisiana White-tailed Deer Management Plan Booklet
- Pocket Guide to Pine and Grassland Birds of the Southeast Coastal Plain

MISCELLANEOUS
- Fisheries Outreach Trailer Wraps and Casting Inflatables
- Bearwise WMA Signs

PHOTOGRAPHY AND AUDIO-VIDEO PRODUCTIONS
The Public Information Office is responsible for the production of specialized audio and video (AV) projects, video news releases, media footage requests, and audio recordings of various meetings. The AV library consists of more than 2,000 tapes of raw footage available for media and education purposes. Public Information staff is also responsible for department photography needs. Experienced photographers are on staff to help document the numerous department programs featured in department news releases, brochures, posters and the Louisiana Conservationist magazine.

The AV Production staff assisted the department in promoting several programs throughout the year by producing educational videos and video news releases for media distribution and for viewing by the public on the department website and across LDWF social media platforms. Public Information staff handle all video pre- and post-production in-house.

Public Information staff has implemented a digital storage and file sharing system for our large library of videos and photos. This searchable system archives tens of thousands of files, many of which are rare historic images from LDWF’s past. Many of our videos are also shared publicly on our YouTube channel at www.youtube.com/user/LAWildlifeFish.

WEBSITE
The LDWF website, wlf.louisiana.gov, again had an increase in visitors this year with 2,410,252 visits. The breakdown of new and returning viewers was comprised of 45.81 percent and 34.26 percent respectively. Site visitors executed more than 9 million page views and spent an average of 1:19 minutes on the site.

The website continued to provide exposure and access to the department’s social media platforms. By the end of fiscal year 2016-2017, the site had 5,572 Facebook “likes” and 2,006 Twitter followers. Access by mobile devices also increased with access through many of the popular phones and hand-held computers. The majority of the site’s demographics again came from Louisiana and the United States.
LICENSING

The Licensing Section serves as the information hub for more than 1 million customers who operate businesses, fish commercially, recreationally fish and hunt, and use state lands for non-consumptive purposes. The staff provides customers with state, federal and commission laws, rules and regulations that govern fishing, hunting and titling/registration of boats and motors in Louisiana. The Licensing Section handles the issuance of all commercial licenses, boat and motor title and registration services, and various permits; and manages the statewide electronic licensing system providing recreational license availability at more than 800 locations statewide. The Licensing Section continues to evaluate processes and streamline to improve availability and reduce processing time for licenses and boat titles and registrations.

License and boat and motor title/registration activities and related revenue collections are as follows:

- Issued in excess of 2.5 million recreational hunting, fishing, trapping and non-consumptive use licenses and permits sold to 800,000+ customers, generating in excess of $22 million in revenue. Maintained license records for in excess of 70,000 lifetime licensees.
- 65,000 commercial licenses sold, representing 12,740 commercial fishermen, 3,000 business entities, 900 charter businesses, and various permits that generate in excess of $4 million in revenue.
- 213,000 boat registration/title transactions that generated in excess of $4.5 million in revenue. Maintained boat data in excess of 1 million records - 327,000 of which are actively registered.
- Made available various types of game harvest tags to deer and turkey hunters and oyster tags to oyster fishermen and processors as required by federal and state law - in excess of 3.6 million.

PROPERTY CONTROL

The Property Control Section is responsible for managing the Louisiana Department of Wildlife and Fisheries’ Property, Risk Management Insurance Claims, and Fleet Management programs. The section is staffed with three full-time employees and one student.

PROPERTY CONTROL PROGRAM

During FY 2016-2017 this program certified a moveable property inventory, which consisted of 10,289 items for a total acquisition, cost of $77,929,675. Annually, the program is responsible for ensuring that a physical inventory of moveable property is conducted at its locations throughout the state.

FLEET MANAGEMENT PROGRAM

In accordance with state fleet management regulations this section records, approves and processes requests for personal assignment or home storage, daily vehicle usage, vehicle maintenance, and title, registrations and vehicle licenses for LDWF’s approximately 600 fleet vehicles and 1,070 other licensed equipment.

RISK MANAGEMENT PROGRAM

The Property Control Section is responsible for filing insurance claims and recovering payment from the Office of Risk Management and third party insurance companies for property damage, automobile physical and liability damage, and wet marine, aviation, boiler and machinery damage. The section is also responsible for filing general liability insurance claims.

Driver’s authorization and annual certification for LDWF’s approximate 880 employees is also a responsibility of the Property Control section. This process is accomplished in accordance with Office of Risk Management’s loss prevention guidelines.
The Fiscal Section staff consists of 15 employees who are responsible for all financial operations of LDWF. The main goal of the Fiscal Section is to achieve compliance with all applicable laws, rules, policies and regulations governing the functions managed. This section develops and implements fiscal controls, provides advice, assistance and training, and standardizes procedures for approximately 900 employees.

The functions include:
- preparation of the annual operating and capital outlay budgets.
- budget and expenditure control and monitoring.
- federal grant tracking and reporting.
- self-generated and interagency transfer agreement tracking and reporting.
- preparation of annual financial report.
- preparation of all required expenditure and fund financial reports.
- reviewing and processing professional, consulting, title 38 and Memorandum of Understanding contract payments.
- processing of employee purchasing card transactions.
- processing of employee travel reimbursements.
- payment of all vendors.
- receipt and classification of various sources of revenue.
- fund management.
- assessment of civil fines.
- strategic and operational planning.
- reviewing legislation and preparing fiscal notes.
- consulting with internal and external auditors on all financial audits.
- financial management of FEMA projects and other disasters.

During FY 2016-2017, the Fiscal Section staff:
- prepared four agency budgets consisting of five programs totaling $176 million.
- prepared department capital outlay budget totaling $151 million.
- audited and processed 487 contract invoices payments with a total amount payable of $11.8 million.
- processed 9,100 vendor invoice payments.
- audited and processed 15,051 purchasing card transactions.
- processed 1,644 travel reimbursements.
- processed 387 checks through QuickBooks.
- warranted funds and prepared periodic reports for 121 federal grants.
- warranted funds and prepared periodic reports for 11 self-generated agreements.
- warranted funds and prepared periodic reports for 14 interagency agreements.
- deposited $41.8 million in receipts from various sources on 497 pay in vouchers.
HOW EXPENDITURES WERE FUNDED
(FY 2016-2017)
Total Means of Financing: $124,232,400

SOURCES OF REVENUE TO THE
CONSERVATION FUND

<table>
<thead>
<tr>
<th>Source</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Royalties, Rentals, Bonuses on Land, and Other Royalties</td>
<td>$32,730,283</td>
</tr>
<tr>
<td>Recreational Hunting &amp; Fishing Licenses</td>
<td>$17,957,422</td>
</tr>
<tr>
<td>Other Fees (Boat Registration, Survey Fees, etc.)</td>
<td>$4,950,622</td>
</tr>
<tr>
<td>CommercialLicenses</td>
<td>$3,630,107</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>$1,368,971</td>
</tr>
<tr>
<td>Interest Income</td>
<td>$878,574</td>
</tr>
<tr>
<td>Seismic Fees Collected by LDNR</td>
<td>$77,626</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$61,593,605</td>
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</table>

EXPENDITURES BY CATEGORY

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries and Benefits</td>
<td>$76,064,991</td>
</tr>
<tr>
<td>Operating Services</td>
<td>$10,895,811</td>
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<tr>
<td>Interagency Transfers</td>
<td>$8,216,156</td>
</tr>
<tr>
<td>Other Charges</td>
<td>$8,079,523</td>
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<td>Major Repairs</td>
<td>$7,841,379</td>
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<tr>
<td>Supplies</td>
<td>$6,225,533</td>
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<tr>
<td>Acquisitions</td>
<td>$5,245,015</td>
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<tr>
<td>Professional Services</td>
<td>$1,035,001</td>
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<tr>
<td>Travel</td>
<td>$628,991</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$124,232,400</td>
</tr>
</tbody>
</table>

LDWF EXPENDITURES BY PROGRAM
(FY 2016-2017)
Total Expenditures: $124,232,400

<table>
<thead>
<tr>
<th>Program</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office of Wildlife</td>
<td>$42,416,298</td>
</tr>
<tr>
<td>Office of Fisheries</td>
<td>$36,248,042</td>
</tr>
<tr>
<td>Office of Secretary - Enforcement</td>
<td>$34,836,364</td>
</tr>
<tr>
<td>Office of Management &amp; Finance</td>
<td>$8,362,303</td>
</tr>
<tr>
<td>Office of Secretary - Administration</td>
<td>$2,369,393</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$124,232,400</td>
</tr>
</tbody>
</table>
Serving as the LDWF system administrator, the Human Resources section originated and leads human resources practices and objectives that will provide an employee-oriented, high performance culture that emphasizes empowerment, quality, productivity and standards, goal attainment, and the recruitment and ongoing development of a superior workforce. The Human Resources section is actively involved in developing, organizing and carrying out programs, projects and operations through the exercise of personal efforts, knowledge and attention. Program areas consist of Organizational Development, Classification and Salary Administration, Recruiting, Selection and Placement, Affirmative Action, Employee Administration, Discipline, Grievances, Employee Relations, Performance Evaluation System, Employee Recognition, Benefits, Retirement, Payroll, Americans with Disabilities Act, Safety, Training and Development, Rewards and Recognition, Equal Employment Opportunity, FMLA, Fair Labor Standards Act, Policies and Procedures and Worker’s Compensation. The section works to ensure all programs are in compliance with the Louisiana State Civil Service (SCS) rules as well as state and federal laws, regulations and guidelines.

The authorized number of funded positions for the Louisiana Department of Wildlife and Fisheries (LDWF) for FY 2016-2017 was 786. LDWF also employs students and other temporary employees throughout the state and had a total of 938 employees statewide.

The Human Resources section is responsible for the following duties:

- Advising agency personnel and clients on recruitment and staffing matters.
- Advising section heads, appointing authorities and managers on various appointment types and selection procedures in order to create and maintain a diverse workforce.
- Serving as a resource for layoff-related matters and for handling administrative aspects of the layoff process to maintain compliance with the SCS rules.
- Managing the notification process for the attainment of permanent status by probational employees and attainment of Career Progression Group eligibility for LDWF employees. Processed 77 Career Progression Group reallocations. Processed 99 permanent status actions.
- Developing the LDWF workforce plan and collaborating with LDWF sections to create workforce plans tailored to address specific needs/issues.
- Developing LDWF succession planning procedures.
- Managing compensation issues by reviewing pay schedules and ranges, and comparisons to other jobs and positions.
- Reviewing job specifications and position descriptions and making recommendations for classification and compensation issues.
- Managing the position description process as authorized by SCS. Reviewed and processed approximately 258 job descriptions during FY 2016-2017.
- Developing, recommending, implementing, reviewing, interpreting and revising all LDWF personnel and compensation policies.
- Advising managers and employees regarding the SCS system’s classification and compensation, policies, rules and structure.
- Preparing job studies for submission to SCS.
- Working with agency administrators to develop and structure organizational units.
- Reviewing special pay requests for individuals under SCS rules: Optional Pay Adjustments; Rewards and Recognition; and other available pay mechanisms.
- Managing and advising requests for unclassified and classified authority. Monitoring appointment contract end dates and requesting extensions.
- Maintaining updates on federal and state labor law postings. Assisting LDWF sections in maintaining compliance with the Fair Labor Standards Act and other state/federal pay provisions.
- Coordinating the Human Resources Strategic Plan.
- Maintaining the LDWF Employee Handbook.
- Processing all personnel/payroll actions and various other documents relating to employee status to ensure data integrity and quality assurance are maintained in accordance with SCS rules and regulations, departmental/agency policies and procedures, and federal and state laws. There were approximately 731 personnel actions (new hires, agency transfers, reallocations, promotions, demotions, status changes, resignations, etc.) during FY 2016-2017.
- Facilitating the annual audits of human resources practices conducted by SCS, the Louisiana State Employee’s Retirement System, the Teacher’s Retirement System of Louisiana, the Louisiana Legislative Auditors, and the LDWF internal audit section.
- Conducting time and attendance audits for all LDWF agencies and auxiliaries for compliance with policies and procedures established by LDWF and/or the Office of State Uniform Payroll. Processed approximately 1,318 prior period payroll adjustments during FY 2016-2017.
- Maintaining and/or monitoring organizational management, costing issues, and position authority in LaGov Human Capital Management.
- Assuring appropriate documentation is maintained for all employees in compliance with record and retention policies.
- Managing the human resources section of the OnBase paperless scanning system.
- Implementing onboarding program which aids new employees in acquiring the necessary knowledge, skills and behaviors to become effective organizational members.
- Assisting all active and retired employees for LDWF on all matters relating to retirement benefits.
- Advising managers, section heads and employees on available health and life insurance policies and other programs available.
- Developing course materials and providing orientation to all new employees for LDWF.
• Facilitating pre-employment drug testing and criminal history checks for all LDWF new employees. Managing the random drug testing process for active employees.
• Advising employees and coordinating with Office of Risk Management/Sedgwick concerning all issues relating to Workers’ Compensation.
• Administering LDWF’s Return to Duty policy for employee’s suffering on-the-job illness/injury.
• Advising and training employees regarding the applicability and obligations of federal employment laws (Fair Labor Standard Act, Family Medical Leave Act, American’s with Disabilities Act, and Title VII) and assisting in the interpretation and administration of those laws. Managing these programs for LDWF and our employees.
• Managing FMLA requests including providing and reviewing the required forms, establishing eligibility, approving/denying requests and maintaining quotas.
• Managing the claims made for unemployment by former employees of LDWF and clients. Processed approximately 105 separations from employment during FY 2016-2017.
• Administering the Performance Evaluation System including reporting statistics to SCS. Training managers on the effective use of the Performance Evaluation System program and advising managers regarding performance management. Processed over 831 performance evaluations and planning documents and entries required in LaGov Human Capital Management.
• Working with management to investigate and address performance and behavioral incidents, grievances, appeals and other personnel matters.
• Managing disciplinary actions, SCS appeals and litigation resulting from employment actions in accordance with SCS rules and federal and state law.
• Ensuring employee compliance with training required by law, departmental policies, SCS and Office of Risk Management.
• Monitoring compliance with Minimum Supervisory Training, training required by law and legislation such as Ethics and Sexual Harassment and required Office of Risk Management training such as defensive driving.
• Managing public record requests specific to Human Resources.
• Managing all required human resources reporting (i.e., annual drug testing reporting to the Division of Administration, annual reporting to Civil Service, annual reporting to the Office of Statewide Reporting and Accounting Policy, annual Affirmative Action reporting, etc.).
• Leading LDWF’s safety program including, but not limited to, preparing Headquarters (non-Enforcement) for annual audits/compliance reviews; preparing quarterly safety meetings, providing assistance to field offices, maintaining-up-to-date Office of Risk Management training records and providing training reminders to employees, as necessary.
• Drafting and maintaining departmental policies. Heads policy committee.
• Identifying and bringing to the attention of management employee trends which need to be addressed, current developments in labor and employment law which would impact the department, recommending implementation of best Human Resources practices in dealing with all employee matters.
• Leading management development and supervisory training by providing training to supervisors and other management personnel beyond that required by the Comprehensive Public Training Program and ensuring that these employees are aware of required training and training resources.
• Managing all aspects of the Annual State-wide Charitable Contribution Campaign for the LDWF.

OFFICE OF MANAGEMENT & FINANCE 19
Office of Wildlife
WILDLIFE DIVISION

WILDLIFE RESEARCH

A wide range of research and management work is conducted in order to maintain healthy productive populations of wildlife and to provide wildlife associated recreational opportunities for citizens to enjoy. Louisiana Department of Wildlife and Fisheries (LDWF) Staff biologists conduct research and surveys for use in formulating hunting regulations and for development and management of habitat. They present information to the public and develop workshops for LDWF personnel and other agencies. In addition, the staff represents LDWF on state, regional and national committees, providing input to a wide array of public agencies, non-governmental organizations and private industry. The species programs are White-tailed Deer, Webless Migratory Birds, Wild Turkey and Resident Small Game, Waterfowl, Large Carnivore, and Wildlife Disease.

WHITE-TAILED DEER

During the statewide 2016-2017 deer season, 184,400 deer hunters harvested an estimated 138,300* white-tailed deer. The harvest sex ratio from the license tag reporting system was 59 percent male and 41 percent female. The estimated number of deer harvested and hunters was derived from the annual mail survey. The mail survey has been used since 1970. *Senior hunters and harvest included in the mail survey.

Mandatory tagging and reporting of deer entered the ninth year in 2016. The reporting system tallied 46,237 deer, a decrease of 9 percent from the previous year. The total reported harvest, including WMA-managed hunts and Deer Management Assistance Program (DMAP) lands, was 68,639, down 6 percent from the previous year. If harvest data is under-reported, LDWF biologists and managers cannot make accurate determinations on hunting success and deer population parameters by parish. Compliance appears to be stabilizing after declining each of the first five years of tagging. Comparisons are made each year to the mail survey. While improved compliance is desired, parish specific harvest and deer sex data is being collected. Stabilization in reporting rates will provide managers valuable trend data.

DMAP provides detailed statewide harvest information while providing the largest known age sample of physical deer data. The DMAP harvest was 13,096 deer, with a harvest rate of one deer per 118 acres compared to one deer per 121 acres the previous season. There were 715 clubs/cooperators with 1.55 million acres participating in the program. Enrollment was down 1 percent from the previous year.

Bucks harvested during 2016-2017 meeting minimum qualifications for the Louisiana Big Game Records Recognition Program were documented in the annual Deer Program report. A total of 27 bucks met the minimum qualification for the recognition program. In addition, 13 of the 27 bucks that met the recognition program requirements also qualified for the all-time State Records List. Two bucks qualified for the Boone and Crockett record.
In order to better manage Louisiana’s white-tailed deer herd, several research projects are ongoing. Herd health collections along with disease and parasite investigations continued on both private and public lands. Additional breeding data is also gathered during these collections. Breeding data for over 1,200 deer have been used to assign breeding chronology to all areas of Louisiana. This data has been critical for establishing season time frames within each deer management area. Additional deer research includes Protocol Validation for Genetic Differentiation of Wild and Pen-raised White-tailed Deer. The protocol will be used in identification of deer with genetic lineages originating from breeding pens, which will allow state agencies to protect wild, native populations from being negatively affected by release of genetically manipulated deer. Tongues from 382 wild Louisiana white-tailed deer were collected for DNA analysis in 2015-2017. Collection sites were predetermined. The final project includes a deer disturbance survey focused on dogs/deer interactions. In general, deer providing 240 unique small game hunting experience with dogs used for small game hunting. Seventeen radio collared deer with minimum convex polygons were created for individual birds and habitat. Minimum Convex Polygons were created for individual birds and habitat. Minimum Convex Polygons and 128 of these were fitted with transmitters. Minimum Convex Polygons and 128 of these were fitted with transmitters. Minimum Convex Polygons were used to provide information needed to develop harvest rate estimates for mourning doves. Another aspect of this study has been the development of production indices from mourning dove wings collected from hunters. A Wildlife Division biologist participated in the annual Mourning Dove Wing Bee held in Missouri. During a three-day period, state and federal biologists from across the country aged more than 40,000 wings.

**Dove**

Mourning dove call counts were conducted along established routes throughout Louisiana. With the new mourning dove harvest strategy, the U.S. Fish and Wildlife Service (USFWS) is no longer collecting dove call count data from states. However, a modified dove call counts is being tested by several states including Louisiana. Louisiana collected dove data along the established dove call count survey routes. In addition to collecting data on mourning dove trends, data on white-winged and collared doves were collected. Collared doves were detected on seven of the 19 routes. No white-winged doves and 16 collared doves were detected during the counts.

Dove hunting regulations for Louisiana in 2016-2017 were set at 90 days with a bag limit of 15 birds. A survey of resident license holders indicates that approximately 32,600 Louisiana hunters harvested approximately 600,100 doves during the 2016-2017 hunting season. An estimated 12,100 Eurasian collared-doves and 40,700 white-winged doves were also taken.

In addition to dove fields on 12 WMAs, LDWF leases property from private landowners for public hunting. This land is leased for public hunting on opening day only. In 2016, two fields totaling 652 acres were leased. During the opening day hunt, 381 hunters participated, bagging 666 doves.

In the spring of 2003, USFWS adopted a National Mourning Dove Harvest Management Plan. Determining current harvest rate in each management unit was identified as a key component of the plan. Wildlife Division personnel banded 1,502 doves from July through August 2016 as part of a national effort to provide information needed to develop harvest rate estimates for mourning doves. Another aspect of this study has been the development of production indices from mourning dove wings collected from hunters. A Wildlife Division biologist participated in the annual Mourning Dove Wing Bee held in Missouri. During a three-day period, state and federal biologists from across the country aged more than 40,000 wings.

**Woodcock**

Beginning in October 2015, a research project examining the wintering ecology of American woodcock was initiated. Two-hundred seventy three woodcock were captured and fitted with a U.S. Geological Survey aluminum band, and 128 of these were fitted with transmitters. Minimum Convex Polygons were created for individual birds and habitat data was analyzed. A master’s thesis was generated from this research and manuscripts are in preparation for publication in peer-reviewed journals.

LDWF participated in the USFWS Annual Woodcock Wing Bee in 2016. Data derived from aging and sexing about 12,000 wood-
cock wings were used to develop trend data on woodcock production and hunter success. These data, in combination with breeding bird surveys, are used to develop management strategies for woodcock. Although many people in Louisiana consider woodcock an under-utilized species, Louisiana’s harvest of woodcock at one time ranked among the nation’s highest. However, the number of woodcock hunters has decreased by over 90 percent since their peak in the early 1980s. Nonetheless, Louisiana still consistently ranks fourth in the nation for woodcock harvest. A survey of resident license holders indicates that approximately 4,700 Louisiana hunters harvested 16,400 woodcock during the 2016-2017 season.

ANNUAL HUNTER HARVEST SURVEY

Big and small game harvest indices for the 2016-2017 hunting season were obtained through a mail survey based on the purchasers of basic resident hunting licenses or any other resident license that included the basic resident hunting privileges for 2016-2017. The 2016-2017 Game Harvest Survey was mailed to 17,086 (6 percent sample) residents who had purchased the license for the current year’s hunting season (or had a lifetime license). The survey questionnaires were completed and returned by 3,712 individuals before the cutoff date. The estimated harvest and hunter efforts for the 2016-2017 hunting seasons utilized 2,214 responses. The procedures used to calculate the 2016-2017 estimates were the same as those used for the 2015-2016 harvest estimates. The 2016-2017 harvest estimates were extrapolated based on the current year’s license sales of 259,645. Hunter numbers reflect those that hunted a species even if they did not bag. No attempt was made to adjust the statistics to compensate for the lack of residents under 16 years old who are not required to purchase a basic license.

WILD TURKEY & RESIDENT SMALL GAME

WILD TURKEY

The most recent turkey hunter survey estimated 20,400 turkey hunters harvested 5,700 wild turkeys during the spring of 2017. These numbers do not include youth and exempted hunters. The wild turkey population in Louisiana is estimated at about 50,000-60,000 birds. A poult production survey was initiated in 1994 to assess annual brood rearing success and monitor long-term production trends. The 2016 survey indicated a decreased hatch in four of the five habitat regions over 2015 data. The Southeast Lobolly, Northwest Lobolly/Shortleaf/ Hardwood, Western Longleaf, and Atchafalaya/Lower Miss. Delta all experienced decreases in production from the previous year. Production in the North Mississippi Delta region increased slightly in 2017. Production was below the long-term (1994-present) average in all management regions.

LDWF is involved in several wild turkey research projects. LDWF supported a wild turkey research project that was completed on the Kisatchie National Forest in conjunction with the University of Georgia, with additional support from the National Wild Turkey Federation. This project is investigating the movements of female wild turkeys and broods in relation to large scale prescribed burning. In addition, LDWF has also implemented a similar turkey research project on Peason Ridge WMA and Kisatchie National Forest to study female wild turkey movements and production in relation to habitat improvements. This work is being done in conjunction with Louisiana State University (LSU) and U.S. Forest Service (USFS). LDWF is also engaged in banding gobblers on all five ranger districts of the Kisatchie National Forest. Banding and subsequent reporting by hunters of banded gobblers provides information needed to estimate wild turkey harvest rates. Information collected to date has helped justify expanded youth hunting opportunities on Kisatchie National Forest.

SMALL GAME

Squirrels and Rabbits

Small game populations and harvests are highly dependent on year to year habitat conditions. As a result, it is common to see more variation in populations and harvests of small game species when compared to other species from one year to the next. The 2016-2017 harvest survey results indicate that there were approximately 89,800 squirrel hunters in Louisiana, which is a slight increase of 0.6 percent from 2015-2016. Total harvest estimates also increased 5.5 percent to 1,462,600 squirrels for 2016-2017. The number of rabbit hunters is estimated at 31,600 which is a decrease from the previous year. In addition, estimated harvests decreased 20.7 percent from the previous year to 196,400.

To expand small game hunting opportunity, LDWF has established Small Game Emphasis Areas on the following WMAs: Big Colewa Bayou, Bayou Macon, Bayou Pierre, Boeuf, Dewey Wills, Pomme de Terre, Richard K. Yancey, Russell Sage, Sandy Hollow, Sherburne, and Walnut. Within these WMAs on that portion designated as the Small Game Emphasis Area, small game hunting and training with dogs is allowed for extended periods of time throughout the season and year. Specific dates vary as hunting regulations indicate each year.

Quail

Statewide fall whistling counts were conducted on 12 randomly located routes and an additional five routes on LDWF WMAs and the Kisatchie National Forest. All regions continue to exhibit significant long-term (1983-2015) declines in calls per stop. A spring bobwhite survey was also conducted on the Sandy Hollow WMA, Kisatchie National Forest and Hodges Garden State Park. Inferences about population status and habitat conditions were developed based on the combined results of these survey techniques and general observations by LDWF personnel during the breeding season.

A survey of resident license holders indicates that approximately 1,500 Louisiana hunters harvested 2,600 wild quail during the 2016-2017 season. Hunters were also asked about their harvest of pen-raised quail. About 1,900 hunters harvested over 30,800 pen-raised quail.

LDWF continues to work with its partners to address the decline in bobwhite populations. Habitat development efforts using U.S. Department of Agriculture (USDA) Farm Bill programs and the State Wildlife Grants Program have been implemented to promote management practices such as prescribed burning. LDWF is also partnering with the USFS to assist in habitat management on a Quail Emphasis Area on Kisatchie National Forest to promote and develop quail habitat on approximately 6,000 acres.

WATERFOWL

Louisiana has approximately 3.5 million acres of coastal marsh that winter large and diverse waterfowl populations. Aerial waterfowl inventories of the entire coastal marsh, as well as associated agricultural lands in north central and northeast Louisiana, are conducted each winter.
The mid-winter inventory conducted in early January 2017 maintained traditional methods in all surveyed regions. LDWF has taken over flying mid-winter goose surveys in coastal Louisiana and total waterfowl surveys in parts of central and northern Louisiana to gather important data trends for those populations. This was necessitated when USFWS stopped flying those surveys. The mid-winter survey indicated 2.78 million ducks and 515,000 geese wintered in coastal marsh and inland areas of the Mississippi Delta. This was 12 percent more ducks than 2016 but still 16 percent below the most recent 10-year average. The goose count was also up 6 percent from 2016 but remains 23 percent below the most recent 10-year average. For the second consecutive year, an above-average December aerial waterfowl survey was followed by unseasonably warm temperatures and rainfall up and down the Mississippi Flyway which seemed to halt or even reverse migrations, provided additional habitat in states north of Louisiana, and created conditions that did not favor large proportions of the population migrating to and staying in Louisiana. Estimates of ducks in coastal Louisiana and Catahoula Lake declined from 3.61 million in December 2016 to only 2.05 million in January 2017. Even more striking, the estimate of scaup from lakes Pontchartrain, Borgne and Maurepas declined from 204,000 in December 2016 to only 70,000 in January 2016. This was still a 46 percent increase over the 48,000 counted in January 2016, but is well below the 10-year average of 158,000. Geese are only counted in northeast Louisiana prior to January, and counts in that area were well above the 10-year average at 402,000 in December, but fell to 237,000 in January. White-fronted geese, a species of particular importance to Louisiana goose hunters, fell from 143,000 in January 2016, the second highest count on record, to 89,000 in 2017. However, another 16,000 birds were not allowed into the January total because our survey took longer than two weeks to complete due to poor weather and mechanical problems with aircraft.

FY 2016-2017 was the first of five years for new waterfowl hunting zone boundaries approved by the Louisiana Wildlife and Fisheries Commission in April 2016. Rice farmers and duck hunters in the rice-growing regions of southwest Louisiana petitioned LDWF for inclusion in the East Zone because the traditionally later season dates would allow for more time to prepare fields for hunters following the second or “ratoon” crop harvest. Adjustment of the zone boundary to include large portions of Acadia, Jefferson Davis, Calcasieu, Evangeline, and Vermilion parishes was implemented as well as a boundary change between the West and East Zones in northwest Louisiana to better fit eco-geographic habitat types and satisfy hunters in that region of the state. Most hunters were accepting of the changes and there were few complaints during the season.

Based on federal harvest estimates, 50,000 active duck hunters harvested 857,000 ducks during the 2015-2016 season. For the second consecutive year, neither of these numbers is reasonable when compared to license sales and harvest reported on LDWF’s Big and Small Game Harvest Survey. These federal estimates are 6.4 percent above last year’s estimate of active duck hunters with approximately the same total duck harvest. However, the Big and Small Game Survey reported a decline of 3 percent in active duck hunters with a total of 78,600, and an increase of 7.2 percent in total duck harvest to 2,306,000. Other Mississippi Flyway states reported similar discrepancies in hunter numbers relative to the federal estimates. Improvements in the federal harvest data are necessary because they provide the species composition and age-ratio of the harvest, and the data are species, time and location specific within each state. State estimates do not include a collection of parts (wings) that allows estimation of species-specific harvest and large-scale reproductive success necessary for most population models. An increase in estimated harvest was expected as hunting success was very good in the early season due to a very large early migration, but dropped off quickly during December’s flooding and warm temperatures in all zones. The federal-estimated harvest of 857,000 ducks included 24 percent gadwall, 24 percent green-winged teal, 12 percent blue-winged teal, 10 percent wood ducks, and 8 percent mallard. Ring-necked duck, northern shoveler, lesser scaup, mottled duck, pintail, wigeon, canvasback, bufflehead, and redhead comprised the remainder.

Goose hunters in Louisiana harvested 100,000 geese during the 2016-2017 hunting season, an 85 percent increase over the previous year which had a 54 percent increase from the year before. The spring breeding habitat conditions were considered to be average to
above average on arctic breeding grounds, and good reproduction was expected. The fall staging survey of white-fronted geese remained over 1 million, and because the three-year average was over 800,000, liberalized harvest regulations implemented last year were maintained this season. White-fronted geese made up 69,000 (or 69 percent) of the total goose harvest. Snow, Ross’ and Canada geese made up the rest of the goose harvest.

NORTH AMERICAN WATERFOWL MANAGEMENT PLAN

Louisiana continues to play an important role in the North American Waterfowl Management Plan (NAWMP). LDWF strives to maintain ongoing projects and other activities associated with NAWMP. In FY 2016-2017, North American Wetland Conservation Act (NAWCA) project construction was completed on Russell Sage WMA’s Wham Brake. Enhancement of the 3,597-acre impoundment included construction of a large weir, installation of two large screw-gates, constructing an emergency spillway, and replacing a dilapidated bridge. Construction was completed during April 2017. NAWCA grants for projects at Pomme de Terre and Boeuf WMAs were approved for construction. These projects include replacing two large dilapidated water control structures and screw-gates with large weirs using stop-log structures at Pomme de Terre and construction of a dependable water delivery system for impoundments at Beouf WMA. NAWCA grants are being developed for Russell Sage and Sherburne WMAs. These projects will better enable shallow water management for wintering waterfowl.

Prolonged high water levels and disputed land ownership minimized woody vegetation removal treatments on Catahoula Lake during FY 2016-2017. Planned bulldozing activities were not conducted. Ground based herbicide applications were conducted on Sherburne WMA’s Des Ourses Swamp and North and South Farms during summer and fall 2016. Significant progress has been made and we anticipate being able to again treat the areas via ground applications during FY 2017-2018. Mechanical, chemical and prescribed fire treatments were also conducted on other WMAs to invigorate wetlands.

WOOD DUCKS

During 2016-2017, LDWF banded 2,240 wood ducks. That is 31 percent fewer than the 3,243 banded last year, which was the highest total since our banding program was established in 1992. It was 30 percent higher than two years ago. Pre-season rocket-netting accounted for 1,961 of the total bandings, and 279 hens were captured in nesting boxes. In addition, 3,346, black-bellied whistling ducks were banded during the winter and spring. This is 23 percent more than the 2,730 banded in 2015-2016 and maintains the continuous banding of large numbers of black-bellied whistling ducks necessary to build/maintain a recapture database. The NAWMP Coordinator continues to expand the number of banding sites to build a more representative database that may have to depend on recaptures rather than hunter-recoveries to obtain information on movement and survival of these birds and support future harvest management decisions.

The wood duck nest-box program completed its 28th year in 2017. LDWF personnel are maintaining 2,108 boxes currently in use. That is a 6 percent increase over last year and slightly over the target level of 2,000 boxes. Replacement of dozens of boxes lost to flooding in late-winter of 2015-2016, as well as relocating unused boxes to more suitable habitat continues to be primary activities of this program. The program goal is 2,000 boxes, but we expect the number of boxes maintained and monitored through landowners in the Private Lands Program to continue to increase. Utilization was monitored at 1,975 boxes, which was a large increase over the 1,545 boxes monitored the year before because of inaccessibility due to flooding. Utilization has ranged from 45-100 percent in past years with an average utilization of about 80 percent.

LARGE CARNIVORE PROGRAM

LARGE CARNIVORE RESEARCH

Of the 16 American black bear subspecies, the Louisiana black bear is the only to have received formal protection under the United States Endangered Species Act; listed as threatened in 1992. Recovery and delisting of the bear occurred in April 2016. Therefore, LDWF’s current bear research efforts are mostly targeted at long-term monitoring to collect the critical demographic, genetic and spatial information required to effectively monitor population health. This information will also be used to sustainably manage bear populations as part of a seven-year Post-Delisting Monitoring Plan that the Large Carnivore Program and USFWS finalized during 2015.

2016-2017 Bear Research

1. Reproductive Vital Rates

To collect information on reproductive vital rates, we conducted 40 adult female den visits across all four bear subpopulations during February and March 2017 to count and mark cubs-of-the-year, and to count yearlings. From these efforts, we estimated an average litter size of 1.8 cubs for the metapopulation (i.e., all four subpopulations combined).

2. Survival and Mortality

To monitor survival and cause-specific mortality, we live-captured 52 bears and outfitted these individuals with VHF or VHF-GPS
radio-collars, or marked bears based on sex and age class. Using monthly aerial telemetry, we monitored 48 radio-collared bears from all four subpopulations during 2016-2017. We documented 39 mortalities during the fiscal year, the majority of which was from roadkills.

3. Abundance, Density and Growth - 
To estimate abundance and density and monitor temporal changes in population growth, we conducted our 10th consecutive year of non-invasive hair trapping in the Tensas River and Upper Atchafalaya River Basin subpopulations during May through July 2017. Samples were collected from 209 and 116 sites in both subpopulations, respectively, resulting in 4,756 individual hair samples. All collected samples were sent to Wildlife Genetics International for microsatellite genotyping at eight to 21 markers, depending on study objectives.

4. Den Selection in Four Subpopulations of Louisiana Black Bears - 
A study in coordination with Louisiana Tech University to investigate female bear den selection in all four extant subpopulations during 2001-2016 is ongoing. This project will identify the factors that influence den selection, which fills a research void, and will allow LDWF to determine what habitat characteristics may be required in potential range expansion areas to support sustainable bear populations.

2016-2017 Coyote/Red Wolf Research

1. Long-Term Genetic Consequences of Red Wolf-Coyote Hybridization and Demographics of a Large Canid in Southwest Louisiana - 
The red wolf (Canis rufus) is the most imperiled extant wolf species in North America. The species historically inhabited most of the eastern United States, but due to aggressive predator-control programs, red wolves were extirpated from the majority of their range by the turn of the 20th century. Additionally, because of the perceived threats to humans and habitat fragmentation, all other North American large carnivores (i.e., bears, cougars, and wolves) in the East were substantially reduced in number and distribution by the early 1900s. This reduction of large carnivores combined with widespread deforestation and fragmentation allowed an ecological invasion of the coyote (Canis latrans) into the eastern United States. Remnant populations of red wolves were localized to southeast Texas and southwest Louisiana by the 1960s, but were seemingly unable to locate conspecific mates. Cumulatively, the inability of red wolf populations to maintain self-sufficiency and the rapid expansion of coyotes allowed hybridization between these two canids to occur, which created concerns that the red wolf genome would be lost via admixture and genetic assimilation into the coyote genome.

Our primary objective was to 1.) investigate the genetic characteristics of large canids in southwestern Louisiana, quantifying the potential level of red wolf (Canis rufus) genome persistence using canid-specific nuclear DNA microsatellite loci and mitochondrial DNA (mtDNA) sequencing. Our secondary objectives were to 2.) estimate density and abundance of large canids within our three sampling areas in southwestern Louisiana, 3.) evaluate methods for sampling large canids noninvasively, comparing a novel hair collection technique with scat sampling transects, and 4.) characterize the coyote (Canis latrans) genome across the southeastern United States.

Data analyses has been completed by the Laboratory for Ecological, Evolutionary and Conservation Genetics during this fiscal year and the final report is being written.

BEAR MANAGEMENT 
LDWF personnel responded to 133 human-bear conflict calls from the public and other government agencies. Response varied from technical assistance being provided over the phone to site visits with recommendations provided to reduce conflict and trapping. During FY 2016–2017, we captured seven bears to address human-bear conflict issues reported to LDWF, primarily in the Lower Atchafalaya River Basin subpopulation.

The Large Carnivore Program Manager presented a bear workshop to the LDWF Law Enforcement Cadet Class, educating cadets on bear behavior and biology.

Work continued with U.S. Geological Survey to improve the BearTrak database, and U.S. Geological Survey is working to update and add additional features to the online database.

EDUCATION AND OUTREACH 
The Large Carnivore Program Manager worked with the Southeast Association of Fish and Wildlife Agencies Large Carnivore Working Group to produce a regional bear website to act as a source of public information to address any and all forms of bear conflict occurring in the southeast. This resource can be used by members of the public to minimize and mitigate bear conflicts; as well as assist communities wishing to engage in a community-based initiative.

In continuation of our black bear outreach, the majority of efforts conducted in FY 2016-2017 centered on exhibition and presentation of information to schools and other interest groups around the state. Key outreach events for the year included National Hunting and Fishing Day (Woodworth), Family Adventure Day (Lafayette), the Franklin Bear Festival (Franklin), and various summer camps across the state. Cumulatively, over 2,000 individuals received information pertaining to the Louisiana black bear at these events.

A large educational display was created in order to inform the public of the Louisiana black bear delisting efforts and successes. Tangible educational items were purchased in order for the public to experience a small part of the Louisiana black bear project while having the opportunity to come within close proximity of a mounted specimen. Black bear items displayed include a track cast, replica skull, telemetry collar, and a track replica. The mounted bear was taken to a local taxidermist and received a thorough cleaning and repairs to the base to secure stability prior to its use in a public setting. Upon its return from the taxidermist, the rotational display debuted in September 2016 at the South Regional library in Lafayette. Since its premiere, the display has moved on a monthly basis to libraries across the state. To date, the display has been hosted at six headquarter library locations in the parishes of Avoyelles, Caldwell, Concordia, Franklin, Lafayette and Richland.

A newly designed Be Bear Wise Sign was created for use at state-wide WMAs. This sign provides state patrons information on several topics including appropriate behavior when encountering a bear a close range, what to do if a bear approaches, using bear spray, and the appropriate number to call to report a problem with a bear. Revisions to the existing Know Your Target sign also occurred during this reporting period. Revisions to the sign consist of several updates including contact information, new department logo, and redesigned bear silhouette depicting a more accurate profile of a Louisiana black bear.

Several projects began in FY 2016-2017, including renewal of the Untamed Science national black bear curriculum contract, and departmental outreach to inform state patrons of these new informative opportuni-
ties. These topics will be discussed within the FY 2017-2018 report.

**Bear Safety in Mind (St. Mary Parish Program)**

Accomplishments during 2016-2017 include:

- Daily monitoring of bear-resistant garbage cans in St. Mary Parish, and assisting homeowners with conflict resolution.
- Worked with Pelican Waste & Debris to make minor repairs to bear-resistant garbage cans and make minor changes to service routes when bear activity increases.
- Worked with the town of Berwick to pass an ordinance establishing regulations and standards relative to the proper use of Wildlife-Resistant Refuse Containers and providing penalties for the violation thereof.
- Served on the Black Bear Festival board of directors.
- Served on the Keep St. Mary Beautiful board of directors.
- Expanded bear proofing efforts to include areas North of U.S. Highway 90 beginning at Richococ and continuing West down Highway 182 - added 130 bear proof garbage cans - provided door knob bag information to these residents.
- Assisted LDWF biologists with conflict calls in St. Mary Parish.
- Conducted Concerned Citizens Meeting in Patterson to address bear proofing measures and the City of Patterson’s efforts to enforce new ordinance for proper use of Wildlife-Resistant Refuse Containers.
- Educational outreach exhibit & bear proofing presentations were conducted during the Parish 4-H Fair; the Bayou Teche Black Bear Festival; the Franklin Rotary Club and for the St. Mary Chamber of Commerce’s Leadership Workshop.
- Working on a committee with a local land owner interested in reforesting 200 or more acres providing a native food source for indigenous wildlife, specifically targeting the Louisiana black bear.
- Added signs to bear proof dumpsters in use in St. Mary Parish, reminding users to close dumpster doors.
- Established street signs in Patterson and the parish areas of black bear activities.
- Monitor Pelican Waste & Debris, ensuring they follow the guidelines set out in the new waste contract.

**WILDLIFE DISEASE**

The statewide Wildlife Disease Program was administered by the State Wildlife Veterinarian, the Assistant State Wildlife Veterinarian, and the Wildlife Disease Biologist.

The Wildlife Disease Program conducted disease surveillance on white-tailed deer. Two hundred forty-two samples were submitted for serological analysis of epizootic hemorrhagic disease, bluetongue virus, and leptospirosis as part of the LDWF herd health monitoring program. Sixty-seven percent were positive for epizootic hemorrhagic disease, 61 percent were positive for bluetongue virus, and 15 percent were positive for leptospirosis. Additionally, 360 samples were collected for chronic wasting disease surveillance. Samples were submitted from all regions to the Texas A&M Veterinary Medical Diagnosis Laboratory. No samples tested positive. This brings the total number of wild white-tailed deer tested in Louisiana to 8,230 animals since the inception of the program in 2002.

To date a total of 1,231 and 1,237 feral swine from non-WMA lands have been tested for swine brucellosis and pseudorabies respectively. Thirty-four (2.76 percent) were serologically positive for swine brucellosis. One hundred twenty-five (10.10 percent) were positive for pseudorabies. Additionally, 288/537 samples (53.63 percent) were positive for leptospirosis.

Disease investigations included several mortality events involving birds as well as numerous individual mortality events in raccoons, opossums, squirrels, white-tailed deer and Louisiana black bears.

Additional projects included studies of feral hog stomach contents, alligator nest predation by feral hogs, feral hog bait research, feral hog toxicant research; and coyote stomach content evaluation.

As part of our avian influenza surveillance program, 582 dabbling ducks were tested for highly pathogenic avian influenza. Highly pathogenic avian influenza was not detected in any of the samples.

Disease investigations included several mortality events involving birds as well as numerous individual mortality events in raccoons, opossums, squirrels, white-tailed deer and Louisiana black bears.
FOREST DEVELOPMENT & MANAGEMENT

FORESTRY PROGRAM

The mission of the Forest Management Program is to improve forest and wildlife habitat on WMAs through sound forest management, reforestation practices and active forest/wildlife research activities. To this end, LDWF’s 490,000 acres of forestland was certified through the Sustainable Forestry Initiative Program. LDWF was audited and found to be in accordance with the requirements of the Sustainable Forestry Initiative Standard 2015-19.

General forest inventories and habitat evaluations were conducted to facilitate the development of management prescriptions for Big Lake, Buckhorn, Dewey Wills, Little River, Sandy Hollow, and Spring Bayou WMAs. Harvest preparations including forest inventory, regeneration evaluations, timber marking, GIS map development, timber sale proposal preparations, timber sale development, contract development, and timber sale amendments were conducted on Boeuf, Buckhorn, Dewey Wills, Grassly Lake, Little River, Richard K. Yancey, Russell Sage, and Sandy Hollow WMAs. Harvests to improve wildlife habitat were initiated and/or completed on Dewey Wills WMA.

Chemical treatments of invasive/non-native species, primarily Chinese tallow tree, cogon grass and trifoliate orange, were carried out on Alexander State Forest, Big Lake, Dewey Wills, Floy McElroy, Pearl River, Sandy Hollow, and Grassly Lake WMAs. Prescribed burning treatments were conducted on Alexander State Forest, Lake Ramsay, Little River and Sandy Hollow WMAs to promote and improve habitat conditions for fire dependent wildlife and plants.

The annual statewide WMA mast survey was conducted to estimate annual mast production. The survey is used as an indicator of mast availability for wildlife as well as a predictor of small mammal populations. The mast survey is also used to map local abundance which aids in seed collection efforts.

Our reforestation program inventoried and evaluated hardwood plantations on LDWF-owned WMAs as well as private properties. Habitat evaluations and management plans were developed for seven bottomland hardwood restoration sites on properties enrolled in the USDA Natural Resources Conservation Service’s (NRCS) Wetland Reserve Program. Evaluations of state-owned properties include Pomme de Terre, Boeuf, Buckhorn and Richard K. Yancey WMAs. Research continued on several ongoing studies investigating seedling survival, sapling development, tree growth and wildlife response to various silvicultural treatments. Results from this research were used in the development of a decision support tool which is being used to guide management of young hardwood stands within the southeastern United States.

Our GIS program continues to update timber sale data, forest inventory, boundaries, prescribed burning, roads, and streams data input relative to our WMA forest management activities. The forestry GIS allows us to monitor, analyze and evaluate for performance and outcomes of the entire forestry program.

Growth monitoring plots were reevaluated on Dewey Wills, Maurepas Swamp and Sandy Hollow WMAs. These permanent plots aid in monitoring habitat conditions and effects of our forest management program on the habitat components represented on the WMAs.

A “Monitoring Avian Productivity and Survival” project continued on Pearl River WMA with two stations. Results from this study will aid us in understanding avian use of the various silvicultural treatments applied across WMAs.

Forestry Section personnel performed red-cockaded woodpecker demographic monitoring and management for 15 red-cockaded woodpecker family groups at Alexander State Forest WMA located in Woodworth, La. These activities included annual activity status checks of over 200 red-cockaded woodpecker cavity trees, nest checks, nesting color banding, fledgling checks to determine survivorship, artificial cavity installation and maintenance, and midstory control in 14 red-cockaded woodpecker cluster sites.

Forestry Section personnel continued to administer the Red-cockaded Woodpecker Safe Harbor Program. Forestry Section personnel provided technical assistance to private landowners managing red-cockaded woodpeckers and their habitat.

Other survey and research projects on the WMAs that were supported by Forestry Section staff involved wildlife use of forested habitats and their response to various silvicultural treatments. Forestry Section staff hosted several training and outreach workshops to share research results and management experiences. Continuing education for the Forestry Section staff was practiced through participation at various symposiums, workshops, seminars, research meetings and conferences throughout the year, in and out of-state.

WILDLIFE MANAGEMENT AREAS

The Wildlife Division of LDWF currently manages over 1 million acres in its WMA Program. These areas are distributed across the state and are comprised of a vast array of habitat types. The WMA Program’s mission is to deliver conservation priorities to
Louisiana’s landscape, as well as provide an array of outdoor recreational opportunities to the public. The lands in the program serve to protect, conserve, replenish and manage the wildlife resources occurring on those areas. Habitats within these lands harbor and help conserve a multitude of endangered species such as the Louisiana black bear, red-cockaded woodpecker and gopher tortoise. The majority of these lands are available for the public to utilize in recreational pursuits. Recreational opportunities range from a variety of hunting and fishing, to canoeing, hiking, ATV riding and berry picking. Habitats range from upland pine-hardwood, to cypress tupelo, pine savanna, bottomland hardwood, brackish marsh, and the list goes on with many globally rare habitat types and plant communities as well. For administrative and management purposes, the WMAs were grouped by ecoregions - Gulf Coastal Plain (east and west) and Mississippi Alluvial Valley (north and south).

WEST GULF COASTAL PLAIN (WGCP) WMAs
(445,001 acres):
- Alexander State Forest
- Bayou Pierre
- Bodcau
- Camp Beauregard
- Clear Creek
- Dewey W. Wills
- Elbow Slough
- Fort Polk-Vernon
- Little River
- Loggy Bayou
- Marsh Bayou
- Peason Ridge
- Sabine
- Sabine Island
- Soda Lake
- Walnut Hill
- West Bay

Habitat on these WMAs includes bottomland hardwoods, upland hardwood bottoms, pine plantations, natural pine stands, and mixed pine-hardwoods.

A total of 153,089 user days were estimated for WGCP WMAs during FY 2016-2017. These areas are readily accessible and very popular with the public. Along with public hunting and fishing opportunities, these areas provide many types of non-consumptive outdoor activities. Managed deer hunts were conducted on several of the WMAs to collect accurate information on herd health and hunter success rates. Collectively, managed deer hunts on WGCP WMAs resulted in 10,106 hunter efforts accounting for 1,076 deer harvested.

Youth-only lottery turkey hunts were held on Clear Creek, Ft. Polk-Vernon and West Bay WMAs. In addition to the regular physically challenged hunts scheduled on several WMAs, two lottery physically challenged hunts were conducted: one on Sabine WMA for the general public and the second on Camp Beauregard WMA for disabled veterans. The Sabine physically challenged hunt is conducted in conjunction with the local organization known as HELP (Hunters Enriching the Lives of People). HELP works in conjunction with a local veteran’s motorcycle club to sponsor the Camp Beauregard hunt. Persons participating in the hunts are provided food and transportation to blinds and assisted with recovering/cleaning deer and any special needs. These hunts are intended to get people into the field that may not otherwise have an opportunity to hunt.

While much of the WMA system is owned by LDWF, portions of the WGCP WMAs are leased to LDWF for public use from the landowners (Hancock Timber, Roy O. Martin, U.S. Army, USFS, Forest Investments, Calcasieu Parish School Board, Rayonier, Weyerhaeuser, and the State of Louisiana). At present landowners do not receive direct payments for the leases. Instead the owners are compensated through a combination of tax exemptions, road maintenance, mowing, prescribed burning contracts, reduced theft and vandalism (due to regular presence of LDWF staff), as well as public goodwill. To continue these lease areas, LDWF personnel are required to meet and negotiate annual agreements with the landowners. The leases help the landowners and LDWF to properly manage and maintain these properties for wildlife and public recreation.

Prescribed burns were conducted on Bodcau, Clear Creek, Marsh Bayou, Sabine and West Bay WMAs. These burning operations were designed to improve upland habitat for a variety of wildlife species including songbirds, turkey, deer, reptiles, amphibians and small mammals.

Routine trapping and banding of wood ducks and mourning doves was conducted on WMAs.

Feral hog control operations continued by shooting, trapping and contract aerial shooting on all WMAs. Several WMAs required the removal of nuisance beavers.

WGCP WMA personnel participated in a variety of Wildlife Division activities. These include environmental assessments, technical assistance, research, planning, development, management, and alligator and nuisance animal programs. Over 260 wood duck nest-
ing boxes were maintained and monitored by WGCP WMA personnel.

Lake Charles WMA staff assisted with a joint (USFS, U.S. Army and LDWF) turkey project on Peason Ridge WMA. A total of 55 birds were trapped and banded. Of that total, 49 hens were fitted with tracking transmitters. The project is scheduled to continue into the fiscal year.

Personnel also reviewed and monitored oil and gas production activities and interstate pipeline installations on several WGCP WMAs. No new oil and gas exploration occurred on state-owned properties.

**EAST GULF COASTAL PLAIN**

(EGCP) WMAs

(210,206 acres)

- Hutchinson Creek
- Joyce
- Lake Ramsey Savannah
- Manchac
- Maurepas Swamp
- Pearl River
- Sandy Hollow
- Tangipahoa Parish School Board
- Tunica Hills

Habitat types on these WMAs include marshes and swamps, natural longleaf and plantation loblolly pine stands, bottomland hardwoods, and rugged loess bluff uplands.

A total of 68,932 user days were estimated for EGCP WMAs during FY 2016-2017. An alligator season was available on Joyce, Manchac, Maurepas Swamp and Pearl River WMAs with a harvest of 1,220 alligators by 17 commercial alligator trappers. LDWF received $53,244.33 in revenue from commercial alligator harvest on EGCP WMAs. Recreational alligator harvest opportunities were also made available to the public. To facilitate recreational alligator harvest, 60 additional people were selected by lottery, issued three tags each, and harvested an additional 127 alligators on these four areas. Alligator egg collections were monitored by EGCP WMA personnel on Manchac, Pearl River and Maurepas Swamp WMAs. A total of 15,737 eggs valued at $314,740 were collected.

EGCP WMA personnel maintained existing WMA boundaries, buildings, equipment, roads and trails. Managed public hunts were also conducted on several WMAs. Combined results for managed deer hunts were 1,112 hunter efforts with a total of 68 deer harvested.

On Sandy Hollow WMA, 16 miles of bird dog field trial courses were maintained, as well as four dove fields and 10 acres of wildlife openings for upland birds.

EGCP personnel maintained 191 wood duck boxes. Personnel also participated in the statewide Mourning Dove Banding Program, responded to numerous deer and nuisance animal complaints, provided technical assistance to the public, conducted public meetings, and collected white-tailed deer brain and lymph node samples across the region for chronic wasting disease testing. EGCP WMA personnel continued to work with the deer program manager to collect deer reproductive data to better understand deer breeding periods within the ecoregion.

Feral hogs have become a serious nuisance and ecological threat throughout the state. Aggressive control methods have been used on certain WMAs, such as Pearl River, to reduce their numbers. Each year, feral hog blood samples are collected and tested for a variety of diseases.

**MISSISSIPPI ALLUVIAL VALLEY - NORTH (MAVN)**

WMAs

(138,558 acres):

- Bayou Macon
- Ben Lilly
- Big Colewa Bayou
- Big Lake
- Boeuf
- Buckhorn
- Bussey Brake
- Floy Ward McElroy
- Russell Sage
- J.C. Sonny Gilbert

The primary habitat type found on MAVN WMAs is the Mississippi River Alluvial Valley bottomland hardwood forest, with the exception of Sonny J.C. Gilbert which provides a unique mixed pine upland hardwoods habitat on the fringe of the Mississippi Alluvial Valley. Several of the WMAs feature reclaimed agricultural lands which have been reforested with bottomland hardwood forest species. Moist soil management units and greentree reservoirs are managed to provide habitat for waterfowl and other wetland birds.

MAVN WMA biologists and technicians conducted a wide range of activities including researching and surveys involving mourning doves, wood ducks, wild turkey, coyotes, shorebirds and white-tailed deer. These included collecting chronic wasting disease and blood samples from deer, disease research in feral swine, as well as waterfowl sampling for disease surveillance. Biologists and area personnel assisted the large carnivore program with bear management activities, including trapping/collaring, den visits, and handled numerous nuisance complaints. Additional effort was expended conducting public meetings, interacting with various universities as well as parish, state and federal agencies in reference to projects of mutual concern, conducting the alligator management program at the ecoregion level, and various other projects.

MAVN WMA staff also performed a variety of development and maintenance functions such as boundary marking, road maintenance, water control structure operation, moist soil management, shorebird management, beaver and other nuisance animal control, farm contract supervision, equipment maintenance, public user data collection, vegetation control, and food plot planting. Staff continued to assist the Forestry Section

Prescribed burning on WMA.
with forest management activities, including treatment and prescription planning, timber marking, reforestation, invasive woody species control, and timber harvest monitoring. They also conducted managed hunts and research projects. Approximately 250 wood duck nesting boxes were maintained and monitored by MAVN WMA personnel.

Recreational opportunities were provided to thousands of hunters, fishers, campers, sightseers and other public users. A total of 56,044 user days were estimated for MAVN WMAs during FY 2016-2017. Deer hunting was the most popular utilization of these WMAs. Either-sex deer hunts, including mandatory deer checks, self-clearing permit data and youth hunts, were held on the WMAs, with 13,236 user-days recorded and 1,305 deer harvested. Youth deer and dove hunters on Big Lake, Boeuf, Buckhorn, Russell Sage, J.C. Sonny Gilbert and Floy McElroy WMAs had a successful season. A deer hunt for women who participated in the Becoming an Outdoors Woman program was conducted on Floy McElroy WMA. Deer hunting opportunities were provided for wheelchair confined hunters on Big Colewa Bayou, Buckhorn, and Floy McElroy WMAs. Turkey hunting was provided on Bayou Macon, Boeuf, and J.C. Sonny Gilbert WMAs, with 178 hunters harvesting 15 birds. Bayou Macon, Big Lake, Boeuf, Buckhorn and Russell Sage WMAs provided waterfowl hunting for 11,173 hunters, including some who traveled from out of state. A total of 5,483 small game hunters enjoyed hunting on MAVN WMAs.

Major projects being initiated or completed include:

- Completion of the Wham Brake water control structure and bridge replacement project.
- Completion of the Saline/South Trail RTP project on Russell Sage.
- Continued planning process for South Bosco Tract and construction of an ATV/UTV trail for access to the tract.

The "Wish I Could ATV Trail Ride," an annual one-day ATV trail riding event, was held on Boeuf WMA in June 2017. The event attracted approximately 900 ATV riders who entered the WMA to ride the 17-mile long trail. This ATV trail ride is sponsored by a charitable organization and is legislatively mandated. Even though this event is extremely popular, it has caused extensive ecological damage to hundreds of acres of bottomland hardwood habitat, virtually destroying the original ATV trail.

MISSISSIPPI ALLUVIAL VALLEY - SOUTH (MAVS)

WMAs (189,895 acres):
- Acadia Conservation Corridor
- Attakapas
- Elm Hall
- Grass Lake
- Pomme de Terre
- Richard K. Yancey
- Sherburne
- Spring Bayou
- Thistlethwaite

Habitat types range from mixed pine-hardwoods to backwater bottomland hardwoods interspersed with agricultural lands, and cypress-tupelo swamps to open-water areas. One USFWS refuge (Atchafalaya National Wildlife Refuge) and two U.S. Army Corps of Engineers properties (Bayou des Ourses and Shatters Bayou) are also managed within the MAVS.

MABS WMA personnel administer and manage a variety of wildlife oriented activities. These personnel work in conjunction with and provide technical advice to many different agencies, including USFWS, U.S. Army Corps of Engineers, Louisiana Department of Natural Resources, Louisiana Department of Environmental Quality, USDA, and local parish entities. MAVS WMA personnel helped deliver alligator and nuisance animal programs and assisted with program projects such as dove and wood duck banding, as well as deer, woodcock, turkey, black bear and nongame research projects.

The WMAs are maintained and managed to provide outdoor recreation opportunities for all user groups, including both consumptive and non-consumptive. WMA personnel performed a variety of development and maintenance functions such as boundary marking, building maintenance, road maintenance, water control structure operation, moist soil management, beaver and other nuisance animal control, farm contract supervision, equipment maintenance, public user data collection, vegetation control, food plot planting, reforestation, and conducting managed hunts.

A total of 204,674 user days were estimated for MAVS WMAs during FY 2016-2017.

White-tailed deer is the most popular game animal hunted on the MAVS WMAs. Either-sex deer hunts, with mandatory deer checks were held on the WMAs, with 7,768 user-days recorded and 518 deer harvested. An additional 1,468 deer were harvested during other either-sex, bucks-only, youth/handicapped, archery and primitive weapons hunts, where self-clearing permits were utilized. Turkey hunts were held on seven
WMAs, where 17 turkeys were harvested by an estimated 551 users. This includes 14 youth hunters who participated in the Richard K. Yancey, Sherburne, Spring Bayou, Grassy Lake and Pomme de Terre WMAs youth lottery hunts, harvesting three turkeys. A member of the National Wild Turkey Federation or MAVS WMA staff served as a guide for each youth hunter to ensure a quality hunt and to teach youth safe turkey hunting techniques. Squirrel and rabbit hunting is also very popular on the ecoregion’s bottomland hardwood WMAs, accounting for over 22,954 user days. Waterfowl hunting is very popular as well on MAVS WMAs in moist soil impoundments, greentree reservoirs, swamps and flooded bottoms. Waterfowl user days totaled over 9,122 for this period. Dove fields are maintained, along with many acres of wildlife openings.

Youth lottery deer and duck hunts were also held in MAVS WMA, with great success on these hunts. Twenty-one youth waterfowl lottery hunters harvested 77 ducks, for an average of 3.7 ducks per youth hunter. Forty-six youth deer lottery hunters harvested 19 deer on 10 hunts. Youth hunters observe many deer on these hunts. The hunts are held in refuge areas set aside for youth hunts, where these youth hunters have a quality hunt and learn about hunting in a safe environment. Wheelchair-bound waterfowl and deer hunts were utilized by 10 different Physically Challenged Hunter Permit Wheelchair Hunters on 31 hunts.

Biologists and technicians maintain and monitor over 500 wood duck boxes, conduct pre-season wood duck banding, and collect samples for chronic wasting disease, avian influenza and other disease testing. They also assisted with numerous nuisance animal complaints, illegal captive deer and sick deer complaints. Biologists assisted LSU researchers with ongoing research projects.

Alligator applications were reviewed, and licenses and tags were issued to 64 WMA lottery hunters who filled 163 tags. There were also six WMA alligator hunters who bid on tags on the WMAs. These hunters filled 219 tags. This lottery hunt is done through an application process, with each hunter selected receiving three tags. This gives the public an opportunity to participate in the alligator harvest program.

Major projects being initiated or completed included:

- Completion of Fools Bay and Bayou Natchitoches Bridge projects on Grassy Lake WMA.
- Planning and construction of headquarters facilities on Richard K. Yancey WMAs.
- Construction of equipment sheds on Richard K. Yancey and Sherburne WMAs.

Routine maintenance activities on MAVS areas included road grading, culvert replacement, road and trail repairs, drainage improvements, beaver control, boundary work, sign replacement, self-clearing station maintenance, vegetation control, equipment maintenance, and facility upkeep. Repairs on all WMA roads and trails were made as funding allocations allowed.

PRIVATE LANDS PROGRAM

The Private Lands Program offers assistance to landowners, land managers, hunting clubs and others who desire to improve habitat and/or manage wildlife on their property. Assistance can vary from answering simple
questions to a comprehensive written management plan. Assistance is not only available for traditional game species such as deer, ducks and turkey, but includes all wildlife and their habitats. Private Lands Program biologists are responsible for three to eight parishes.

Many landowners are already working with a natural resource professional, such as a consulting forester, or are enrolled in state or federal programs such as DMAP, Forest Stewardship and/or USDA-NRCS programs such as the Wetland Reserve Easements, Conservation Reserve Program or Environmental Quality Incentives Program. LDWF Private Lands biologists cooperate with other natural resource professionals to achieve the landowner’s objectives. Most importantly, landowners are encouraged to develop a cooperative relationship with LDWF Private Lands biologists and other natural resource professionals. Wildlife habitat is dynamic, and with the assistance of knowledgeable wildlife professionals, landowners can provide productive habitat for wildlife while meeting other goals they may have, such as income generation and optimizing recreational opportunity.

During FY 2016-2017, Private Lands Program biologists conducted 357 site visits and delivered 60 written habitat management plans. They fielded 16,626 requests for information from the public. Under an agreement with USDA-NRCS, Private Lands Program biologists conducted 331 inspections of Wetland Reserve Easement properties to assess conditions and make recommendations for management.

Private Lands Program biologists are actively engaged with other agencies and organizations to coordinate conservation delivery efforts in Louisiana. A program biologist was vice chair of the Louisiana/Mississippi Conservation Delivery Network Steering Committee. Private Lands Program biologists are also active partners on the West-Central Louisiana Ecosystem Partnership, Louisiana/Mississippi Alluvial Valley Conservation Delivery Network, and other groups focused on natural resource management of private land in Louisiana.

Private Lands Program biologists are also responsible for carrying out activities such as migratory and resident bird banding, collection of biological data for research, habitat evaluations, disease investigations, nuisance animal response, administration of the alligator program to over 400 license holders, delivery of the DMAP program to over 700 cooperators, and public outreach via workshops and media outlets.

**FARM BILL/GRANTS PROGRAM**

**FARM BILL**

The Farm Bill Program provides support for many species management programs and the Private Lands Program within LDWF. A primary function of the program is to provide input on conservation and other programs contained within the Farm Bill at the national, state and local level to enhance wildlife habitat. During FY 2016-2017, the program provided direct input on many conservation programs, such as the Agricultural Conservation Easement Program, Conservation Reserve Program, Environmental Quality Incentives Program, Regional Conservation Partnership Program, Conservation Stewardship Program, and Working Lands for Wildlife Program included in the Agricultural Act of 2014. In addition, the program provided training for Private Lands Program staff and developed recommendations on individual properties to facilitate enrollment into Farm Bill conservation programs. The Farm Bill Program continued implementation of an agreement with the USDA-NRCS to provide technical assistance for the Wetland Reserve Program and Agricultural Conservation Easement Program. This agreement provides funding to develop wildlife habitat management recommendations in response to Compatible Use Authorization requests on Wetland Reserve Programs/ Agricultural Conservation Easement Program easements in Louisiana, which currently total approximately 300,000 acres. Additional accomplishments in FY 2016-2017 included implementation of a Working Lands for Wildlife Program that will directly benefit the Endangered Species List Candidate - Louisiana pine snake, and a suite of shorebird species that are of conservation concern. Participation will provide regulatory assurance for non-industrial private landowners that manage properties on suitable sites for the Louisiana pine snake. Another aspect of the program will be to work with agricultural producers to provide shallow-water habitats during late summer and early fall, when water is typically scarce across our state. LDWF staff were also active in a national level “reinvention” of the Conservation Stewardship Program, a program that rewards the good stewardship of private landowners while compensating them for habitat enhancements that will move them to the next level of conservation on their lands. New opportunities were established for forest landowners to be rewarded for the installation of wildlife habitat enhancements. Staff along with partners from across the country continued the process of preparing for the next Farm Bill slated for delivery in 2018 under a new presidential administration.

**GRANTS**

During FY 2016-2017, two State Wildlife Grants were administered under this program with assistance from the Private Lands Program. Both the East Gulf Coastal Plain and West Gulf Coastal Plain Prescribed Burn Initiatives provided funding to enhance wildlife habitat on privately-owned forestlands in Louisiana. Cumulatively these initiatives funded prescribed burning activities on 2,298 acres during the fiscal year. These activities will continue during the current fiscal year and efforts were successful for procurement of additional State Wildlife Grant funding to continue the program. In addition, the program continued delivery of a National Fish and Wildlife Foundation grant, secured to fund prescribed burning on 7,000 acres of privately owned forestlands in central Louisiana. Partners completed burning operations on 1,168 acres with funding from this effort.

Private Lands Program biologists are also responsible for carrying out activities such as migratory and resident bird banding, collection of biological data for research, habitat evaluations, disease investigations, nuisance animal response, administration of the alligator program, delivery of the DMAP program to 700 cooperators, and public outreach via workshops and media outlets.

**OFFICE OF WILDLIFE** 33
ROCKEFELLER WILDLIFE REFUGE

Rockefeller Wildlife Refuge (RWR), located in coastal Cameron and Vermilion parishes, was created in 1920 through a land donation developed by E.A. McIlhenny. He later persuaded the Rockefeller Foundation to deed the land to the State of Louisiana. Along with serving as a refuge for wildlife and fisheries species, RWR is also considered an “outdoor laboratory,” with the property serving as a site for marsh-related research pursued by RWR staff, collaborators and governmental and academic researchers. RWR staff also provides professional expertise regarding the sustainable use of alligators, management of coastal wetlands, and other important wildlife and fisheries resources. Further, management expertise, technical assistance and guidance is provided by RWR staff to local landowners for the wise use of their marshland. Lastly, RWR serves as a recreational outlet for the local populace, as well as a destination for regional tourists.

Based on the original deed of donation, the primary goal of RWR is to provide a refuge and preserve for all wildlife and fisheries species. Therefore, management activities are used to promote appropriate habitat and conditions for waterfowl species (the original intent of E.A. McIlhenny for the property), establish/maintain historic flora and fauna of RWR, and maintain the hydrology of the Mermentau River Basin. In many cases, refuge management activities positively benefit other marsh inhabitants including shorebirds, wading birds, alligators, furbearers and estuarine organisms (i.e., fish, shrimp and crabs).

Another main goal is to study wildlife, fisheries and wetlands in order to 1.) address pertinent ecological research questions and 2.) to disseminate findings to local, state, national and international audiences. Since 1955, RWR staff has published 350+ peer-reviewed manuscripts, while also preparing technical reports and contributed papers to professional conferences. Secondary goals include 1.) providing technical assistance and public outreach and 2.) providing a popular destination for recreational activity, primarily through the use of abundant fisheries resources (i.e., fishing, shrimping, crabbing) and the diversity of watchable wildlife (i.e., birdwatchers); it should be noted that these two activities never supersede the main goals of RWR.

CONSTRUCTION/REPAIRS

RWR personnel and administrators continue to work with FEMA to expedite post hurricanes Rita and Ike construction projects. Maintenance and construction staff continue to clean ditches and maintain levees throughout the marsh on RWR. This annual practice maintains the refuge’s levee system comprised of over 200 miles.

FEMA projects for 2016-2017 consisted of Phase II levee repair. This included 17 miles of levee refurbishment awarded to Southern
Delta Construction for $3,489,000 and was completed in FY 2016-2017.

Additional funds were approved FY 2014-2015 to construct the new laboratory and grow-out facility near the storm platform. The project was awarded to Alfred Palma Construction on Dec. 21, 2016 for $6,159,000. Construction began in FY 2016-2017.

The North and East Levee refurbishment was approved as a Capital Outlay Project. The project was designed by Royal Engineers and was awarded to LeBlanc Marine, LLC. for $2,747,342. Work began in FY 2016-2017.

The partnership with Ducks Unlimited continues in FY 2016-2017 with the development of the prototype water control structure for Unit 4. This project is funded through the North American Wetlands Conservation Act for $1 million. Construction will begin in FY 2017-2018.

MINERAL MANAGEMENT

Beginning in October 2011, Chevron began rig setup and exploration for an ultra deep gas venture known as Lineham Creek in the northwestern corner of RWR. Due to mounting costs and several failed attempts, it stopped drilling at about 24,500 feet; the rig was demobilized and off site by June 2014. Following the price reduction in oil/natural gas in FY 2014-2015, Chevron plugged and abandoned the site in FY 2015-2016. Remediation of the well site was scheduled for November 2017. The only active oil production taking place on the refuge is Hilcorp Oil Company. The program manager and staff continues to work with Hilcorp regarding maintenance and safe operations on RWR. Hilcorp Oil Company repaired the Unit 5 levee washout and totally rebuilt the sheet piling dam south of Deep Lake.

MARSH MANAGEMENT

RWR staff maintains over 200 miles of levees and 55 water control structures for the conservation of approximately 71,000 wetland acres on RWR and 100,000 private sector acres within the Mermentau River Basin. Maintenance and manipulation of RWR’s system of levees and water control structures vary somewhat by management unit, but general goals are to maintain marsh health, provide conditions favorable for waterfowl forage, and incorporate multi-species management when possible. Biological staff uses the approved RWR management plan, which acts as a tool to guide research and management on the property.

Habitat conditions have become more stable, with many water control structures replaced (or planned to be replaced) for management of water levels throughout RWR. Furthermore, staff have also worked on wetland permit applications with U.S. Army Corps of Engineers for approximately 76 miles of levee restoration within the last two fiscal years. During FY 2016-2017 an additional 28 miles were permitted for future levee refurbishment projects. Hydrologic restoration and unit management have improved as a result of completion of FEMA projects, including the completion of ditch maintenance in Unit 8. In addition to water control, staff performed vegetation control with herbicides via airboat to help improve habitat in Units 6, 9, 10 and 13. Aerial applications were also conducted to assist with vegetation control in Unit 8. Approximately 600 acres were treated on the refuge.
Marsh fires during the right time of the year decrease fuel loads of marsh vegetation, prevent catastrophic fires when the marsh is excessively dry during the summer, and also provide new stem growth for migratory waterfowl species. Generally, one-third of the refuge is burned on a yearly basis. However, during FY 2016–2017, water levels along with weather conditions and large-scale construction projects prevented any prescribed burns on the refuge.

Refuge staff continued monitoring giant salvinia and feral hogs, both species showed signs of population increase from 2012–2014. Salvinia continues to be managed on the refuge via the use of higher levels of salinity that are introduced by opening the East End Locks and by cooperatively working with the Louisiana State University (LSU) AgCenter with the weevil eradication control project. Little sign of feral hogs were observed in FY 2016–2017. Efforts continue in FY 2016–2017 to monitor the status of these two invasive species on RWR.

**Marsh Creation and Habitat Enhancement with Beneficial Use of Dredge Material**

The Louisiana Department of Wildlife and Fisheries (LDWF) entered into an agreement with U.S. Army Corps of Engineers and other regulatory agencies to construct the Rockefeller Mitigation Bank to offset wetland losses caused by adverse impacts in Louisiana’s Coastal Zone. The major objective of the mitigation bank is to compensate for impacts occurring on RWR or for impacts outside the refuge (provided there are no available approved mitigation projects).

LDWF originally permitted three areas on RWR as potential wetland mitigation sites in year 2000 (totaling 177.7 acres). Staff continues to monitor these sites annually, with very successful grass plantings observed at the 4.7- and 66-acre sites. Consequently, these marsh creation projects have attracted fisheries species, a diversity of birds and even muskrats.

A release of credits is due for the acceptance acres within the 4.7- and 66-acre sites. The 107-acre site will be considered for a portion of credits released to LDWF after review of the Vegetative Surveys in FY 2016–2017.

**Shoreline Protection and Stabilization**

The shoreline along RWR’s 26 miles of beach typically erodes at approximately 30–50 feet per year. We have seen a steady increase in the erosion rate, new surveys conducted on the Price Lake Unit Shoreline discovered that the coastline eroded 233 feet in nine months. There have also been large “washouts” that blast into the natural beach ridge allowing a small channel of Gulf water to flow in and affect healthy marsh.

In FY 2015-2016 RWR was successful with being awarded $33 million from the Coastal Wetlands Planning, Protection and Restoration Act on Dec. 10, 2015. This project calls for shoreline protection along a portion of RWR coastline in the form of segmented breakwaters. The project has been designed and was awarded to the lowest bidder, Leblanc Marine in FY 2016-2017. Construction is scheduled to begin near the end of FY 2016–2017.

Working in coordination with the breakwater project is the Jetty Project out of Joseph Harbor. The Joseph’s Harbor outlet is the main tidal artery for the established drainage infrastructure to operate RWR management units and other areas that benefits within the community. The jetty project will maintain Joseph Harbor’s outlet to the Gulf for drainage and navigation, as well as, assisting with collecting sediments on the eastern shoreline of the outlet.

**WILDLIFE MANAGEMENT**

**Alligator Nuisance Harvest**

An experimental nuisance alligator harvest was conducted on RWR from Sept. 7-11, 2016 by nine Rockefeller alligator hunters (with 40 tags each). The harvest was done by alligator hunters with a prior trapping history on RWR, as well as two hunters selected via a lottery system; all were approved by LDWF after successful completion of an enforcement background check. Hunting areas were distributed throughout RWR with the intent of taking alligators from areas with high public use, thus reducing the chance of negative interactions between alligators and humans. The average length of 2016 alligators harvested was 7.72 feet, exactly equal to the 2015 average of 7.72. The average price per foot was $19.14 for 2016, compared to $26.32 in 2015; 2016 prices were lower than the high of $38.28 per foot in 2008.

**FISHERIES MANAGEMENT**

RWR continued an active approach with the operations of water control structures across the refuge. This permits the ingress and egress of estuarine marine organisms into and out of the marsh without impacting established habitats on RWR and adjacent landowners.

Staff continued efforts in stocking Florida-strain largemouth bass (Micropterus salmoides v. floridanus) to supplement populations lost on the refuge due to hurricane impacts and extreme drought conditions; these efforts also improve recreational opportunities for the species on RWR. In the summer of 2017, the rearing ponds at RWR were stocked with 275,000 fry, and later seining of these ponds resulted in approximately 84,095 fingerlings (30.6 percent survival rate). Approximately 35,822 Florida-strain largemouth bass fingerlings were stocked on RWR in May 2017 with the remaining fingerlings stocked by LDWF Inland Fisheries Division at Lacassine National Wildlife Refuge (48,273 fingerlings). We hope to continue this cooperative effort to assist Inland Fisheries with their target stocking goals.

**WATERFOWL/ MIGRATORY GAME BIRD PROGRAM**

In 1994, RWR began a long-term mottled duck (Anas fulvigula) banding program to monitor annual survival rates and analyze distribution along the Gulf Coast between Texas and Louisiana. The banding effort is now a cooperative effort with Texas and Louisiana and involves many state and federal biologists, technicians and student workers. Some of the early analysis of data has shown high variability in survival rates with some mortality attributed to hunting.

Since 1994, the Coastal and Nongame Resources staff have banded 43,094 mottled ducks. Coastal and Nongame Resources biologists completed the 23rd year of the program by banding 849 mottled ducks statewide in 2016. In southwest Louisiana, RWR and various private properties yielded 835 mottled ducks banded and 67 recaptures. Banding efforts and staffing were limited during this banding season due to flooding events occurring in August 2016.

Black-bellied whistling ducks (Dendrocygna autumnalis) have greatly expanded their range since the mid-1990s to include southern Louisiana and recently as far east as the Carolinas. Black-bellied whistling duck banding efforts have been ongoing in Louisiana since 2010 in collaboration with LDWF Waterfowl Biologist Paul Link. During the spring of 2017 (February-May), refuge biologists banded a total of 281 individuals at three sites in southwestern Louisiana. These same sites recap-
tured 100 banded whistling ducks. Thirty individually coded color bands were also placed on a subset of captured birds in a cooperative effort with Ducks Unlimited and LDWF staff.

Winter aerial waterfowl surveys are conducted annually over Coastal and Nongame Resources areas in south Louisiana on a monthly basis from November through January. Transects are flown in each management unit and the unmanaged marsh area, and thereafter, extrapolated to yield an estimate of waterfowl abundance on the area. The mean waterfowl survey estimate on RWR during 2016-2017 was approximately 82,006 ducks per survey. This is 202 percent increase from the 2015-2016 average (27,167). We anticipate that ongoing marsh management activities will continue to improve waterfowl counts in the upcoming years.

In August 2016 a staff biologist served as the Waterfowl Crew Leader for the Yorkton, Saskatchewan Waterfowl Banding Station. The Yorkton crew banded a total of 6,041 new birds and a total of 11 different species, setting a record for that banding station. The Yorkton Banding Station is part of the Western Canada Cooperative Waterfowl Banding Program. This program is a long-term, large-scale, pre-sea-son waterfowl banding program. The program is a joint effort between the U.S. Fish and Wildlife Service (USFWS), Canadian Wildlife Service, state and provincial wildlife management agencies, the Flyway Councils, First Nations, and non-governmental waterfowl advocacy and research organizations. The Yorkton Station has been staffed by Mississippi Flyway Council states for decades. This banding data has increased our knowledge of waterfowl population dynamics and helped inform management decisions.

Rockefeller staff participated in the statewide dove banding efforts, banding 116 mourning doves (Zenaida macroura) and 43 recaptures. This information helps with population estimates, annual survivorship estimates and bird distribution/movements.

In August 2016 a staff biologist served as the Waterfowl Crew Leader for the Yorkton, Saskatchewan Waterfowl Banding Station. The Yorkton crew banded a total of 6,041 new birds and a total of 11 different species, setting a record for that banding station. The Yorkton Banding Station is part of the Western Canada Cooperative Waterfowl Banding Program. This program is a long-term, large-scale, pre-sea-son waterfowl banding program. The program is a joint effort between the U.S. Fish and Wildlife Service (USFWS), Canadian Wildlife Service, state and provincial wildlife management agencies, the Flyway Councils, First Nations, and non-governmental waterfowl advocacy and research organizations. The Yorkton Station has been staffed by Mississippi Flyway Council states for decades. This banding data has increased our knowledge of waterfowl population dynamics and helped inform management decisions.

A staff biologist worked cooperatively with USFWS on the mid-winter goose survey for the state of Louisiana. The mid-winter goose survey is a nationwide effort to survey geese in areas of major concentrations on their wintering grounds and provide winter distribution and habitat affiliations. This survey also serves as a primary source of data on population trends for some species that breed in remote areas of the Arctic, where traditional methods of surveying are hard to achieve.
A RWR biologist also participated in the Mottled Duck Spring Breeding-Population Survey in coastal Louisiana. This survey is conducted annually each spring in coastal Louisiana and Texas to monitor the western Gulf Coast population of mottled ducks. A staff biologist continues to work with LDWF Waterfowl Program cooperatively on multiple projects including blue-winged teal avian influenza testing, snow goose avian influenza testing and movement ecology, greater white-fronted goose movement ecology, lesser scaup annual survivorship, and black-bellied whistling duck movement ecology. Lastly, a staff biologist cooperatively worked with University of Missouri on evaluating the effects of body condition of snow geese in the Mississippi Flyway.

**WHOOPING CRANES**

The Louisiana non-migratory whooping crane population continued to grow in 2016 thanks in large part to the largest shipment of captive-reared juvenile cranes received to date. Twenty-five juveniles were sent to Louisiana from the U.S. Geological Survey Patuxent Wildlife Research Center and the International Crane Foundation over the course of November and December. For the first time, cranes were released at a newly constructed pen in Cameron Parish at RWR. Seventeen juveniles were released and monitored at this location while the remaining eight juveniles were released at a temporary pen located at White Lake Wetlands Conservation Area in neighboring Vermilion Parish. Additionally, two juveniles that were parent-reared at the Calgary Zoo arrived in February 2017 and were released at White Lake Wetlands Conservation Area. In total, 27 juveniles were released in Louisiana surpassing the previous largest cohort received in the state by 11 individuals. We are indeed encouraged by this latest expansion and are prepared to accommodate future growth of the Louisiana population.

The maximum size of the Louisiana non-migratory population at the end of the report period was 53 individuals (28 males and 25 females), with 42 birds in Louisiana and 11 outside of the state. Based on location data generated via remote transmitters, we documented cranes utilizing habitats in 21 parishes throughout Louisiana as well as about two dozen counties in Arkansas, Mississippi and Texas. Many of these data points represent short, exploratory trips typically made by young cranes into neighboring states; however, cranes from multiple cohorts have spent considerable amounts of time in southeast Texas where habitats are similar to those in southwest Louisiana. Fortunately, our partners with other state and federal agencies work with us to help document such occurrences and provide updates on the status of cranes that are in their vicinity. Then there is the odd case of two juvenile male cranes that initially moved into southeast Texas in early May and continued moving north all the way into western Canada more than 1,600 miles away. It is not clear if they made this move independently or followed migrating birds.

During the 2017 breeding season, eight nesting pairs initiated 18 nests compared to five pairs that produced nine nests in 2016. One pair of 5-year-olds successfully hatched and raised a chick for several weeks at White Lake Wetlands Conservation Area. This is the first record of a chick hatched in a natural wetland in Louisiana since the start of our reintroduction effort. We also experimented with exchanging fertile eggs from captive breeding facilities with eggs from nests of crane pairs who produced non-viable eggs and had no previous parenting experience. As a result, two additional chicks hatched, with one surviving. Unfortunately, we have observed numerous eggs incubated to full term with no detectable embryo, as well as some fertile eggs with embryos that died during the course of incubation. We are planning on introducing new monitoring techniques and will focus our research effort on trying to identify potential factors that may be causing infertility or embryo death while also considering ways to increase production.

LDWF continues to prioritize educating the public about the Whooping Crane Reintroduction Program. Educator workshops were held to foster professional development among area teachers who are able to incorporate lessons highlighting the importance of whooping crane conservation. Public outreach efforts consisted of LDWF staff participating in numerous festivals and outreach events around the state where literature and other information were disseminated to the public. LDWF staff presented information on the reintroduction effort to various clubs and organizations throughout the year. LDWF biologists also presented research at several professional meetings including the 14th North American Crane Workshop held in Chattanooga, Tenn., which was a gathering of the leading experts in the field of crane conservation. We focused our social media campaign on raising public awareness regarding both positive and negative aspects of the program, including re-emphasizing the issue around illegal shootings involving whooping cranes which accounts for an alarming 20 percent of mortality in the population.

Now in its seventh year, the Louisiana Whooping Crane Reintroduction Program has made numerous inroads thus far and we are determined to continue making positive strides towards our ultimate goal of establishing a self-sustaining population in the state.

*Whooping cranes from the 2016 Cohort*
The whooping crane program is supported by multiple funding cooperators including Rockefeller Trust Funds, USFWS, State Wildlife Grants, and corporate partners Chevron and Cameron LNG.

WILDLIFE AND FISHERIES RESEARCH
A unique attribute of RWR is the emphasis on wildlife, fisheries and marsh management research. Throughout the year, staff biologists conducted independent and collaborative research, while also presenting research findings at regional, national and international meetings. Several notes or manuscripts describing research results or observations were also accepted for publication in peer-reviewed journals.

Outside researchers made four research requests and all were approved to use RWR as a study site. Projects included sampling for giant salvinia weevils (Cyrtobagous salviniae) (LSU), a microbial assessment of mosquitoes native to southwestern Louisiana (McNeese State University), an investigation of migration stopover ecology of the semipalmated sandpiper (Calidris pusilla) in the Northern Gulf of Mexico (Tulane University), and monitoring nesting productivity of beach nesting birds (Audubon Louisiana).

STAFF RESEARCH AT RWR
Nesting Ecology and Habitat Use of Reddish Egrets
A research project focused on determining the distribution, abundance and nesting ecology of reddish egrets (Egretta rufescens) was initiated in the spring of 2016. Staff continued to monitor the 10 birds outfitted with satellite transmitters on Rabbit Island to provide information on movement patterns, habitat use and survival. In the fall of 2016, four birds migrated outside of Louisiana. Wintertime locations outside of Louisiana included Nicaragua, Guatemala and two areas in Texas (Matagorda Island Wildlife Management Area/Aranasas National Wildlife Refuge and the Laguna Madre area). All transmittered birds returned to Rabbit Island for the breeding season, although one mortality did occur during the reporting period. During the 2017 nesting season (March-June), staff monitored 32 nests on Rabbit Island in southwestern Louisiana. RWR staff continued efforts to deploy satellite transmitters on adults and deployed an additional six transmitters on birds captured at three nesting locations (Rabbit Island, Queen Bess and Brandy Island). A total of 11 adults and 45 chicks were banded during the 2017 season with blood samples submitted for genetic analyses at Texas Tech University. To better understand foraging habitat selection and suitability for these birds, staff continued measurements and prey samples at “use” points and “random” points using satellite transmitter data, as well as “observation” points where birds without transmitters were observed.

Blood Lead Concentrations in Mottled Ducks in the Louisiana Chenier Plain
During June 2017, staff began collecting blood samples from molting mottled ducks. Blood samples will be analyzed to investigate blood lead concentrations during the molt period of the annual cycle. Blood samples will also be taken during the waterfowl hunting season from hunter-harvested birds. A total of 128 blood samples were collected from mottled ducks during the molting period. This is an ongoing project and will continue through June 2019.

Survey of Waterbird and Waterfowl Nests Found on Terraces Constructed in Price Lake Unit
During the spring of 2017, staff conducted six monthly surveys on newly constructed terraces within Price Lake during the nesting season (March-August) to determine habitat suitability and nest site selection by waterbird and waterfowl nests species. Staff found 10 nests from two species: Canada goose (Branta canadensis) and fulvous whistling duck (Dendrocygna bicolor). Only one fulvous whistling duck successfully hatched a brood. However, the mother soon after abandoned the chicks for unknown reasons.

Monitoring Species of Greatest Conservation Need Nesting on Shell Islands in Southwestern Louisiana
A research project was initiated in spring 2015 to determine the abundance and distribution of the American oystercatcher (Haematopus palliatus) in southwestern Louisiana, as it was considered a Species of Greatest Conservation Need (SGCN, S1). Since 2015, few pairs have been observed within the region, likely due to limited suitable nesting areas. However, many other Species of Greatest Conservation Need have been observed utilizing nesting areas where American oystercatchers were located. RWR staff initiated monitoring efforts to determine site selection and nest success of avian species within these sensitive nesting areas. During the spring of 2017, staff monitored four pairs of American oystercatchers nesting in Cameron and Vermilion parishes. Two nests successfully hatched chicks, and only one nest had a chick survive to fledge. Staff also monitored six seabird species nesting on nine shell islands near Vermilion Bay that were adjacent to or located on the same islands as oystercatchers. Five of the nine islands where breeding pairs were observed were successful in hatching chicks for some of these species.

Abundance and Habitat Use of Resident and Wintering Loggerhead Shrikes in Southwestern Louisiana
RWR staff initiated winter transect surveys along Louisiana Highway 82 (primarily marsh habitat) and Louisiana Highway 14 (primarily agricultural habitat) in December 2014 as an effort to contribute to counts for the Hawk Migration Association of America and track trends of raptors selecting wintering habitat within the region. Loggerhead shrike (Lanius

Price Lake Road Terraces are over two years old and vegetated.
ludovicianus) numbers and locations were included in surveys conducted as a part of this effort. Staff initiated surveys for resident birds during the summer of 2016 to compliment what was observed during winter surveys to provide additional information on year-round abundance, distribution and changes in available habitat over time (Louisiana Wildlife Action Plan priority). Habitat was classified along transects and surveys were conducted monthly during winter (December-February) and summer (June-August).

COLLABORATIVE RESEARCH AT RWR
During FY 2016-2017, RWR biologists collaborated on a number of marsh management, wildlife and fisheries research projects on the refuge, across the region and state and beyond. These projects include:

- Nest site selection and nest success of avian species of greatest conservation need on colonial nesting bird islands in southwestern Louisiana. S. Collins with S. King and K. Ritenour, LSU (funded by LSU and Rockefeller Operating Funds)
- Mottled duck breeding ecology in southwest Louisiana. J. Marty and S. Collins with K. Ringelman and L. Bonczek, Louisiana State University (funded by Rockefeller Operating Funds, Wildlife Division Waterfowl Funds, and additional funds from Ducks Unlimited and the Gulf Coast Joint Venture).
- Monitoring beach-nesting birds in southwestern Louisiana. S. Collins with E. Johnson, Audubon Louisiana (funded by American Bird Conservancy and grants awarded to Audubon Louisiana)
- Food habits of wintering dabbling ducks in southwestern Louisiana. S. Collins with E. Lyons, McNeese University (funded by McNeese University)

PUBLICATIONS BY RWR STAFF BIOLGISTS

TECHNICAL ASSISTANCE, OUTREACH AND EDUCATION
Rockefeller places a high importance on education and outreach. Each year a litany of groups visit the refuge and receive talks on marsh management, coastal protection and many other educational topics related to wetland ecology.

Typically, these groups are overnight groups coming on weekends to spend time at the general quarters facility next to the refuge's office. During FY 2016-17 both the office and general quarters underwent cosmetic renovations on their exterior, including new windows to help with insulation. During the months of October 2016 to June 2017 general quarters was inoperable as an overnight facility for visitors. As the fiscal year ended renovations were nearing completion in expectation of the annual Marsh Maneuvers program in July 2017. Most groups that visited the refuge while the general quarters was under renovation would facilitate day-trips to the refuge.

In addition to formal education and outreach opportunities, a new refuge website (www.rwrefuge.com) was completed in June 2015 to display the different ongoing refuge activities. The main topics presented on the website include public use, management and research, with the latter serving as a repository for the 500+ publications, reports and conference abstracts by RWR staff since 1955. The public use section has provided much improved information for visitors, particularly recreational fishermen.

Examples of other technical assistance provided by RWR staff include:

- conducted winter raptor surveys for the Hawk Migration Association of America.

The Marsh Maneuvers program visits Rockefeller’s Shoreline to learn about erosion and projects working to sustain the coastline.
• organized, compiled and participated in Christmas Bird Counts.
• assisted the Natural Heritage Program by conducting surveys for winter plover species and beach nesting birds on RWR beaches, while also conducting marsh bird surveys at Cameron Parish sites.
• completed mourning dove banding for the statewide dove monitoring program.
• assisted private landowners in assessing marsh conditions and management for waterfowl.
• conducted peer-review and editorial duties for scientific journals; reviewed graduate student theses.
• participated in guided tours to the whooping crane pen site, Nunez Woods Bird Sanctuary and around Rockefeller Wildlife Refuge.
• presented on the whooping crane reintroduction to multiple grade school, college, local and professional groups, as well as providing an informational table at multiple local and state festivals.
• presented lectures to visiting college and university students on wetlands ecology, wetlands management, waterfowl ecology, and conservation research.
• reviewed research and grant proposals for university students and faculty.
• participated in career fairs for Cameron Parish School District and the LSU AgCenter.

RWR staff also participated in guided tours for a number of organizations and groups (559 technical assistance contacts, 1,277 general information contacts, and 2,161 group contacts).

RECREATIONAL USE
Marsh management units, and more specifically water control structures, continue to be very popular with sport fishermen. For the third consecutive year since hurricanes Rita and Ike, all water control structures via Joseph Harbor boat launch were fully operational; we were able to enhance the fishing opportunities while also maintaining adequate salinity levels. New recreational opportunities include the new Tom Hess Structure (dedicated October 2015) that manages the Price Lake Unit. Other recently completed projects - such as the new boat launches and bulkheading at Joseph Harbor (FY 2012-2013) and new fishing piers on Price Lake Road (FY 2012-2013 and FY 2013-2014) - have continued to be a great attraction for local and regional fishermen. The new recreational projects completed over the last five years have greatly enhanced the fishing opportunities at these already popular recreational areas.

In FY 2016-2017, 118,909 vehicles (approximately 279,281 person use days) were counted entering the refuge, which is approximately 18 percent higher than 2015-2016 data (101,074 vehicles and 236,513 person use days).
LOCATION

The White Lake Property (as referred to in Act 613, 2004 Louisiana Legislature) or White Lake Wetlands Conservation Area (WLWCA) (as referred to by LDWF) is located in Vermilion Parish. The contiguous unit is 70,965 acres, located along the western boundary of Vermilion Parish; it is bounded on the south by White Lake, and the northern boundary is 7.4 miles south of Gueydan at the south end of Hwy. 91. Lafayette is 32 air miles northeast, and Lake Charles is 40 air miles northwest. The southern boundary of White Lake is 17.5 miles north of the Gulf of Mexico. The property averages 12 miles from east to west and 9 miles from north to south.

HISTORY OF OWNERSHIP

BP America Production White Lake properties have a long history of company ownership and management. Note that Stanolind Oil and Gas Company (Stanolind) preceded Amoco Production Company (Amoco) which preceded BP America Production Company (BP). Stanolind acquired the 70,965-acre property from Wright Morrow by Act of Sale on July 31, 1935. This sale included all of the property acquired by Yount-Lee Oil Company from P. L. Lawrence, et. ux., by Act of Sale dated March 7, 1931 and a portion of the property acquired by M.F. Yount from Elizabeth M. Watkins by Act of Sale dated Nov. 5, 1929. BP owned and managed the BP American Production White Lake Property until July 8, 2002 when BP donated the property to the state of Louisiana. On July 8, 2002, a Cooperative Endeavor agreement between the state and White Lake Preservation Inc. (a 501(c) 3 corporation) for management of the property was executed. On Jan. 1, 2005, Act 613 of the 2004 Regular Legislative Session became effective. This act established:

1. Transfer of property management from White Lake Preservation Inc. to LDWF.
2. The White Lake Property Advisory Board, LDWF and the Wildlife and Fisheries Commission powers and duties relative to the management of the White Lake Property.
3. A special account within the Conservation Fund for the White Lake Property.

On Dec. 17, 2004, the state, BP and White Lake Preservation Inc. signed a Transition Agreement for the management of the property by White Lake Preservation Inc. until July 1, 2005, at which time LDWF took total control.

SURFACE LEASES

AGRICULTURAL AND HUNTING

There are currently 37,841 acres of property leased out in nine separate tracts. The property is leased to five separate tenants for the purpose of farming, raising cattle, crawfish farming and hunting. There is a rice base totaling 4,587.5 acres on this property. There were approximately 1,000 acres of rice planted in 2017. There were approximately 900 acres of crawfish ponds on the property in 2017.

TRAPPING

There were 384 alligator tags issued for the 2016 alligator trapping season. The average size of the alligators trapped was 6.76 feet, with an average live length value of $15.10 per foot.

There was a contract negotiated for the collection of alligator eggs from the WLWCA property in 2015 for a three-year period. In 2016, WLWCA received a payment of $36.67 per egg. A total of 9,244 eggs were collected.

OTHER SURFACE LEASES

There are three oil and gas valve site leases on the property. In addition there is one oil & gas surface use agreement with an associated road servitude agreement.

LOTTERY ACTIVITIES

FISHING LOTTERY

2016 - One-hundred fishing permits were issued at a cost of $40 per permit. Permittees and their guests were allowed to fish the Florence Canal Area and specified well location canals that flow into the Florence Canal. The area was open from sunrise to sunset from March 15 - Aug. 15, 2016

2017 - One-hundred fishing permits were issued at a cost of $40 per permit. Permittees and their guests were allowed to fish the Florence Canal Area and specified well location canals that flow into the Florence Canal. The area was open from sunrise to sunset from March 15 - Aug. 15, 2017

WATERFOWL LOTTERY

<table>
<thead>
<tr>
<th>Waterfowl Hunting (2016-2017 Season)</th>
<th>Total Hunts</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teal Lottery Hunts</td>
<td>9</td>
<td>102</td>
</tr>
<tr>
<td>Marsh Lottery Hunts</td>
<td>11</td>
<td>124</td>
</tr>
<tr>
<td>Youth Hunts</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>Rice Field Lottery Hunts</td>
<td>30</td>
<td>238</td>
</tr>
<tr>
<td>Group Hunts</td>
<td>11</td>
<td>122</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Waterfowl Hunting Results (2016-2017 season)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Ducks Harvested</td>
</tr>
<tr>
<td>Average Kill/Hunter (ducks)</td>
</tr>
<tr>
<td>Total Geese Harvested</td>
</tr>
<tr>
<td>Average Kill/Hunter (geese)</td>
</tr>
</tbody>
</table>

NON-CONSUMPTIVE ACTIVITIES

LDWF established dates for the use of WLWCA facilities for non-consumptive group activities including nature photography, bird watching, educational field trips and business retreats. Use of WLWCA for non-consumptive purposes was offered from Feb. 1 - May 31, 2017. Site use was scheduled on a first come first serve basis pending facility and staff availability, with up to 15 guests allowed to attend the day trips and up to 12 guests allowed to attend the overnight trips. We had a total of three scheduled trips with 45 total participants during FY 2016-2017.

BIRDS TRAIL

The WLWCA Birding and Nature Trail, with accompanying kiosk, was completed in April 2012. The trail is on approximately 30 acres of...
EDUCATION, OUTREACH AND RESEARCH

MARSH MANEUVERS
During December 2016, WLWCA was host to a group of 16 high school 4-H students for three days. The three-day camp was designed to educate the students on the importance of coastal erosion, restoration, conservation and ecology. They were also able to go on a morning marsh tour and were taught waterfowl identification techniques. They participated in a sporting clay shoot where they were instructed on gun safety and the proper use of a shotgun.

COASTAL PRAIRIE
There is approximately 200 acres of coastal prairie on the WLWCA property located south of the Gulf Intracoastal Waterway and west of the Florence Canal. For the past couple of years the Louisiana Natural Heritage Program has been conducting research on the different plant species located on this prairie. To date, approximately 95 different species have been identified. A coastal prairie enhancement project is currently ongoing with the Louisiana Natural Heritage Program that includes prescribed fire and herbicide application to reduce woody encroachment. This project is funded through the State Wildlife Grants Program.

WHOOPING CRANE RE-INTRODUCTION PROGRAM
WLWCA assisted the Whooping Crane Re-introduction Program by providing office space, staff and vessel support. In addition, WLWCA staff maintained the 700-acre impoundment located approximately 3.5 miles north of the existing pen location.

WOOD DUCK PROJECT
WLWCA continued a wood duck banding program to complement the LDWF statewide banding program. In addition to banding birds, staff monitored nest boxes and collected data for potential survivability and recruitment studies.

MARSH MANAGEMENT

RESTORATION, HABITAT ENHANCEMENT, AGRICULTURAL MANAGEMENT, AND MINERAL MANAGEMENT

MARSH MANAGEMENT
The WLWCA property consists of approximately 52,000 acres of fresh water marsh. There are four separate management units that comprise the marsh. Within these marsh areas there are over 100 miles of tenasses, seven water control structures, four pumping stations, and over 30 miles of levees, all of which are operated, managed and maintained by WLWCA personnel. Objectives of maintenance and manipulation of the refuge’s system of levees and water control structures vary somewhat by management unit, but generally goals are to maintain marsh health, provide conditions favorable for production of waterfowl food plants, and incorporate multi-species management when possible.

As part of the overall management of the WLWCA properties, in the fall of 2008 a comprehensive set of rules and regulations was drafted and presented to the Wildlife and Fisheries Commission for approval. The White Lake Rules and Regulations were approved by the Commission and became effective in the spring of 2009.

AGRICULTURAL MANAGEMENT
Although WLWCA is comprised mostly of marsh, the property consists of approximately 19,000 acres of agricultural land. The agricultural land is separated into seven tracts that are leased out to the highest bidder. Each leaseholder follows an LDWF lease agreement that directs the leaseholder to complete numerous habitat management practices each year. These practices maintain the property in farmable condition, while also providing valuable habitat for wildlife. The benefits to the leaseholder are the ability to farm, graze and hunt the property.

MINERAL MANAGEMENT
There are three producing oil and gas fields on the WLWCA property that were once operated by Amoco Production Company. Amoco sold the subsurface rights in these fields and all the facilities associated with these fields in the latter part of the 1990s to Hilcorp Energy Company. Hilcorp has since sold these fields, and for a period of time they were operated by three separate owners/operators: the West White Lake Field (approximately 1,500 acres) was owned and operated by Energy Quest; the Florence Field (approximately 1,920 acres) was owned and operated by Dune Energy Company; and the South Kaplan Field (approx. 800 acres) was owned and operated by Texas Petroleum Investments. In the spring of 2010, Texas Petroleum Investments purchased the West White Lake and Florence Field and became the sole oil and gas operator on the WLWCA property. However in July 2011 Magnum Producing secured a mineral lease from BP to drill an exploratory well in the Kaplan Field Area. LDWF granted a Surface Lease to Magnum Producing to facilitate the drilling of this well. This well was successfully completed and is currently producing. In 2013 LDWF granted Magnum Producing an additional Surface Lease for a Salt Water Disposal Well, which also included a road servitude and P/L right-of-way agreement. The State of Louisiana owns the surface of the property that comprises these three production areas. LDWF monitors surface activities and helps enforce the conservation terms of the agreements that were executed by and between Amoco Production Company, BP and the three owners/operators mentioned. Texas Petroleum Investments has responsibilities for maintenance of roads, levees, canals, bridges, etc.

MAINTENANCE OF FACILITIES AND EQUIPMENT
There are approximately 50 acres of property associated with the White Lake lodge facility, sporting clay course, skeet range, birding trail and Florence Canal Landing area. This acreage is maintained and landscaped throughout the year by WLWCA personnel.

Routine maintenance on the WLWCA buildings and equipment was conducted throughout the year.

Routine maintenance was performed on our fleet of more than 25 boats. Our four mud boats were dry-docked and repainted, and other routine annual maintenance was done.

### Total Fund Balances

<table>
<thead>
<tr>
<th></th>
<th>2016-2017</th>
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<tbody>
<tr>
<td>Beginning Fund Balance</td>
<td>$2,377,001</td>
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<tr>
<td>Total Revenue</td>
<td>$1,535,355</td>
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<tr>
<td>Total Expenditures</td>
<td>$1,340,415</td>
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<tr>
<td>Ending Fund Balance 2016-2017</td>
<td>$2,571,941</td>
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### Revenue

<table>
<thead>
<tr>
<th>Revenue Source</th>
<th>Amount</th>
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<tr>
<td>Group Hunt Trip Fees</td>
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<tr>
<td>Group Hunt Charitable Contributions</td>
<td>$208,000</td>
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<tr>
<td>Agricultural Leases</td>
<td>$516,463</td>
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<tr>
<td>Hunting Leases</td>
<td>$216,912</td>
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<tr>
<td>Alligator Egg Collection</td>
<td>$338,977</td>
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<tr>
<td>Lottery Hunt Fees</td>
<td>$60,015</td>
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<tr>
<td>Alligator Trapping Income</td>
<td>$15,651</td>
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<tr>
<td>Interest Income</td>
<td>$14,102</td>
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<tr>
<td>Mineral Bonuses</td>
<td>-</td>
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<tr>
<td>Right of Way</td>
<td>$24,731</td>
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<td>Surface Leases</td>
<td>$6,308</td>
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<tr>
<td>Surplus Property</td>
<td>$3,049</td>
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<tr>
<td>FEMA Reimbursements</td>
<td>-</td>
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<tr>
<td>Oil and Gas Royalty</td>
<td>-</td>
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<tr>
<td>Non-Consumptive Trips</td>
<td>$1,390</td>
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<tr>
<td>Fishing Lottery</td>
<td>$4,745</td>
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<tr>
<td>Prior Year Revenue Adjustments</td>
<td>($17,393)</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$1,535,355</strong></td>
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### Expenditures

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<thead>
<tr>
<th>Expenditure</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Salaries</td>
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<tr>
<td>Wages</td>
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<td>Related Benefits</td>
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<td>Travel</td>
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<td>Operating Services</td>
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<td>Supplies</td>
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<td>Professional Services</td>
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<td>Other Charges</td>
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<tr>
<td>Acquisitions</td>
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<td>Major Repairs</td>
<td>$239,491</td>
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<tr>
<td>Interagency Transfers (Insurance)</td>
<td>$34,817</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$1,340,415</strong></td>
</tr>
</tbody>
</table>
The Louisiana Natural Heritage Program (LNHP) is responsible for the conservation of Louisiana’s rare, threatened and endangered species, nongame birds, and habitats. LNHP staff conducts research on nongame birds, rare species and habitats of greatest conservation need, and works with landowners that have rare species and habitats to promote the future survival of those species and habitats. Data concerning rare elements are collected and stored in the Biotics database system. These data are then used to determine potential adverse impacts to the environment. LNHP is composed of Data, Botany/Community Ecology, Zoology, and State Wildlife Grants sections.

**SOUTHEASTERN ASSOCIATION OF FISH AND WILDLIFE AGENCIES: WILDLIFE DIVERSITY COMMITTEE**

The Southeastern Association of Fish and Wildlife Agencies (SEAFWA); Wildlife Diversity Committee’s mission is to determine whether federal candidate and petitioned species warrant listing under the Endangered Species Act. This committee is composed of southeastern state representatives and U.S. Fish and Wildlife Service (USFWS) personnel. LNHP staff continued to represent Louisiana on the Wildlife Diversity Committee and hosted the annual SEAFWA conference in Mansfield, Ga. During FY 2016-2017, this committee worked on the following:

- competitive State Wildlife Grant (SWG) proposal that included all southeastern states.
- developed a post-multi-district-litigation work plan for species and status assessments.
- endorsed a streamlined process for reporting/publishing assessments and findings for non-candidate species.
- drafted a work plan and schedule for species assessments.

**LNHP COMMITTEE PARTICIPATION**

LNHP staff participates in a myriad of organizations at the state and national level including but not limited to:

- Association of Fish and Wildlife Agencies
- Barataria-Terrebonne National Estuary Program (BTNEP)
- Cajun Prairie Habitat Preservation Society
- Capital Area Native Plant Society
- Coastal Plan Conservancy Board
- Coastal Prairie Conservation Partnership
- Consortium for Advanced Research on Marine Mammal Health Assessment Steering Committee
- Dusky Gopher Frog Recovery Team
- Eastern Black Rail Working Group
- Fort Polk Integrated Natural Resources Management Plan Steering Committee
- Gopher Tortoise Council
- Gopher Tortoise Minimum Viable Population Working Group
- Gopher Tortoise Rangewide Conservation Strategy Working Group
- Gulf of Mexico Alliance Wildlife Technical Group
- Gulf of Mexico Avian Monitoring Network
- Gulf of Mexico Sea Turtle Early Restoration Stranding and Network
- LA Amphibian Monitoring Program
- LA Association Professional Biologists
- LA Forestry Association Recreation & Endangered Species Committee
- LA Gulf Coast Herpetological Society Advisory Board
- LA Native Plant Society
- LA Pinesnake Mussel Conservation Committee
- LA Pinesnake Conservation Committee
- LA Pinesnake Reintroduction Committee
- LDWF State Wildlife Grants Committee
- LDWF Turtle Regulations Committee
- Longleaf ARC Working Group
- Louisiana Master Naturalists of Greater Baton Rouge Steering Committee
- Marine Mammal Health and Stranding Response Program
- Marine Mammal Regionwide TIG Restoration Team
- Migratory Bird Migration Fund Committee
- Northern Gulf of Mexico Manatee Working Group
- Southeast Partners in Amphibian and Reptile Conservation Committee
- Southeast Partners In Flight
- Southeast Region U.S. Section Council for NatureServe
- Southeast Region and National
- Southeast Region and National
- Sea Turtle Stranding and Salvage Network
- West Louisiana Ecosystem Partnership

**LNHP OUTREACH PRESENTATIONS AND PUBLIC EVENTS**

LNHP staff participated in over 70 outreach presentations and public events throughout Louisiana in FY 2016-2017.

**STATE WILDLIFE GRANTS PROGRAM**

In November 2001, Congress created the State Wildlife Grants (SWG) Program. According to the federal legislation that created the program, SWG was established "for the development and implementation of programs for the benefit of wildlife and their habitat, including species that are not hunted or fished." The inclusion of species that are not hunted or fished is a crucial aspect of the SWG Program, as many of these species previously had no existing source of funding. The SWG Program is now the primary funding source for non-game conservation nationwide, with the stated goal of preventing species from being federally listed as threatened or endangered.

**WILDLIFE ACTION PLAN REVISION**

Congress stipulated that each state fish and wildlife agency that wished to participate in the SWG Program develop a Comprehensive Wildlife Conservation Strategy (Wildlife Action Plan) by October 2005. In response, LDWF developed a Wildlife Action Plan (WAP) to establish conservation needs and guide the use of SWG grant funds for the next 10 years. A crucial aspect of the WAP is the identification of Species of Greatest Conservation Need (SGCN), which are those species most in need of conservation action as identified by each state. The WAP was submitted for approval to the National Advisory Acceptance Team and was subsequently approved in December 2005. The WAP is the roadmap for non-game conservation in Louisiana, and must be reviewed and revised every 10 years to ensure that it remains an effective tool for conservation planning and implementation.

The first comprehensive revision of the Louisiana WAP was completed and submitted to USFWS during FY 2015-2016, and final approval was received from USFWS during FY 2016-2017. The 2015 Louisiana WAP is now
TABLE 1.

<table>
<thead>
<tr>
<th>Louisiana State Wildlife Grants Opened During FY 2016-2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Louisiana Breeding Bird Surveys</td>
</tr>
<tr>
<td>Population Status and Distribution of Pearl River Basin Fish and Crawfish SGCN</td>
</tr>
<tr>
<td>Tracking Prothonotary Warbler Migration and Effects of Winter Ecology on Breeding Success</td>
</tr>
<tr>
<td>Status Survey and Habitat Assessment of Crayfish, Amphibian, and Reptile SGCN in Central Louisiana</td>
</tr>
<tr>
<td>Alligator Snapping Turtle Headstart Program</td>
</tr>
<tr>
<td>Novel Detection Method for the Imperiled Frecklebelly Madtom in the Pearl River Basin</td>
</tr>
<tr>
<td>Collection and Analysis of American Eels in Louisiana</td>
</tr>
<tr>
<td>Distribution and Conservation Genetics of Myotis and Other Bat SGCN in Louisiana</td>
</tr>
</tbody>
</table>

TABLE 2.

<table>
<thead>
<tr>
<th>Louisiana State Wildlife Grants Closed During FY 2016-2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-7-4 SWG Coordination</td>
</tr>
<tr>
<td>T-16-3 Natural Areas Registry</td>
</tr>
<tr>
<td>T-107 Diamond-backed Terrapin Nesting Habitat and Productivity in Coastal Louisiana</td>
</tr>
<tr>
<td>T-111 Comparative Evaluation of Wildlife Habitat in a 25-Year-Old Restored Bottomland Hardwood Forest</td>
</tr>
<tr>
<td>T-286 West Gulf Coastal Plain Prescribed Fire Initiative</td>
</tr>
<tr>
<td>T-305 Status of the Alligator Snapping Turtle in Central Louisiana</td>
</tr>
<tr>
<td>T-319 Rare Bat Roost Surveys</td>
</tr>
<tr>
<td>Monitoring Avian Productivity and Survivorship in Bottomland Hardwoods</td>
</tr>
<tr>
<td>Scenic Rivers Management Plans</td>
</tr>
<tr>
<td>Overwinter Survival of Henslow’s Sparrows</td>
</tr>
<tr>
<td>Colonial Waterbird Response to Predator Removal on Barrier Islands</td>
</tr>
<tr>
<td>East Gulf Coastal Plain Prescribed Fire Initiative</td>
</tr>
<tr>
<td>Barrier Island Breakwater Fish Surveys</td>
</tr>
<tr>
<td>Impact of ATVs on Nesting Turtles</td>
</tr>
<tr>
<td>Survey of Pollinators in Rare Habitats in the Florida Parishes</td>
</tr>
</tbody>
</table>

available via the LDWF website (www.wlf.louisiana.gov/wildlife/wildlife-action-plan), and a limited number of hard copies were procured as well for internal and partner use.

**STATE WILDLIFE GRANTS FUNDED RESEARCH PRODUCTS**

Since the inception of the SWG Program in Louisiana, research funded through these grants has produced over 55 peer-reviewed publications, adding greatly to the body of knowledge concerning Louisiana’s fish and wildlife.

**DATA SECTION**

The Waterbird Nesting Colony dataset received significant updates, modifications and additions in Biotics from information gathered during Reddish Egret Flight Surveys conducted by Michael Seymour in April 2017. The LNHP ornithologist surveyed each known reddish egret colony and flew areas with high quality habitat for potential new nesting sites. This survey resulted in 130 updated Waterbird Nesting Colony EORs and seven new Waterbird Nesting Colony EORs that were added into the database. The Louisiana Pinesnake dataset also received significant updates, modifications and additions in Biotics. This dataset contains trap data collected by LNHP staff from 2007 to present day. This trap data resulted in 37 new Louisiana Pinesnake EORs. In addition to Louisiana pinesnake captures, other SGCN including eastern hog-nosed snake, Hurter’s spadefoot toad, timber rattlesnake, coal skink, pygmy rattlesnake, and long-tailed weasel were trapped as incidentals. All of these species (except long-tailed weasel) were new SGCN added to the list in the 2015 WAP. The incidental trapping of the above species resulted in 39 new EORs in Biotics.

The Biotics database is used daily by LNHP staff to review construction activities and development projects planned by government.
and private entities throughout the state. These activities range from small to large-scale projects including residential, commercial and industrial development, and the development of pipelines and roads. These activities repeatedly threaten SGCN and natural habitats across the state, and the LNHP is tasked with reducing and limiting these threats as much as possible.

Throughout the year, government and private entities will request species and habitat reviews for projects occurring in Louisiana. These reviews are collectively referred to as private consultant projects. The requesting organization submits a description of the proposed project to LNHP and a query of the LNHP database is run against the proposed project area. The results of the query show SGCN and natural communities within 1 mile of the project area. A comment letter is submitted to the requesting organization identifying potential impacts of these projects to SGCN and natural communities. The letter also indicates the presence of scenic rivers, state or federal parks, wildlife refuges and wildlife management areas (WMAs) occurring within 400 meters of the project area.

LNHP receives Coastal Use Permits submitted to LDWF by the Louisiana Department of Natural Resources (LDNR). Coastal Use Permits are required for commercial, residential and oil and gas projects occurring within Louisiana’s Coastal Zone. LDNR houses a subset of the LNHP database, allowing LDNR to flag Coastal Use Permits that occur near SGCN. These flagged Coastal Use Permits are forwarded to LNHP biologists for review. As with private consultant reviews, comments are generated for potential impacts to SGCN, critical habitats and natural communities. The presence of scenic rivers, state or federal parks, wildlife refuges and WMAs within the project area are also included in the comment letter. The LNHP’s comments, along with comments from other programs within LDWF, are consolidated and an agency-wide letter is submitted to LDNR.

LNHP also reviews U.S. Army Corps of Engineers permits and permits from other regulatory agencies. These reviews are collectively referred to as internal reviews due to the fact they are received by LNHP from other departments within LDWF.

In FY 2016-2017, LNHP staff conducted 1,221 project reviews, which included 421 private consultant project reviews, 671 new or modified Coastal Use Permits, and 129 internal project reviews.

The LNHP Database Section processed 33 digital data requests for private consultants, timber companies, nonprofit organizations, universities and government agencies. The digital data request involves large-scale projects. The requesting organization submits a description of the proposed project to LNHP, and a query of the LNHP database is run against the proposed project area. The results of the query show SGCN and natural communities within a predetermined distance stated in the project request letter. A comment letter is submitted to the requesting organization identifying potential impacts to SGCN, natural communities and critical habitat, along with point and/or polygon data and associated species information. The information provided by the LNHP is applied to land use decisions, environmental impact assessments, resource management, conservation planning, endangered species reviews, research, and education.

In addition to data agreements produced for public and private entities, the Database Section worked in-house with the Seismic Section on three large-scale seismic and micro-seismic projects occurring throughout the state. These projects were reviewed by the LNHP and comments were submitted to the Seismic Section indicating potential impacts of these projects to SGCN and natural communities.

**PROJECTS**

- The Database Section participated in the Hancock Workshop hosted by the LNHP.
- The Database Section completed the SWG project “Database for Tracking Rare, Threatened, and Endangered Species” (T123).
  - This grant covered database activities over a nine-year period and provided funding for a contractor or technician to manage the backlog of plant, animal, and natural community data collected and housed by the LNHP.
  - The technician or contractor was tasked with organizing and identifying tracked species in previously conducted surveys, determining if the extracted information qualified as a new EOR or an updated record, preparing the data by digitizing polygons in ArcGIS, and entering the information into Biotics.
  - During the grant period the following datasets were updated:
    - Bald Eagle
    - Waterbird Nesting Colonies
    - Piping Plover
    - Pascagoula Map Turtle
    - Ringed Map Turtle
    - Bachman’s Sparrow
    - Red-cockaded Woodpecker
    - Louisiana Pinesnake
    - Freshwater Mussels (16 species)
    - Fishes (14 species)
    - Plants and Natural Communities
  - Over the life of the grant over 5,600 EORs were added or updated in the LNHP database.
- The Database Section completed the SWG project “Inventory of Species and Habitats of Conservation Concern Known to Occur on or Adjacent to State Designated Natural and Scenic Rivers” (T-84).
  - The primary objective of this project was to provide the Scenic Rivers Program better access to the LNHP data for their permitting and project review process.
  - Prior to initiating the main objective, LNHP staff performed quality assurance and quality control measures for all rivers in the Scenic Rivers System.
  - Louisiana’s scenic rivers were originally digitized prior to 2006 using U.S. Geological Survey (USGS) topographic maps and saved in a vector data format. However, significant technological advancements, updated imagery and changes to scenic rivers have occurred over the past 10 years. In order to rectify any changes to the scenic rivers, corrections and adjustments were made in updated ESRI GIS software using the most current imagery available.
  - The LNHP Biotics database was then queried for all SGCN and natural communities occurring within 400 meters of each scenic river.
  - SGCN and natural community records queried from the database were exported to Microsoft Excel files and desktop surveys were conducted to determine the likelihood of SGCN and natural communities persisting within 400 meters of each scenic river.
  - Using current satellite imagery, Biotics data and expert opinion, each element was given a species status.
  - Final tables were created for each scenic river and provided to the Scenic Rivers staff for the permitting and project review process.
- The Database Section completed the SWG project “New Segment: Database for Tracking Rare, Threatened, and Endangered Species” (T124).
The Database Section worked on the 48 - The LNHP worked cooperatively on 19 - The LNHP collaborated with the LDWF Seismic Program reviewing 38 large-scale seismic projects. - The LNHP worked cooperatively on 19 projects with local, state and federal agencies including: - Bureau of Land Management - USFWS - Gulf Coast Joint Venture/USFWS - U.S. Department of Agriculture - Natural Resources Conservation Service (USDA-NRCS) - USDA-NRCS/USFWS - National Oceanic and Atmospheric Administration (NOAA) - LDNR - Louisiana Coastal Protection and Restoration Agency - BREC - The LNHP also provided information for approximately 20 data requests from universities and non-profit organizations including: - Tulane University - University of Louisiana at Lafayette - Nicholls State University - Michigan State University - The Nature Conservancy - NatureServe - The Database Section worked on the SWG project “Rare, Threatened and Endangered Species and Natural Communities Located on Louisiana WMAs and Refuges” (T-108). - The funds provided by this grant are to provide current and reliable information on Louisiana’s threatened and endangered species, SGCN and natural communities within LDWF WMAs and refuges. - An ArcGIS shape file was created with the property boundary for each WMA and refuge. - The database is being queried for all EORs intersecting the property boundary for each WMA and refuge. - A list is then created for each WMA and refuge. The list includes threatened and endangered species, SGCN and natural communities that are known to occur or have the possibility of occurring on the WMA or refuge. - Satellite imagery, Biotics data, online databases such as eBird and FishNet2, and expert opinion are being used in the development of these lists. - TNC Rare Plant Project - Database staff compiled lists of rare plants on Nature Conservancy owned properties throughout Louisiana for Latimore Smith. - Longleaf ARC Project - The Database Section created polygons of areas surveyed for gopher tortoise by Keri Landry. - This ArcGIS data was submitted for the multisate Longleaf ARC Project. - Threatened and Endangered Species Trading Cards - Venise Ortego and Thomas Gresham with LDWF’s Environmental Education section recruited the LNHP to help create threatened and endangered species trading cards for an annual teacher conference. - The LNHP staff proofread and edited the animal trading cards, as well as provided pictures for some of the species. - Providing plant identification services to LDWF staff, natural resource professionals with other organizations, and the public. (171 plant identifications were made for clients during FY 2016-2017.) - Contributing expert knowledge on Louisiana ecology and flora to conservation decision processes including environmental impact review, conservation planning and habitat management.

Most of the work of the Botany/Community Ecology Section is project-based. Currently, eight projects are being successfully carried out, with all but one receiving external grant support. Projects that were the most active during FY 2016-2017 are explained in more detail below.

**BOTANY/COMMUNITY ECOLOGY PROJECTS**

- Botanical and Ecological Surveys on Kisatchie National Forest (Good Neighbor Agreement with USDA) - Ft. Polk New Lands Botanical and Ecological Survey (U.S. Department of Defense/U.S. Army Corps of Engineers) - Natural Areas Registry Program (SWG) - Coastal Prairie Stewardship on White Lake Wetlands Conservation Area (SWG) - Wildlife Habitat Inventory Initiative (SWG) - Coastal Prairie Stewardship in Southwest Louisiana (Environmental Protection Agency’s Gulf of Mexico Program) - Enhancement of Pollinator Habitat on Coastal Prairie Rangelands (Environmental Protection Agency’s Gulf of Mexico Program/USGS) - LDWF HQ Native Plant Gardens

**BOTANICAL AND ECOLOGICAL SURVEY ON KISATCHIE NATIONAL FOREST, KISATCHIE AND CALCASIEU RANGER DISTRICTS**

A cost sharing position between LDWF and U.S. Forest Service was created under the authority of the Good Neighbor Agreement #16-GN-11080600-001 to support a botanist to perform botanical and ecological surveys on Kisatchie National Forest. These surveys target threatened, endangered, sensitive and conservation species, non-native invasive species, and high-quality natural plant...
communities. The surveys aim to document new records and to update previously detected records within focal project areas slated for timber harvests and other habitat management activities. Deliverables include stand-level status update reports within each project area and findings of threatened, endangered, sensitive and conservation species, non-native invasive species, and natural plant communities along with data delineating the location of each target element occurrence.

Currently, the supported botanist has surveyed 5,793 acres for the Sheared Branch Project and 6,483 acres South Bob’s Creek Project, both project areas occurring on Kisatchie Ranger District. Botanical and ecological surveys were also conducted in several other compartments on Kisatchie Ranger District. Occurrences for four plant communities and six threatened, endangered, sensitive and conservation species plant species were identified during the reporting period. One record for a new non-native invasive species was also documented. The statuses of all records are being updated in U.S. Forest Service and LDWF databases.

NATURAL AREAS REGISTRY

Almost 90 percent of Louisiana’s 43,566 square-mile area is privately owned. Therefore, private landowners hold the key to conservation of Louisiana’s native habitats and the animal and plant species they support. Motivated by this fact, the Louisiana Natural Areas Registry was created by an Act of the Louisiana Legislature (Acts 1987, No. 324, §1, eff. July 6, 1987) to establish a program through which landowners of all types may voluntarily agree to protect the natural integrity of their properties, thereby safeguarding the best remaining examples of the state’s natural heritage. Enrollment of properties in the registry involves a voluntary, non-binding agreement between landowners and LDWF. The Natural Areas Registry is coordinated by the LNHP Botany/Community Ecology Section. To date, 126 properties are enrolled in the registry. These properties capture 51,726 acres and are distributed in 37 of Louisiana’s 64 parishes. Thirty-three different natural communities and numerous populations of rare animals and plants are found on Natural Areas.

Responsibilities of LDWF to the Natural Areas Registry include:

1. Assessing habitats on existing Natural Areas and providing information to landowners.
2. Providing technical assistance regarding species and habitat ecology and management to landowners.
3. Directing landowners to funding opportunities to implement habitat stewardship.
4. Implementation of appropriate habitat management.
5. Advocating Natural Areas protection.
6. Modifying agreements and deactivating Natural Areas for various reasons (e.g. ownership changes).
7. Evaluating properties for potential inclusion in the Natural Areas Registry.
8. Enrolling new properties in the Natural Areas Registry.
9. Distributing a regular newsletter (Blue-stem) to registry participants and others interested in Natural Areas.

Funding for the Natural Areas Registry Program was renewed through a SWG grant, which will allow operation of the registry through 2020. A new capability for the registry will be direct implementation of habitat stewardship practices on Natural Areas. Previously, LDWF was limited to assisting landowners secure funding for habitat management elsewhere. A process was devised whereby landowners of enrolled properties may request assistance. The initial intake period began just after this reporting period. The direct stewardship capability will provide another option for landowners to fund habitat management and will increase the conservation impact of the Natural Areas Registry Program.

COASTAL PRAIRIE STEWARDSHIP

Coastal prairie is an extension of tall-grass prairie from the eastern Great Plains. This grassland historically occupied ca. 2 million acres in southwest Louisiana. Because of modern agriculture, only 0.2 percent of this prairie remains intact in Louisiana. The Coastal Prairie Research and Stewardship Initiative began in 2013 following the discovery of new coastal prairie remnants in the Lake Charles area that quadrupled the known acreage of remnant prairie in the Louisiana. Calcasieu and Cameron parishes still feature a considerable amount of grazing lands, in contrast to the prairie region of Acadia, which is practically entirely under rice or sugarcane cultivation. The newly discovered prairie remnants are used as rangeland. While “passive” farming has been carried out on some of this prairie acreage, most of the rangeland prairies have never been plowed.

Relationships between LDWF and three family-owned ranches have strengthened. The goal of these partnerships is to enhance coastal prairie habitat through stewardship and grazing optimization. During FY 2016-
2017, 1,526 acres of remnant coastal prairie where enhanced by prescribed burning conducted by LDWF, with burns led mainly by Botany/Community Ecology staff members. Approximately 20 acres of dense, fireproof brush were mechanically removed to reclaim native grassland on one site. This work was supervised by Botany/Ecology staff members and was carried out using a vendor, with funding coming from a federal grant to improve pollinator habitat. Additional mechanical and chemical brush control is planned for next fiscal year.

LDWF HQ NATIVE PLANT GARDENS
In fall 2014 LDWF redesigned the landscaping at its headquarters in Baton Rouge by installing native plants distributed among seven ecological themes. This transformation was motivated by the desire for LDWF’s landscaping to be as natural as possible, providing a diverse “ecosystem” for insects, including pollinators, birds and other wildlife. The landscaping showcases a diverse and attractive assemblage of native plants. During this reporting period, staff members of Botany/Community Ecology Section developed educational signage, which will be installed next fiscal year. Botanists also continued adding plant materials and supervised the maintenance of the Gardens. Currently over 160 native plant species are represented.

TRAINING COMPLETED BY BOTANY/COMMUNITY ECOLOGY STAFF

ZOOLOGY SECTION: Endangered Species, Reptile & Amphibian Program, Nongame Bird Program & Permits Coordination, and Marine Mammal & Sea Turtle Stranding & Response Program
LNHP administered federal aid grants for SGCN through the Endangered Species Act Section 6 Program, Multi-state SWG, and Louisiana’s SWG Program. Section 6 projects included the following species: Louisiana pearlshell mussel, Louisiana pinesnake, gopher tortoise and black rail, as well as endangered species coordination. Section 6 Cooperative Agreements were renewed between LDWF, USFWS and NOAA. Section 6 funds allowed staff to work on a multitude of rare, threatened and endangered species issues including:
- SEAFWA Wildlife Diversity Committee to address at risk species in the southeast.
- Continued partnership with USFWS and USDA-NRCS on Endangered Species Act coordination.
- Prescribed burning of public and private properties.
- White-nose syndrome surveillance, coordination, and response planning.
- Louisiana pinesnake detection using camera traps.
- Collaborating with state and federal wildlife agencies to assess the status of the northern long-eared bat range-wide.
- Coordination with USFWS Law Enforcement staff for assessment of illegal trapping/possession of map turtles and gopher tortoises.
- Coordination with Stennis Space Center and Savannah River Ecology Lab staff for field status assessment of nesting beaches and map turtle populations along the West Pearl River.
- Participation on the Dusky Gopher Frog Recovery Team.
- Collection and preservation of petitioned crawfish DNA for genetic studies
- Gopher tortoise population assess-
The manatee-sighting database was
Louisiana pinesnake research and
Louisiana pearlshell mussel conserva-
Louisiana pearlshell mussel population
trends, long-term monitoring protocol,
and data management.

The manatee-sighting database was
maintained and staff responded to stressed/dead manatees when re-
ported.

ONGOING STATE WILDLIFE GRANT PROJECTS
Zoological projects funded through SWG included:

- Monitoring Avian Productivity and
Survivorship Program
- Winter Bird Atlas
- Rusty Blackbird Surveys
- Breeding Bird Surveys
- Calcasieu Painted Crawfish Surveys
- Winter Ploaver Surveys
- Secretive Marsh Bird Callback Surveys
- Christmas Bird Counts
- Bald Eagle Nesting Surveys
- Aerial Surveys for Colonial Nesting
Waterbirds
- Beach-nesting Bird Surveys
- Distribution, Abundance, Nesting
and Movements of Reddish Egrets in
Louisiana
- Multi-state Sandhills/Upland Longleaf
Restoration Project
- Alligator Snapping Turtle Headstart
Program
- Rare Amphibian and Reptile (SGCN)
Surveys

GOPHER TORTOISE
LNHP continues to collaborate with state and
federal agencies within Louisiana and region-
wide on the Gopher Tortoise Range-Wide
Conservation Strategy to prioritize threats to
the species and implement action items. The
LNHP endangered species biologist is con-
tinuing to work on updating existing records
and surveying new properties. Several private
properties near Sandy Hollow WMA were
surveyed to assess tortoise populations and
habitat conditions and no tortoises were docu-
mented. Approximately 50 acres of managed
longleaf pine on Lee Memorial Forest were
surveyed, and three additional tortoises were
found with a burrow camera. Suitable habitat
on approximately 100 acres of post-burned
longleaf at Sandy Hollow WMA was surveyed
and seven tortoises were observed using a
burrow camera. More surveying will be con-
ducted soon after properties are burned to in-
crease visibility of burrows. LNHP will continue
to build a partnership with private landowners
to survey new properties and assist with habi-
tat restoration efforts to increase the amount
of quality habitat for tortoises. The LNHP en-
dangered species biologist is very active in
developing partnerships with private industry
and participation on multi-state committees
pertaining to gopher tortoise management,
research and conservation including participi-
ating with other state, federal and private
partners on the Gopher Tortoise Minimum Vi-
able Population Working Group to discuss and
determine how many minimum viable popul-
ations are needed in each state and range wide
to ensure the long term viability of the species.

A field meeting took place during February
2017 with Weyerhaeuser regional and local
staff to discuss the importance of open canopy
forests and habitat restoration activities on
Ben’s Creek property for tortoises and upland
game birds. Weyerhaeuser is interested in
collaborating with LDWF to conduct habitat
restoration activities that are beneficial for
these species. A graduate student with Mis-
issippi State University is currently assess-
ing gopher tortoise response, and movement
in intensively managed upland pine on Ben’s
Creek property. A field site visit at Sandy Hol-
low WMA was also conducted in coordination
with USFWS and USDA-NRCS staff to discuss
partnership opportunities for gopher tortoise
conservation and the Working Lands for Wild-
life Program. LNHP will continue to work with
private landowners interested in prescribed
burning within the gopher tortoise range in
Louisiana through various funding sources.
LNHP is also working in coordination with the
LDWF Wildlife Division staff to prioritize and
implement habitat restoration on Sandy Hol-
low WMA to provide optimal habitat for tor-
toises, bobwhite quail and wild turkey. LNHP
has successfully spent all allocated funds pro-
vided by Phase 3 of the Multi-state Sandhills/
Upland Pine Restoration Grant on prescribed
burning of nine private properties surrounding
Sandy Hollow WMA and is coordinating with
other private landowners for upcoming habi-
tat restoration opportunities.

LNHP continues to work with other states in
the gopher tortoise’s range as part of a “waif”
tortoise working group to increase education
and outreach to the public on the importance
of not removing gopher tortoises from their
natural habitat and notifying LDWF if they are
found outside of their natural range. LNHP re-
ceived five waif tortoises during the past fiscal
year. Three of these tortoises (two females,
one male) were released on the north tract of
Sandy Hollow in an existing release pen. One
female waif tortoise was found completely
blind and another female required a rear leg
amputation and once fully recovered will be
released in the spring of 2018. The LNHP en-
dangered species biologist attended a meet-
ing with state and federal partners at Percy
Quinn State Park in Mississippi to discuss waif
tortoise disease processing, hatching success,
research and habitat restoration opportuni-
ties. Health assessments were performed by
the LSU School of Veterinary Medicine
Wildlife Hospital for all five of the tortoises.
Land acquisition and restoration is still being
explored and is critical to the conservation of
gopher tortoises in Louisiana to create a long-
term viable population.

LOUISIANA PINESNAKE
The Louisiana pinesnake (Pituophis ruthveni)
has been proposed as threatened on the
federal list of threatened and endangered
species. The service will submit a final listing
determination to the Federal Register on or
before April 6, 2018. The decline of this spe-
cies is largely due to habitat destruction and
fire suppression. The majority of these snakes
reside on industrial forestlands, and LNHP
has been actively working with the timber in-
dustry to increase habitat quality by facilitat-
ing controlled burning through various grant
programs. LNHP has been working with our
federal partners to develop a programmatic
Candidate Conservation Agreement with
Assurances. This Candidate Conservation
Agreement with Assurances will promote wa-
rest management practices that bolster the
pinesnake populations and are compatible
with timber harvest/production. Private enti-
ties that meet the requirements of the Can-
didate Conservation Agreement with Assur-
cances can enter into a Certificate of Inclusion
with LDWF for the pinesnake. This program
will increase quality habitat, as well as protect
private landowners from future regulations in
the event the species was to become listed.
A total of six Louisiana pinesnakes (four females, two males) were caught over 4,285 trap nights in FY 2016-2017, resulting in a catch per unit effort of 714 trap nights per snake. A new site was selected for trapping, Hodges Garden Foundation; this area contains suitable habitat in the Louisiana pinesnake range. No pinesnakes were detected at this site, but the area is relatively close to Peason Ridge, a site that currently has a pinesnake population.

Below are several federally funded research projects that are underway aimed at providing information needed for population monitoring and recovery:

- Use of camera traps to detect Louisiana pinesnake
- Louisiana pinesnake radio telemetry study Louisiana pinesnake habitat preferences
- Louisiana pinesnake food habits
- Louisiana pinesnake reintroduction feasibility

**ALLIGATOR SNAPPING TURTLE**

The alligator snapping turtle (*Macrochelys temminckii*) has experienced significant population declines throughout its range due to multiple factors, including harvest pressures (Sloan and Lovich 1995). The alligator snapping turtle is listed as vulnerable by the International Union for Conservation of Nature and is listed under Appendix III of CITES (CITES 2006, IUCN 2007). It is an SGCN (S3) in the state of Louisiana, and is listed as an SGCN in the WAP (Holcomb et al. 2015). A determination of whether or not to list the alligator snapping turtle as threatened under the Endangered Species Act is scheduled for 2020 by USFWS. Efforts are currently underway in Louisiana to gather sufficient data to preclude the need to list the alligator snapping turtle under the Endangered Species Act.

Since 2012, LDWF has operated a headstart facility for alligator snapping turtles at the Monroe hatchery facility. The purpose of this facility is to ensure a reliable source of turtles for release to supplement populations in the wild. By headstarting these animals in captivity, survival rates should increase significantly from the low rates (2.4-21.9 percent) estimated for hatchlings in a north Louisiana study (Bass 2007), as the headstarted animals will be too large for many potential predators. Release locations are determined from data generated from one recently completed (T-106) and one ongoing (T-305) SWG. The objectives of the alligator snapping turtle project are to headstart hatching alligator snapping turtles at the Monroe Fish Hatchery for three years per cohort, with the goal of providing a minimum of 50 turtles for release each year beginning in the fall of 2015, collect growth data for a subset of turtles per cohort, and conduct food preference studies to maximize production of headstarted turtles. Temperature preferences, health analysis, telemetry studies and survival rate studies are also conducted as part of the program to provide insight on ways to improved captive rearing success. The supplementation of depleted wild populations within the state will hopefully offset the apparent lack of natural recruitment. This project will also provide life-history data for the review of alligator snapping turtles as an endangered species by USFWS potentially helping to provide insight on ways to improved captive rearing success. The supplementation of depleted wild populations within the state will hopefully offset the apparent lack of natural recruitment. This project will also provide life-history data for the review of alligator snapping turtles as an endangered species by USFWS potentially helping to preclude the need to list the alligator snapping turtle under the Endangered Species Act.

The alligator snapping turtle headstart program has taken in four different cohorts, and 117 alligator snapping turtles have been released into the wild since the programs establishment. In March 2016, heavy flooding led to the complete inundation of the Monroe hatchery facility causing the fences of the alligator snapping turtle’s pond to be overtopped. Despite floodwaters joining Black Bayou and Bayou Desiard to all of the hatchery ponds, an intense recovery effort lead to 90 of those alligator snapping turtles being recaptured and subsequently released into southwest Louisiana. There are currently 20 released individuals who are being tracked via radio telemetry by LNHP staff. Ten of these individuals are located in the Calcasieu river near Sam Houston Jones State Park, five in Jones Brake and five in Horseshoe Lake, near Columbia, La. Transmitter failure has caused a decline in tracking data for the Calcasieu river turtles; however, monthly tracking data is being collected for the remaining 10 turtles.

**RINGED MAP TURTLE**

LNHP in partnership with biologists from the Savannah River Ecology Lab in Georgia and the Stennis Space Center in Mississippi assessed the status of nesting beaches on the East Pearl River. Invasive tree control was conducted on a frequently used nesting beach to set back encroachment temporarily. Twelve cameras were deployed on various natural and man-made sandbars during the 2016 nesting season. Five of these cameras were set on natural sandbars along Pearl River WMA. A total of 99 nesting turtles were observed with ringed map turtles to be the most abundant followed by softshell turtles. Crows and raccoons were the most abundant nest...
predators. Efforts to control nest predators and encroachment of invasives along these sandbars will be coordinated with partners. LNHP also coordinated assistance and logistics and led a field tour on the West Pearl River for the Turtle Survival Alliance Meeting.

**DIAMONDBACK TERRAPIN**
LNHP coordinated with NOAA, LDWF Fisheries staff and environmental contractors for collection of diamondback terrapin nests found during a barrier island restoration project on Chenier Ronquille during August 2016. Nests were marked and 31 eggs were incubated. Of those, 22 hatchlings were reared in raceways mimicking natural features until release in FY 2017-2018.

**AMPHIBIAN AND REPTILE PROGRAM ACTIVITIES**
The following amphibian and reptile program activities were completed during FY 2016-2017:
- Review of Law Enforcement Management Information System data on turtle export numbers.
- Meeting with Representative Stephen Pugh on the effect of razorback musk turtle closure on trappers.
- Compilation of historic collection records for snapping, mud, musk and chicken turtles.
- Composition of a written response to the Center for Biological Diversity regarding the turtle ban petition.
- Coordination with Terrebonne Parish fishermen and US-FWS on terrapin CITES issues (non-detriment finding).
- Review of proposed Turtle Farm Legislation for Louisiana Department of Agriculture and Forestry.
- Reviewed Louisiana Environmental Education Commission proposals.
- Restricted snake permits – issued 96.

**Publications**


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**TABLE 3.** *Species of Greatest Conservation Need are in bold font*

<table>
<thead>
<tr>
<th>Species Observed</th>
<th># Observed</th>
<th>Species Observed</th>
<th># Observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Necturus bayeri</td>
<td>4</td>
<td>Sternotherus odoratus</td>
<td>28</td>
</tr>
<tr>
<td>Amphiuma tridactylum</td>
<td>2</td>
<td>Pseudemys concinna</td>
<td>14</td>
</tr>
<tr>
<td>Ambystoma maculatum</td>
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<td>Terrapene carolina</td>
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<td>Trachemys scripta</td>
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<td>Ambystoma talpoideum</td>
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<td>Apalone spinifera</td>
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<tr>
<td>Desmognathus conanti</td>
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<td>Anolis carolinensis</td>
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NONGAME BIRD PROGRAM AND PERMITS COORDINATION

The Nongame Bird Section, currently consisting of one full-time biologist, is responsible for directing research, monitoring and conservation needs of all nongame birds in our state, as well as providing peer-review for scientific and layman products. Louisiana's diverse avifauna - more than 475 species in total - includes more than 400 nongame species. The bulk of the Nongame Ornithologist's job is coordinating or participating in scaled-down monitoring that feeds into regional, national or international datasets. Surveys include USGS Breeding Bird Surveys, Christmas Bird Counts, International Piping Plover Censuses, Secretive Marsh Bird Callback Surveys, Waterbird Nesting Colony Surveys, Bald Eagle Nesting Surveys, the Institute for Bird Populations' Monitoring Avian Productivity and Survivorship Program, Bird Studies Canada Motus Wildlife Tracking System Network, and others. Geographically expansive and long-term bird projects, crucial for the conservation and management of these species, have benefitted greatly from LDWF's financial commitment to nongame birds and have been matched by generous support from the Louisiana Wildlife and Fisheries Foundation, ConocoPhillips, and federal aid grant opportunities such as Section 6 funds and the SWG program. In fact, SWGs have contributed, in part, to the majority of the projects above; and with such funding, >80 percent of USGS Breeding Bird Survey routes in Louisiana were assigned to active observers in the 2017 season. LNHP biologists documented many rare birds, which were submitted for verification and inclusion into datasets including eBird, thereby contributing to the ever-evolving understanding of bird status and distribution in Louisiana. Highlights during this period included a masked booby, several white-tailed kites, a common goldeneye, a western tanager, a shiny cowbird, and a plethora of out-of-season records. During Christmas Bird Counts, LNHP biologists observed state-rare crested caracaras (20 individuals), sandhill cranes (>400 individuals) and more than 40,000 snow geese. LDWF's White Lake Wetlands Conservation Area Christmas Bird Counts was attended by 12 surveys, who tallied more than 170,000 birds of more than 130 species. These and results from other Christmas Bird Counts in the region continue to highlight the critical need of preserving rice cultivation and culture for both the human and bird communities of the region.

During FY 2016-2017, LDWF biologists received critical training on cannon net usage to capture red knots and sanderlings, as well as how to safely instrument birds with geolocators and nanotags by David Newstead (Coastal Bend Bays and Estuaries Program). LNHP biologists also contributed to partner projects including the aforementioned capture of knots and sanderlings (to assist Canadian researchers), the movements of yellow rails in rice country (LSU and Audubon Louisiana), and partnered with the Louisiana Wildlife and Fisheries Foundation, BTNEP, USFWS, and ConocoPhillips on the LNHP flagship VHF Receiver Station Network project.

FIELD WORK

Eleven herpetofaunal surveys were conducted on private lands, seven surveys on BREC park properties, five on federal lands, 11 on WMAs/LDWF sites, two surveys on LSU lands, two in miscellaneous public lands, and five in state parks. A total of 254 incidental surveys and observations were made. Observed were 76 species (50 percent of the species in the state) and 1,675 individual amphibians and reptiles (Table 3).

WEST INDIAN MANATEE

LNHP endangered species biologist coordinated with USGS, USFWS, Florida Fish and Wildlife Conservation Commission, Alabama Department of Natural Resources, Dauphin Island Sea Lab, Audubon Zoo, and Texas Parks and Wildlife staff for information exchange on manatee sightings across the range, especially during the cold weather season. Manatees reported traveling through Louisiana, citizen concerns and location of warm water sources were assessed. LNHP endangered species biologist assessed one dead manatee during January 2017 near Pointe-Aux-Chenes WMA with the assistance of WMA staff. A complete field necropsy was conducted and determined that the animal died of cold stress. LNHP endangered species biologist continues to document sightings and update the database; five sightings total for the current reporting period (two in St. Tammany Parish [adult and juvenile], one adult in Cameron Parish, one adult in Terrebonne Parish, and one adult in St. Mary Parish). Staff responded to manatee sightings in Terrebonne and St. Mary parishes with reports of animals possibly being injured.

STATEWIDE PASSIVE DETECTION FOR ORGANISMAL RESEARCH (SPDOR) VHF NETWORK

Initially funded by the Louisiana Wildlife and Fisheries Foundation, BTNEP, and LDWF's Rockefeller Trust, the Statewide Passive Detection for Organismal Research VHF Network entered its second year with a significant contribution from ConocoPhillips. This passive network will facilitate radio tracking of hundreds of organisms at once provided those organisms are 1.) fitted with nanotags (tiny, coded radio tags) and 2.) move through the approximately 9-mile detection radius of at least one receiver station. The potential for such a network of stations to contribute to our current knowledge level of SGCN is substantial and is identified as a strategy for the conservation of landbirds in the Louisiana WAP (Holcomb et al. 2015). In addition, this network contributes to the projects of countless other scientists currently utilizing Bird Studies Canada Motus Wildlife Tracking System. In fact, our coastal network of receiver stations have detected more than 80 individual research birds of at least 10 species including red knot (federally threatened), sanderling, semipalmated sandpiper, Wilson's plover, least tern, yellow rail, red-eyed vireo, grey-cheeked thrush, Swainson’s thrush, and wood thrush; the gray-cheeked and Swainson’s thrushes were instrumented with nanotags on their wintering grounds in Colombion. Clearly, this work has almost limitless potential for collaborating with other agencies, industry, nonprofits, academia, and others from across the Western Hemisphere. As of June 2017, the Statewide Passive Detection for Organismal Research Network stations were active at the Grand Isle Marine Lab Facility, Pointe-Aux-Chenes WMA, Pass-A-Loutre WMA, Sabine National Wildlife Refuge,
Rockefeller Wildlife Refuge East and West, and Baton Rouge Audubon Society’s Peveto Woods Sanctuary in Cameron Parish, with additional BTNEP receiver stations at East Timbalier Island, Port Fourchon, Grand Isle and East Grand Terre Island. Thanks to the generous conservation grant from ConocoPhillips, we will be able to install a total of 30 or more VHF receiver stations by the summer of 2018, effectively creating a digital net encompassing Louisiana’s entire coastline.

**NONGAME AVIAN CONSULTATIONS**

In addition to field data collection and compilation, the Nongame Bird Section provides reviews, comments and data to various entities including USFWS, Joint Ventures, Landscape Conservation Cooperatives, species- or guild-specific working groups, environmental consultants, the public, and others. As the nongame bird technical representative for LDWF, the Nongame Ornithologist provides official comments on Federal Registry notices concerning nongame birds to the Mississippi Flyway Council. Staff reviewed and provided comments on the Gulf Coast Joint Venture’s landbird science needs and ranked project proposal submissions by their benefit to landbirds. Comments and edits on a shorebird management plan were provided to the Lower Mississippi Valley Joint Venture. The Nongame Bird Section also provided helpful suggestions to USFWS for consideration during the drafting of their new five-year plan for the Migratory Bird Program. LNHP staff and Gulf-wide partners continued the development of the Gulf of Mexico Avian Monitoring Network during this period; this collaborative, comprehensive network of federal, state, academic and non-governmental organization partners, undoubtedly, will be a major driving force in bird monitoring and research in our region in the coming years, and representation by LNHP on such committees ensures that Louisiana’s needs are well articulated and met.

As the state’s bird expert, the Nongame Ornithologist peer-reviewed several internal and external bird manuscripts and proposals and coauthored a manuscript (in review) about Louisiana coastal bird populations. Letters of Collaboration, of Commitment, of Support, of Commendation, or of Recommendation were also provided to colleagues as needed. The Nongame Bird Section continued to provide consultation to LDWF on all bird matters pertaining to the 2010 Deepwater Horizon oil spill and recovery and restoration. In addition, bird expertise is utilized frequently during the construction permit application process; the Nongame Ornithologist provides guidelines to minimize the effects of such projects to bird SGCN and, during this period, created a table of bird SGCN “safe dates” for construction companies and consulting firms to facilitate this decrease in disturbance.

**SCIENTIFIC RESEARCH AND COLLECTING PERMITS AND OTHER PERMITS**

Scientific Research and Collecting Permits, Eagle Nest Take Permits and Interstate Bird Travel Permits are also housed within the Nongame Bird Section, and issuance is the responsibility of the Nongame Ornithologist after consultation with specialized zoologists. Scientific Research and Collecting Permits are utilized by many researchers from bird banders to mussel surveyors. During FY 2016-2017, 93 Scientific Research and Collecting Permits were issued to academic institutions, museums, consultants, private individuals and others. Interstate Bird Travel Permits are issued to those bringing wild (otherwise, protected, migratory) birds into the state for educational demonstrations; one such permit letter was issued during this period. Eagle Nest Take Permits are issued on very rare occasions - when nests are in dangerous locations for birds or the public - and the removal must be mitigated. No permit was issued for eagle nest take this period.
The LDWF Marine Mammal and Sea Turtle Stranding and Rescue Program is the lead marine mammal and sea turtle stranding and rescue response organization in Louisiana. The program continues to receive and investigate all reports of live and dead marine mammals and sea turtles. LDWF biologists work closely with our federal counterparts and staff at NOAA - National Marine Fisheries Service (NMFS) and USFWS to investigate the cause of strandings and deaths, following established protocols for consistency in data collection to provide standard and accurate data. During FY 2016-2017, all sea turtle carcasses were recovered for a necropsy to be performed. Where logistically possible and appropriate, marine mammal carcasses are also recovered for necropsies or are necropsied in the field. LDWF works with the LSU School of Veterinary Medicine: Louisiana Animal Disease Diagnostics Laboratory to utilize their BSL-3 Laboratory to perform necropsies on marine mammals, and many necropsies have been performed utilizing this state of the art facility. In August 2016, LDWF hosted the NOAA Sea Turtle Veterinarian at LSU to conduct the first sea turtle necropsy training session in the state. LDWF staff from field offices across the coast, as well as representatives from the LSU School of Veterinary Medicine, participated in the classroom- and lab-based training.

Between July 1, 2016 and June 30, 2017, 57 marine mammal strandings (including a live dolphin and a live sperm whale), and 50 sea turtle strandings (including a live Kemp’s Ridley which was incidentally captured, and a live hatching recovered from a beach following a storm), have been covered. Marine mammal species included common bottlenose dolphins (Tursiops truncatus), pygmy sperm whale (Kogia breviceps), melonheaded whale (Peponocephala electra) and sperm whales (Physeter macrocephalus).

Necropsies led by LDWF Veterinarians, Dr. Rusty Berry and Dr. Jim LaCour and other seasonal stranding responders, are performed to train and increase staff knowledge. Necropsy Training Sessions occurred while performing marine mammal necropsies at LSU in October 2016, April 2017 and May 2017. In these instances, LDWF biologists from field offices participate in training necropsy experiences at the LSU facility. Over the past several years, there have been a few different versions of the Neonatal Characteristics Datasheets that have been circulated for use. LDWF took the opportunity to combine the different versions and develop a datasheet for LDWF utilization, which was adapted from the original versions from the University of North Carolina at Wilmington Marine Mammal Stranding Program. The April 5, 2017 necropsy training session included representatives from the Office of Fisheries, Marine Fisheries Coastal Study Area Offices from across the coast of Louisiana and was focused on neonate necropsy and data gathering training. LDWF Veterinarian Dr. Berry and stranding staff went through a carcass and the adapted Neonatal Characteristics Datasheet and then attendees went through other carcasses on their own in breakout groups to go through the data collections and documentation. LDWF will continue to train additional staff on necropsy and sample collection protocols as outlined in the revised Northern Gulf of Mexico Post UME Sample Collection Checklist and with the adapted version of the Neonatal Characteristics Datasheet.

LDWF will continue to train additional staff on necropsy and sample collection protocols as outlined in the revised Northern Gulf of Mexico Post Unusual Mortality Event Sample Collection Checklist. Many marine mammals responded to along the coast of Louisiana are severely decomposed due to the extreme temperatures and environment found here. If a carcass is severely decomposed, a full necropsy cannot be conducted, but an internal examination or field sampling according to protocols is followed. LDWF staff conducted a total of two further internal exams or assessments during this period, as well as a further assessment of skeletal remains with markings of human interaction. A total of 30 necropsies were performed during FY 2016-2017.

In January 2017, a special 2010 Deepwater Horizon oil spill incident issue was released in the scientific journal *Endangered Species Research* (www.int-res.com/abstracts/ess/v33/). This special issue focused on marine mammals, sea turtles, and impacts and monitoring efforts associated with these species in response to the oil spill. Several articles in this issue include samples and work that the State of Louisiana, in particular the efforts of the LDWF Marine Mammal and Sea Turtle Stranding and Rescue Program, contributed via strandings from Louisiana.

LDWF plays a vital role in protecting marine mammals and sea turtles that inhabit the waters of Louisiana. These efforts are critical to monitoring marine mammals and sea turtles and mortalities along the Louisiana coast. LDWF will continue to work with research partners such as USGS, NOAA, USFWS and others to gather additional scientific data to monitor, protect, and conserve marine mammals and sea turtles in Louisiana.

**MARINE MAMMAL AND SEA TURTLE PROJECTS**

**Live Sea Turtle Captures**
Louisiana nearshore habitat provides resources necessary to foraging sea turtles; however, little is known regarding sea turtles off the coast of Louisiana. Determining distribution, seasonal movements, growth rates and habitat use for all life stages of marine turtles has been identified by the USFWS and the NOAA-NMFS as a major action required to achieve recovery for these endangered species. Since December 2014, LDWF has collaborated with researchers from USGS to initiate a long-term mark-recapture survey of live sea turtles in Louisiana. In FY 2016-2017, LDWF assisted with live sea turtle capture efforts in May 2016, December 2016 and May 2017. A total of 101 individual sea turtles were captured, including 99 green sea turtles and one sub-adult loggerhead sea turtle. Sea turtles are captured (NMFS Permit Number 17307-03) and temporarily held for sample analysis.
collection including skin biopsies, a carapace biopsy and blood samples. Additionally, all turtles captured are scanned to determine if any tags exist. 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. LDWF staff will continue to work with fellow sea turtle researchers at USGS. With limited data available for these species found along the coast of Louisiana, it is vitally important to invest in efforts to evaluate the numbers of sea turtles by species and the areas they may be found at certain life stages in order to fill data gaps and adopt protective measures to preserve these imperiled species.

Barataria Bay Dolphin Projects
In July 2016, live dolphin health assessments focusing on reproductive health of dolphins in Barataria Bay were performed. As part of a Gulf of Mexico Research Initiative funded project, LDWF collaborated with the National Marine Mammal Foundation and NOAA for this project. Dolphins were captured and temporarily restrained for a suite of health parameters to be recorded and received an ultrasound. Female dolphins were assessed via ultrasound to determine if they were pregnant or not, and if they were pregnant, the ultrasound was utilized to determine expected due dates for the fetus. These individuals were outfitted with a satellite linked tracking tag attached to the dorsal fin to determine which areas of the bay they primarily utilized in order to relocate them in the future. Reproductive Outcomes Surveys were performed by LDWF and NOAA staff in April, May and June 2017 in order to determine if the pregnancy was successful or not. Staff attempted to relocate these individuals after their expected due date to see if they were observed with a neonate dolphin to confirm if the pregnancy was successful.

Live dolphin health assessments were performed in Barataria Bay in June 2017 as assessment work associated with the proposed Mid-Barataria Bay Sediment Diversions. LDWF hosted collaborating researchers from across the county attempting to attach satellite tags to dorsal fins of dolphins located in mid-northern Barataria Bay. A total of 13 dolphins were captured through these efforts and were released with satellite tags that were deployed for monitoring of these animals. Field work such as these efforts provide further networking opportunities for our staff with experts from across the country and world, as well as provide hands-on live dolphin handling experience that simply cannot be overlooked.

Publications

TRAINING COMPLETED BY MARINE MAMMAL AND SEA TURTLE STAFF
- Human Interaction Training Workshop
- National Marine Animal Health and Stranding Response Conference
- NOAA field dolphin photo identification and fecundity surveys training in Barataria Bay
- NOAA-NMFS Live Dolphin Health Assessment Captures and Tracking Training
- Live Sea Turtle Captures, Blood Draws, Sampling, Processing, Tagging Training
- Sea Turtle Satellite Tag Attachment and Preparation Training
- Department of Transportation, International Maritime Organization Dangerous Goods and Biological Substances Shipment Training
- Sea Turtle Necropsy Procedures and Sample Collection
- Advanced Sea Turtle Necropsy Training Session

LNHP SCIENTIFIC CONFERENCE PRESENTATIONS
Louisiana Pinesnake Reintroduction Efforts. Southeast Partners for Reptile and Amphibian Conservation annual meeting, Nauvoo, AL, February 2016

Comparing Traditional and Novel Genetic Surveillance for White-nose Syndrome across Louisiana Bats. Poster. Texas Academy of Science annual meeting, Belton, TX, March 4, 2017

Health Assessment of captive-raised alligator snapping turtles (Macrochelys temminckii) in a conservation initiative in Louisiana, USA: Poster. LDWF Wildlife Symposium, Baton Rouge, LA, May 2016

A Programmatic Candidate Conservation Agreement with Assurances for the Louisiana Pinesnake. Louisiana Pinesnake Stakeholders annual meeting, Nacogdoches, TX, August 2016

Captive Rearing and the Subsequent Release of Alligator Snapping Turtles (Macrochelys temminckii) into Louisiana Waterways: The Alligator Snapping Turtle Headstart Program. Poster. SEAFWA 70th annual conference, October 2016

Louisiana’s Gopher Tortoise Conservation Efforts. SEAFWA 70th annual conference, October 2016

Nesting Activity and Productivity of Louisiana’s Bald Eagles. SEAFWA 70th annual conference, October 2016

OIL SPILL PROGRAM

Program Manager - Jon J. Wiebe
Program Assessment Lead - Steven Pearson, PhD
Program Response Lead - Laura Carver
Program Cost Documentation Lead - Wynona Russ
Response Biologist - Matthew Hollis
Response Biologist - Casey Wright

OVERVIEW

LDWF's Oil Spill Program documents and evaluates biological and ecological impacts associated with oil spills throughout Louisiana (Figure 1). The program continues to improve upon existing programmatic strengths as well as support development of novel means to characterize oil spill injury (short and long-term), essential tools in support of future restoration of the state’s natural resources. These efforts continue to be fortified through strong collaborations with a variety of LDWF programs as well as federal and state Natural Resource Trustee agencies. Further, the program is the Office of Wildlife’s principal 2010 Deepwater Horizon oil spill representative responsible for the restoration of impacted wildlife species and the habitats they rely upon; a process being accomplished within the Louisiana Technical Implementation Group.

RESPONSE

LDWF’s Oil Spill Program monitors and responds to reports of oil spills throughout Louisiana. During FY 2016-2017, our program received 9,371 oil spill reports from the principal reporting agencies, National Response Center and Louisiana State Police. These reports encompass a broad array of potential situations where volume reported may not be indicative of the overall resource injury. Program personnel carefully reviewed each of these reports so as to assess potential impacts to the state’s wildlife and sensitive habitats.

Of these spill reports, LDWF’s Oil Spill Program performed 49 site investigations based on available information and risk to natural resources. Many of these spills required multiple site visits over several months to ensure complete injury documentation and cleanup oversight. Personnel led by Program Response Lead Laura Carver performed regimented evaluations of injury to wildlife and associated habitats. Carver’s expertise in all aspects of spill response remains a critical component within our program’s ability to safely and properly document wildlife and habitat injuries. When encountered, personnel documented and recovered live, oiled wildlife for rehabilitation and subsequent release as well as wildlife killed during the incident. Of note, several spills required extensive assistance from select LDWF Office of Wildlife (Coastal and Nongame Resources and Wildlife Divisions) and Office of Fisheries personnel that received and/or maintain HAZWOPER certification, the nationally recognized spill response training requirement in order to access and work within spill locations.

REPRESENTATIVE SPILLS (FY 2016-2017)

- LSP#16-02720/ Arcadia/ Memorial Resources: This Incident was initially reported on 07/03/2016 by Memorial Resources as a release of 180bbls of condensate (Location: Arcadia, La., Bienville Parish). NOTE: LSP report was not received until 07/05/2016.
- NRC#1154344/ Lake Washington/ Hilcorp: This Incident was reported on 07/25/2016 by Hilcorp as a release of an unknown amount of crude oil (Location: Lake Washington, La., Plaquemines Parish). Initial U.S. Coast Guard overflight sheening and dark pockets of crude oil over an 8 square mile area (shallow water bay and Spartina marsh) with initial release estimates listed at 100bbls of crude oil.
- NRC#1154608/ South Pass 24/ TPIC: This Incident was reported on 07/27/2016 by TPIC as a release of an unknown quantity of oil into adjacent marsh (Location: South Pass, Plaquemines Parish).
- NRC#1155080/ Main Pass Well #24/ TPIC: This Incident was reported on 08/02/2016 by TPIC as the release of ~100bbls of crude oil (later revised to ~50bbls) (Location: Main Pass, Plaquemines Parish).
- NRC#1157422/ Gibson/ Magellan Midstream: This incident was reported on 08/26/2016 by Magellan Midstream as the release of ~200bbls of crude oil into a road side ditch and land adjacent to their oil storage tank. (Location: Gibson, La., Terrebonne Parish).

FIGURE 1. Geographic representation of Oil Spill Program Response and NRDA Assessment Activities for FY 2016-2017 (yellow pins are response activities and blue pins are assessment activities).
This Incident was initially reported on 09/05/2016 by Harvest Pipeline as the release of ~125bbls of crude oil from one of their pipelines. (Location: Vicinity of Chenier Ronquille and Bay Long, Plaquemines Parish). Spill occurred within the construction of a Deepwater Horizon Early Restoration project.

NRC#1161033/ Callou Island/ Hilcorp: This Incident was initially reported on 10/08/2016 by Hilcorp as a release of ~300bbls of crude oil due to suspected valve failure on one of their tank platforms (Location: Timbalier Island, Terrebonne Bay).

LSP#16-04869/ Gueydan/ White Oak Operating: This Incident was reported on 11/15/2016 by White Oak Operating a release of ~20-25bbls of crude oil (Location: Gueydan, La., Vermilion Parish).

NRC#1168799/ Lapereouye Field/ S2 Energy: This Incident was initially reported on 01/17/2017 by S2 Energy as the release of ~1bbl of crude (later revised to 11bbls) (Location: Chauvin, La., Terrebonne Parish).

LSP#17-00467/ Bayou Chocatw/ Metairie Energy: This Incident was reported on 01/30/2017 by Metarie Energy as a release of an “unknown amount of hydrocarbons” (Location: Bayou Chocatw, West Baton Rouge Parish). NOTE: The release occurred on 08/15/2016 (over five months from the initial reporting date) during a flood event.

LSP#17-00765/ Shreveport/ Atheon Energy: This Incident was initially reported on 02/17/2017 by Atheon Energy as a release of 40bbls of condensate (Location: Shreveport, La., Caddo Parish).

LSP#17-00990/ Vivian/ Caruther’s Producing: This Incident was reported on 03/02/17 by Caruther’s Producing as the release of ~50bbls of salt water and ~20bbls of crude oil from a storage tank (Location: Vivian, La., Caddo Parish).

NRC#1173182/ Jeanerette/ Gulf Producing: This Incident was reported on 03/13/2017 by Gulf Producing as the release of ~22bbls of crude oil (Location: Jeanerette, La., Iberia, Parish).

LSP#17-01434/ Ramah/ Petro-Hunt LLC: This Incident was initially reported on 03/29/2017 by Petro-Hunt LLC as the release of 10bbls of crude oil from their facility (Location: south of Ramah, La., Iberville Parish).

NRC#1175207/ White Lake WMA/ TPIC: This Incident was initially reported on 04/09/2017 by TPIC as the release of ~2bbls of crude oil within a production canal (Location: White Lake Wetlands Conservation Area, Gueydan, La., Vermilion Parish).

LSP#17-02061/ Nebo/ CLEPCO: This Incident was reported on 05/09/2017 by Central Louisiana Pipeline Company (CLEPCO) as the release of ~5-10bbls of crude oil (Location: Nebo, La., La Salle Parish).

LSP#17-02157/ Trout/ CLEPCO: This Incident was initially reported on 05/16/2017 by CLEPCO as the release of ~20bbls of crude oil; later revised to 30bbls (Location: Trout, La., La Salle Parish).

These and other spills presented many unique challenges during FY 2016-2017. Our ability to effectively and safely engage on these and other spill-related issues stems from a programmatic commitment that all personnel maintain HAZWOPER certification, reinforcing these training principles among partner agencies (e.g., Unified Response Drills and Planning Sessions), as well as continually developing and memorializing novel approaches (developing LDWF’s Oiled Wildlife Response Plan) to defensively characterize natural resource injury. In total, wildlife and habitat information generated from The department’s Oil Spill Program’s response activities continues to be an invaluable resource for state and federal trustees towards developing preassessment and/or Natural Resource Damage Assessment (NRDA) processes as well as scale future restoration activities.

**LOUISIANA OILED WILDLIFE RESPONSE PLAN (LOWRP)**

The plan memorializes LDWF’s wildlife response procedures and presents these procedures in a stepwise progression to guide responders in the correct and safe means to implement these activities throughout the state. Within the LOWRP, significant time is dedicated to highlighting the importance of evaluating spill notifications (Sources: National Response Center and Louisiana State Police) utilizing established decision criteria (Section 2). Information gained during this time-sensitive period can be critical in determining potential threat(s) to wildlife, fisheries and/or sensitive habitats. Additionally, the plan identifies principal trustee agencies as well as their inherent resource responsibilities should LDWF require additional information. Based on information received in the initial report and through follow up discussions with the Louisiana Oil Spill Coordinator’s Office (LOSOCO), LDWF may implement a site visit to further assess the potential injury extent and coordinate with responders on appropriate cleanup metrics and countermeasures as needed (Section 3). The plan identifies current means by which LDWF collects information (e.g., data forms, evidence identification and seizure tags, photos, notebooks, track logs, etc.) and regularly stresses the need for responders to complete and submit all relevant paperwork under established Chain of Custody procedures (Section 4). Coordination amongst the parties during an active response is accomplished through the Unified Command, an organizational structure built on the widely accepted incident Command System which can be scaled to the appropriate size and nature of each incident (Section 5). The Unified Command represents the principal platform to inject and receive relevant information about or within each incident. Should injured wildlife be encountered in association with the incident, LDWF may request the Unified Command to establish a Wildlife Rehabilitation Unit to provide care for live, oiled wildlife as well as provide an interim evidence freezer for dead carcasses (Section 6). At the conclusion of the incident, the Wildlife Rehabilitation Unit Lead will turn over all original paperwork, carcasses, etc. and LDWF will terminate response activities utilizing established criteria (Section 7).

**PREASSESSMENT AND NRDA ACTIVITIES**

Within FY 2016-2017, LDWF’s Oil Spill Program continues to make concerted efforts within two principal areas:

1. Case Management of Current and Legacy NRDA cases;
CASE MANAGEMENT OF CURRENT AND LEGACY NRDA CASES

Program Assessment Lead Steven Pearson spent extensive time engaging with state and federal trustee partners on 14 current and legacy (i.e., incident occurred greater than 10 years ago) pre-assessment and NRDA case activities (Table 4). Much of these activities involved detailed data review (e.g., response and pre-assessment information) and technical analyses (e.g., Habitat Equivalency and Resource Equivalency Analyses) of existing response and pre-assessment information to clearly identify the type(s) and extent of resource injury. It cannot be overstated how valuable Pearson’s unique professional skill sets and efforts have been in growing and enhancing the capabilities of the LDWF Oil Spill Program. In tandem, Pearson’s ability to leverage these efforts amongst a variety of natural resource stakeholders (e.g., LDWF programs, state and federal trustees, non-governmental organizations, etc.) has been instrumental in identifying and directing “on the ground” restoration opportunities with a clear nexus to LDWF’s principal goals and objectives.

DEVELOP NOVEL AND DEFENSIBLE MEANS TO CHARACTERIZE NATURAL RESOURCE INJURY

LDWF’s Oil Spill Program continues to develop novel means to address targeted areas within oil spill injury assessment, with many principal concepts stemming from “lessons learned” in the 2010 Deepwater Horizon oil spill as well as other oil spill cases. Greater emphasis has been placed on developing defensible tools to promote a more representative assessment process. Some examples include: 1.) Characterization of representative species, species in which we have a broad understanding of life history and physiology, as a means of clearly quantifying associated injury, and 2.) Development and implementation of validated and defensible wildlife and habitat sampling methodologies. Collectively, these and other decision-making tools remains a critical component for our program’s current and future ability to defensibly characterize injury within spill response and preassessment/NRDA assessment.

COST DOCUMENTATION

In tandem with the submission of wildlife and habitat injury information, timely compilation and submission of ALL oil spill cost documentation to LOSCO is of critical programmatic importance. Collectively, this ensures reimbursement of the state’s Oil Spill Contingency Fund; the principal upfront funding source for the LDWF Oil Spill Program. For our program, the development of these often expansive, incredibly detailed and time consuming cost packages is accomplished by Wynona Russ, our program’s Cost Documentation Lead. Often times, the development of these cost packages requires Russ’ coordination across a wide variety of departmental cross

### Table 4. NRDA Assessment Case Summary

<table>
<thead>
<tr>
<th>Current</th>
<th>Legacy</th>
<th>Settled</th>
<th>Restoration Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunoco Logistics/Milepost 51.1 (Status: Settlement Discussions)</td>
<td>ACL / Gretna-MS River / DM-932 (Status: Settlement Discussions)</td>
<td>Hess Breton Island $8.63 million</td>
<td>Hilcorp Duck Lake (Restoration Performance Review)</td>
</tr>
<tr>
<td>Hilcorp / Bay St. Elaine (Status: Settlement Discussions)</td>
<td>Citgo Calcasieu River (Status: Restoration Scaling)</td>
<td>EMPCo LWMIWBC $2.0 million</td>
<td>Equinox, Mosquito Bay, Little Lake (EML) (Restoration Performance Review)</td>
</tr>
<tr>
<td>Shell Glider (Status: Settlement Discussions)</td>
<td>ExxonMobil Torbert (Status: Settlement Discussions)</td>
<td></td>
<td>TPIC Octave Pass (Restoration Performance Review)</td>
</tr>
<tr>
<td>Hilcorp Bay Long (Status: Injury Assessment)</td>
<td>Taylor Energy MC20 (Status: Pending)</td>
<td></td>
<td>TPIC East Wax (In-Situ Burn Performance Review)</td>
</tr>
</tbody>
</table>

*LEFT: Documenting impacts to diamondback terrapin injury evaluated in Hilcorp Bay St. Elaine NRDA Assessment. RIGHT: Casey Wright and Todd Credeur performing wildlife surveys along a designated transect.*
sections (e.g., Office of Wildlife and Office of Fisheries field personnel, managers, legal, fiscal, etc.) to ensure accuracy and accountability in the final deliverables. Once submitted, it is not uncommon for these cost packages to be audited by LOSCO’s Budgetary Representative (Andy Carlson), the responsible party and in some cases the National Pollution Fund. It cannot be understated how important Russ’ efforts have been and remain in satisfying requirements within our program’s memorandum of agreement with LOSCO.

DEEPWATER HORIZON
Due to the severity of the spill-related bird injury, Louisiana factors prominently ($148.5 million) in its capabilities to restore for these significantly injured resources. As such LDWF’s principal goal remains the creation or enhancement of primary bird nesting habitats within a variety of habitat types (e.g., islands, shoreline, marsh, etc.). These efforts have and continue to be spearheaded through collaborative engagement amongst Coastal Protection and Restoration Authority (CPRA), Department of Interior and a broad array of LDWF programs (Office of Fisheries, Rockefeller Refuge, Natural Heritage Program). Office of Wildlife personnel (Todd Baker, Michael Seymour, Steve Pearson, Jon Wiebe) have factored prominently in bird project identification and prioritization amongst Louisiana Trustee Implementation Group members, the trustee body (state and federal) responsible for the selection and management of Deepwater Horizon restoration projects throughout coastal Louisiana.

ONGOING RESTORATION PROJECTS
Queen Bess and Rabbit Islands
Within Final Restoration Plan #1: Restoration of Wetlands, Coastal and Nearshore Habitats; Habitat Projects on Federally Managed Lands; and Birds (January 2017) two avian restoration projects were selected by the Louisiana Trustee Implementation Group: Queen Bess and Rabbit islands. These remote Louisiana colonial waterbird nesting habitats were nominated by LDWF and other trustees due to their historically significant avian productivity amongst species impacted by the spill. Further, 2010 Deepwater Horizon oil spill response and NRDA assessment efforts involving these two islands were critical towards informing the trustees as to the extent of the bird injury across coastal Louisiana (e.g., direct and indirect mortalities and production forgone).

Queen Bess is considered one of the top five productive colonial waterbird islands in Louisiana and the island which experienced expansive and repeated oiling events, significant bird loss and highly deleterious habitat injury associated with response activities. Rabbit Island, the state’s western-most brown pelican colony, remains a highly productive waterbird colony and served as a comparative reference for assessing colonial waterbird nesting productivity versus the myriad of spill-impacted island colonies. Collectively, these two introductory bird restoration projects represent a significant down payment on targeted and broad scale bird restoration throughout the state.

LDWF continues to play a central role throughout the engineering and design phase for Queen Bess and Rabbit islands. Significant emphasis is being placed on guidance from the 2010 Deepwater Horizon oil spill Programmatic Damage Assessment and Restoration Plan (PDARP) and Strategic Framework for Bird Restoration Activities. Further, LDWF and its partners (CPRA and Department of Interior) seek to memorialize Louisiana-specific project construction as well as monitoring methodologies and adaptive management strategies (e.g., Avian Habitat and Productivity Guidance Document) with intention of creating highly productive and structurally enduring bird habitats (e.g., increased nest productivity, expanded habitat utilization, etc.) throughout the state’s expansive and ever changing coastal zone. In doing so, LDWF and its partners seek to ensure the general public as to the restoration of their impacted resources.

Strategic Framework for Bird Restoration Activities
Louisiana’s coastal zone is comprised of an expansive marsh complex interspersed with a large array of remote coastal islands, all of which have historically supported abundant and diverse bird communities. Many of these same areas were significantly impacted by the 2010 Deepwater Horizon oil spill (PDARP: Natural Resource Exposure section, Near...
Trustees have been charged with the restoration of impacted bird species and the habitats they rely upon. One of the means developed to assist with this endeavor was the Strategic Framework for Bird Restoration Activities which consists of four modules:

Module 1: A brief summary of the information in the PDARP Programmatic Environmental Impact Statement related to each resource, including an overview of the injury, restoration goals, restoration approaches and techniques, and monitoring considerations.

Module 2: Biological and ecological information on each resource, including geographic distribution, life history and key threats.

Module 3: An overview of other recent and ongoing conservation, restoration, management and monitoring activities related to each resource in the northern Gulf of Mexico.

Module 4: Considerations for the prioritization, sequencing and selection of restoration projects to benefit the resource, including additional information on restoration approaches and techniques, potential project concepts, and monitoring needs.

These collective efforts provided LDWF and its partners with a trustee-endorsed, decision-making document that can be utilized to develop and implement future restoration projects that more clearly address state bird impacts (qualitative and quantitative) associated with the 2010 Deepwater Horizon oil spill.

Avian Habitat and Productivity Guidance Document

Louisiana represents one of the largest and most dynamic coastal marsh complexes in the world. Within this complex are expansive island habitats occurring all along the state’s vast coastal zone. Collectively these habitats provide critical resource requirements which have supported the state’s historically large and diverse resident and migratory bird populations (Remsen et al., 2015). The 2010 Deepwater Horizon oil spill caused extensive negative impacts to these collective habitats and the natural resources that rely on its services. Trustees attempted to quantify the bird injury associated with the spill, however, they were significantly limited in their ability to access these sensitive bird habitats. Given the geographic scale impacted and volume of oil released, the bird injury associated with the 2010 Deepwater Horizon oil spill is of an unprecedented scale.

Louisiana’s Trustee Implementation Group, consisting of federal and state natural resource trustee representatives, was created for the development and implementation for targeted restoration activities to address injuries identified within the PDARP. For birds, the principal restoration approach is: Restore and Conserve Bird Nesting and Foraging Habitat (ref. Strategic Framework for Bird Restoration Activities). However, this restoration approach will require a more comprehensive understanding of bird habitat requirements (e.g., elevation, habitat complexity, vegetative constituents, prey base availability, etc.).

In response, LDWF and its partners are working towards the development of the Louisiana Avian Habitat Restoration Guidance and Monitoring Document; a deliverable that will 1.) facilitate biologists and coastal engineers, abilities to efficiently restore for injured coastal Louisiana bird species and 2.) will memorialize comprehensive monitoring protocols required to facilitate documentation of avian benefits generated by individual or region-wide Deepwater Horizon restoration projects. This deliverable will also address a significant need in facilitating LDWF’s ability to inform the general public as to the restoration of their injured natural resources.

Deepwater Horizon Phase III Early Restoration

LDWF continues to work with CPRA, the state’s designated Deepwater Horizon representative, to facilitate the design, imple-
Deepwater Horizon Open Ocean Project Submissions

Title: Targeted Enhancement of the Chandeleur Island Chain: An ecosystem approach

Department Representatives:
Todd Baker, Steven Pearson and Jon Wiebe

Collaborators:
1. John Tirpak, PhD, Science Coordinator, Gulf Restoration, U.S. Fish and Wildlife Service, Department of the Interior
2. James Harris, Senior Wildlife Biologist, Southeast Louisiana Refuges Complex, U.S. Fish and Wildlife Service
3. Richard Hartman, National Marine Fisheries Service, Habitat Conservation Division

Overview:
As a result of the 2010 Deepwater Horizon oil spill, marine and estuarine ecosystems from Louisiana to Florida, and potentially beyond, were at risk of exposure to and injury from oil discharged from the wellhead as well as injury from a wide variety of Response actions (e.g., chemical dispersants, booming, berm construction, in-situ burning, organized cleanup activities) (PDARP, NOAA 2011, SAV TWG Report). Within Louisiana, this and related injury was well documented throughout the Breton National Wildlife Refuge specifically within the Chandeleur Island chain (SAV TWG Report). The refuge comprises one of the state’s most ecologically diverse coastal communities (e.g., expansive sea grass beds1, isolated beaches, abundant seasonal prey base, wide-ranging bird nesting opportunities) which broadly supports a host of endemic and migratory birds and other wildlife species (Appendix A), many of which trustees documented as impacted in relation to the spill (PDARP). Examples include: 1.) Critical wintering habitat for various endangered and threatened piping plover subspecies and important wintering and stopover habitat for the threatened red knot; 2.) Only known breeding location of Chandeleur gull (herring and kelp gull hybrid); 3.) Supports the largest breeding colonies of sandwich terns in the world2; and 4.) A primary wintering ground for redhead which forage in Gulf of Mexico sea grass beds. Further, this barrier island chain serves as an important nursery and foraging habitat for many living coastal and marine resources such as birds, turtles, marine mammals, finfish, shellfish and invertebrates (PDARP, Section 5.3.1 Programmatic trustee Goals). Given these and many other beneficial ecological services, Louisiana trustees propose implementation of multiple restorative approaches within a targeted section of the Chandeleur Island chain; a strategy that clearly addresses the trustees’ overall goal of replenishing and protecting living and coastal resources impacted by the spill (PDARP).

Projected Cost: $40 Million

1Shallow water bays around the islands support beds of manateegrass, shoalgrass, turtlegrass, and widgeongrass (Breton FWS Report, GOM Report)

242,000 nests counted in a single island (Stake Island) in the Chandeleur Chain (Remsen et al., 2015)
FURBEARER MANAGEMENT

MONITORING FUR HARVEST

The 2016-2017 furbearer harvest was monitored by compiling distribution and total harvest data. Each year, fur buyers and dealers are required to submit reports providing information on pelts purchased by species and parish of harvest. Annual audits of all fur dealers provide a record of total pelts by species shipped from Louisiana. River otter and bobcat possession tags provide data on timing and location of all bobcat and otter harvested in the state. These tags are necessary to ensure that Louisiana otter and bobcat are tagged with federal export tags (a federal requirement for out-of-country shipment).

Records indicate a total of 2,133 trapping licenses were sold during the 2016-2017 trapping season. Of these, 2,037 were adult residential licenses, 32 were adult non-residential trapping licenses, and 64 were youth residential licenses. These figures show a decrease in trapping licenses sold when compared to the previous season (2,375).

A total of 6,189 animals were harvested for fur (all species), which was an increase of 3,742 from the previous season’s total of 2,447. The total value of the 2016-2017 fur harvest to the state’s trappers was estimated at $57,919.19. This total value was an increase from the previous season’s total of $16,215.99.

The nutria harvest (216,052) decreased sharply by 133,183 from the previous season’s total of 349,235. The average nutria pelt price paid to trappers during this past season was $2. An additional $5 was paid for all nutria taken during the Coastwide Nutria Control Program by registered participants. A mail out survey was conducted post-season and the results indicated that a mild winter contributed to less than optimal hunting conditions combined with the 2016 flood event contributed to the decrease in effort.

COAST-WIDE NUTRIA CONTROL PROGRAM

The Coastwide Nutria Control Program (CNCP) is funded by the Coastal Wetland Planning, Protection and Restoration Act. The objective is to decrease nutria-induced damage to coastal vegetation by increasing the incentive for harvest. During the 2016-2017 season, a total of 216,052 nutria tails, worth $1,080,260 in incentive payments, were collected from 228 participants. Eighty-nine participants (39 percent) turned in less than 200 tails, 39 participants (17 percent) turned in 200-499 tails, 33 participants (14 percent) turned in 500-799 tails, and 67 participants (29 percent) turned in 800 or more tails.

Table 5

<table>
<thead>
<tr>
<th>Species</th>
<th>Total Harvest for the Fur Market</th>
<th>Average Price Paid Per Pelt (includes cost of green fur as well as dried fur)</th>
<th>10-year Average Value For each species (2007-2017)</th>
</tr>
</thead>
<tbody>
<tr>
<td>River Otter</td>
<td>1,215</td>
<td>$24.42</td>
<td>$58,516.07</td>
</tr>
<tr>
<td>Raccoon</td>
<td>1,624</td>
<td>$2.80</td>
<td>$31,943.11</td>
</tr>
<tr>
<td>Bobcat</td>
<td>349</td>
<td>$29.59</td>
<td>$18,595.68</td>
</tr>
<tr>
<td>Nutria</td>
<td>1,093</td>
<td>$1.08</td>
<td>$15,808.87</td>
</tr>
<tr>
<td>Beaver</td>
<td>1,256</td>
<td>$6.62</td>
<td>$12,185.93</td>
</tr>
<tr>
<td>Mink</td>
<td>171</td>
<td>$7.29</td>
<td>$5,327.27</td>
</tr>
<tr>
<td>Gray Fox</td>
<td>199</td>
<td>$7.59</td>
<td>$5,132.37</td>
</tr>
<tr>
<td>Muskrat</td>
<td>127</td>
<td>$1.88</td>
<td>$1,970.21</td>
</tr>
<tr>
<td>Red Fox</td>
<td>25</td>
<td>$12.25</td>
<td>$945.86</td>
</tr>
<tr>
<td>Coyote</td>
<td>48</td>
<td>$10.74</td>
<td>$518.31</td>
</tr>
<tr>
<td>Opossum</td>
<td>82</td>
<td>$0.76</td>
<td>$139.45</td>
</tr>
</tbody>
</table>

The greatest number of tails (48,411) were collected from Terrebonne Parish, followed by Plaquemines (33,684) and St. Mary parishes (32,102).

TOTAL NUMBER OF NUTRIA HARVESTED BY METHOD OF TAKE IN 2016-2017

Twenty parishes were represented in the 2016-2017 program season with harvests ranging from 419 to 48,411 nutria per parish.
February was the most active month for harvesting nutria (78,087 tails) while November was the least active month (4,811 tails). (See CNCP 2016-2017 Report, CWPPRA Project LA-03b, nutria.com/site13.php).

VEGETATIVE DAMAGE CAUSED BY NUTRIA

As a monitoring requirement of CNCP, a coast-wide aerial survey was conducted in April and May 2017 covering the coastal parishes of Louisiana. Sixteen sites were visited in 2017, 10 of which were identified as having nutria damage in 2016 (six were identified as new damage). One site that was revisited from the previous year was identified as recovered.

The 16 nutria-damaged sites observed along transects during the 2017 survey had a total of 1,564 acres impacted by nutria feeding activity (5,866 extrapolated). This is approximately a 9.7 percent decrease in acres impacted by nutria since the 2016 survey (1,732 acres, extrapolated to 6,496 acres coastwide).

CNCP continues to be a successful means of controlling the nutria population with an average of over 300,000 animals harvested annually. The program has been successful in achieving its goal and the number of nutria-impacted acres in Louisiana’s coastal marsh has decreased significantly over the 15 seasons of the program.
FUR ADVISORY COUNCIL

The Fur Advisory Council has continued to focus on three major goals this year. The first goal is to educate the public concerning the role of wildlife utilization in conservation and habitat management which serves to address public opinion of the fur market. The second goal is to educate both new and experienced trappers on state regulations, best management practices and handling fur from the field through the finishing process. The third goal is to bolster Louisiana’s fur industry through marketing and trade shows.

The Fur Advisory Council has continued to interface with the public through local events such as the Cameron Wildlife Festival, JAKES days (Juniors Acquiring Knowledge, Ethics and Sportsmanship), and National Hunting and Fishing Day events. The council website carried the educational story to a much broader audience (www.louisianafur.com).

The international fur market began to turn around in FY 2016-2017 after hitting a low during FY 2015-2016 due to political unrest and economic crisis in Eastern Europe. The council’s new fur marketing company, Brent Poley With Canchilla Associates Limited, brought Louisiana furs to a broader international market through a variety of trade shows. Mr. Poley attended fur fairs in Hong Kong, Kastoria, Milan and Chicago. He also had meetings on behalf of Louisiana in Argentina and Brazil. He is also actively working towards rebranding Louisiana wild fur by seeing to the design of a new logo and website (louisiana-furs.com/index.php).

ALLIGATOR PROGRAM

Louisiana’s Alligator Management Program consists of two complex segments: research/management of the wild population and a statewide farm/ranch program. The program is funded by alligator industry generated revenues (alligator hide tag fees, shipping label fees, alligator hunting license fees, alligator hide severance taxes, and other alligator related fees).

WILD ALLIGATOR PROGRAM

Inventory methods, harvest regulations, tagging and reporting requirements, and a complex computer program are continually upgraded to regulate and monitor a sustainable-use alligator management program in Louisiana. Annual coast-wide alligator nest surveys are conducted to index alligator populations and to establish harvest quotas in coastal Louisiana. During the summer of 2016 we estimated that 58,100 alligator nests were present in the coastal marsh habitats; a record year due to optimum marsh water level and habitat conditions.

Wild alligator harvest quotas are established to correlate harvest with alligator population density and distribution. Alligator harvest tags are allocated to individuals who either own or lease land that is considered alligator habitat. Digital landowner and survey information are combined with the latest aerial photography images to allow for an accurate assessment/
The majority of the lands enrolled in the wild alligator harvest program have been entered in the GIS system for property ownership and habitat assessment.

Each year the alligator program staff works closely with landowners and alligator hunters to provide assistance regarding alligator management on their respective properties. We have provided numerous habitat base maps to landowners for their use in participation of both the wild and alligator egg harvest programs. Harvest reports summarizing average lengths and size class frequency distribution of harvested alligators are available upon request.

Under this sustained use alligator program, over 1 million wild alligators have been harvested since 1972. The annual harvest takes place in September to specifically target the adult males and immature segments of the alligator population. Adult females, which typically inhabit interior marshes in September, would be more susceptible to harvest if the season was scheduled during the spring or summer. During the 2016 wild season, a total of 33,613 alligators were harvested by 3,281 licensed alligator hunters. Alligators harvested averaged 7.51 feet in length, with an estimated value of $9.6 million. Adult-sized alligators (those 6 feet and larger) comprised the majority of the harvest.

LDWF provided additional alligator harvest opportunities for the general public by continuing its lottery alligator harvest program. In 2016 the lottery alligator harvest program provided opportunities for 349 alligator hunters to harvest 897 alligators. Lottery alligator harvests were conducted on 45 public areas (WMAs and public lakes) throughout the state.

**FARM ALLIGATOR PROGRAM**

The January 2017 statewide farm/ranch inventory totaled 923,072 alligators, up from 807,986 alligators in January 2016, and surpassing the prior record due to several consecutive years of excellent nesting and high numbers of egg collections. The decline in 2012 was due in large part to the worldwide economic recession, and to farmers voluntarily limiting their egg collections significantly in the summer of 2009; then collecting about half the usual amount in 2010 (205,261 eggs) as markets and demand slowly improved. Market conditions continued to improve as both skins and meat were in high demand.

During the 2016 tag year (January 2016 through December 2016) an estimated 328,852 farm-raised alligators were harvested, averaging 26.19 cm belly width. The total estimated value of these alligators was $74.7 million.

Farmers participating in the wild alligator egg collection program are required to return 12 percent of the eggs hatched as 4-foot alligators, which compensates the wild alligator population for the collection of eggs. This return rate percentage was decreased to 10 percent in early 2017, to start with the 2017 year egg permits. The remaining animals can be sold by the farmer. During 2016, a total of 58,106 farm-raised alligators were released to the wild. All released alligators were measured, marked, tagged and sexed. Survival of farm-released alligators appears to be similar to wild alligators. Re-trapped alligators provided additional alligator harvest opportunities for the general public by continuing its lottery alligator harvest program.
gators were harvested in September 2016, and data on size class and sex ratio collected. Data evaluation continues on survival rates of the farm-released alligators.

Program staff members routinely communicate with various alligator industry participants including trappers, farmers, landowners and dealers. Information is provided regarding wild alligator and alligator egg harvests, harvest statistics and management recommendations. Staff routinely visits alligator farms providing recommendations on alligator husbandry and culture. Numerous requests for information are handled each year.

NUISANCE ALLIGATOR PROGRAM
LDWF manages a statewide nuisance alligator control program. The nuisance program is designed to remove problem alligators in order to avoid potential human/alligator conflicts. Through the process of nuisance alligator hunter appointments and annual renewals, LDWF maintains a statewide network of qualified nuisance alligator hunters. Nuisance alligator complaints are phoned into various LDWF offices, where complaints are recorded and then forwarded to a nuisance alligator hunter in the vicinity of the complaint. Nuisance hunters respond promptly and catch and remove the alligator as deemed necessary. Hunters are allowed to harvest the nuisance alligator and to process the meat and skin of the alligator for commercial sale. This process provides for immediate response to problem alligators and for payment to the nuisance alligator hunter, thereby minimizing the program operating costs to the department.

During FY 2016-2017, a total of 55 nuisance alligator hunters were enrolled in the program; annually the nuisance hunters respond to several thousand complaints and harvest approximately 1,500 alligators.

RESEARCH ACTIVITIES
The following list provides a summary of the various research and monitoring projects that the alligator program staff conducted and/or participated in during FY 2016-2017.

Monitoring

1. Evaluation of Survival, Growth and Reproduction in Farm-Released Alligators
   This activity involves numerous projects related to survival analysis, growth and reproductive success (farm-released vs. native wild). Due to the reduction of the 14 percent release rate to 12 percent, it is imperative to monitor survival closely. The 12 percent return rate started with the 2007 permits (releases “due” in 2009). Information on size class frequency distribution of wild alligator populations and susceptibility to harvest is provided annually to enhance survival estimates. The return rate was reduced further to 10 percent starting with the 2017 year egg permits. Although some growth information has been published we plan to evaluate growth rates in more detail; we now have “re-traps” that were captured over 20 years since release, and this is undoubtedly one of the largest mark-recapture projects currently in progress. Previously staff from the LSU Department of Experimental Statistics assisted with annual evaluation of survival and growth based on farm “re-traps” recovered in September harvests. We now have contractors from LSU’s School of Renewable Natural Resources providing input as to analyses on this project, which included a graduate student Master’s degree project. The graduate student made several presentations of preliminary results at scientific conferences, including the Southeastern Association of Fish and Wildlife Agencies conference hosted by LDWF in October 2016.

2. Coast-Wide Nest Survey
   The annual coastal nesting survey is essential for monitoring our alligator population, and is used annually to determine wild alligator and wild alligator egg harvest quotas (for the adult harvest each September as well as egg
monitor occurrence of West Nile virus on alligator farms in Louisiana. Initial mortality related to West Nile virus occurred in fall/winter 2003. Aggressive mosquito control on farms has reduced on farm mosquito populations and seems to have reduced the incidence of West Nile virus in recent years. During FY 2016-2017 we continued to have expertise from staff at LSUSVM available if needed to collect samples from farm alligators to monitor for any health concerns, provide diagnostics as needed, and assist with other health surveillance parameters. After several years of research, development, and testing, a West Nile virus vaccine was developed, gained conditional approval by the U.S. Department of Agriculture and became available to farmers in October 2011. Several farmers have taken advantage of this new proactive technology to prevent West Nile virus in captive hatchling and yearling alligators.

6. Best Management Practices -
LDWF and the LSUSVM in conjunction with the Louisiana Alligator Farmers and Ranchers Association developed a document entitled “Best Management Practices for Louisiana Alligator Farming.” The document was distributed in June 2011 and details recommended practices to ensure animal welfare of captive reared alligators in Louisiana, including egg collection, hatching, rearing, release to the wild and euthanasia. This document was updated and distributed in January 2013 and again in January 2016 as new information regarding euthanasia was investigated, and will be updated as any pertinent topic to alligator farming becomes available. The intent of this document is to ensure that licensed alligator farms/ranches are employing humane methods of working with alligators. Through industry contributions, Dr. Nevarez at LSUSVM has continued to work with LDWF staff to update Best Management Practices as needed. LDWF staff assisted with review of a detailed document on Best Management Practices for all farmed crocodilians last fiscal year. Both documents have proved valuable to maintain high standards for the alligator industry.

7. Alligator Research Facility -
After several years of planning and fund raising by industry personnel, construction began on an alligator research facility at LSU’s AgCenter Aquaculture Research Station. Funding for facility construction was provided purely by monetary donations from alligator industry participants including alligator farmers, wetland landowners, tanners, feed manufacturers, alligator hunters and other interested parties. The building is available to house alligators of various sizes for projects related to all phases of alligator husbandry. LDWF staff has worked closely with alligator producers and feed manufacturers to provide input to identify and prioritize research goals and secure long term funding sources for facility operation. The LSU AgCenter has established an Alligator Research Fund to receive additional donations for funding various research projects. Hatchlings were provided to Dr. Reigh by LDWF from eggs collected and incubated at Rockefeller Refuge for continued nutrition studies to benefit the alligator farming industry; various diets and feeding regimes are tested and findings disseminated to industry personnel at meetings throughout the year. Eggs were also provided for detailed studies on the effects of supplemental oxygen provided during egg incubation, as well as varying humidity levels and hatch rates. A
graduate student is working on optimum ami-
no acid composition in alligator diets.

Contracts

1. Diagnostic Services (LSUSVM - Dr. Nevarez) -
Dr. Nevarez is contracted to provide diagnostic services as needed for the alligator industry. Farmers may consult with Dr. Nevarez at any time for assistance with any alligator husband-
ry or disease issue. Our staff often assists with logistics and transport of alligators/samples to LSUSVM in Baton Rouge for evaluation. Periodic health surveillance of farm released alli-
gators is conducted to monitor health status of farm alligators released to the wild; a manuscript on these findings is being prepared. Dr. Nevarez and colleagues are working to culture Chlamydia from alligator eggs/embryos provided, as this may be an emerging disease in captive crocodilians.

2. LSU School of Renewable Natural Resources -
The LSU Department of Experimental Statistics was under contract to provide technical statistical expertise for numerous alligator projects; most importantly the evaluation of survival of farm-released alligators, population trends from nesting survey data, and more recently with hide grade/length correlations. We transitioned to new statisticians (faculty with the School of Renewable Natural Resources) due to the retirement of the then current contract statistician and research associate. A graduate student was recruited and completed her thesis work on modeling survival of farm-released alligators.

3. Nutrition Research (LSU AgCenter, Aquaculture Research Station) -
A research contract was established for aqua-
culture nutritionist Dr. Reigh and his research associate to conduct digestibility studies to continue to aid farmers in their farm man-
agement; industry support from feed manu-
factures at Cargill have been instrumental in this process. Research committee meetings are held periodically and projects outlined for study.

Other Research
In addition to LDWF research studies, we con-
tinued to support and collaborate with gradu-
ate students, post-doctoral research associ-
ates, and university faculty with their research studies on numerous projects. Associates from several universities (Harvard University, Yale, University of North Texas, University of Califor-
nia at San Bernardino, University of Southern California, and Texas Tech University) were hosted at Rockefeller in 2016-2017 to collect additional samples for several studies, or we provided samples to them if travel costs were prohibitive. Several collaborators made pre-
sentations with LDWF staff as co-authors at meetings as listed below.

We worked in collaboration with U.S. Geologi-
cal Survey researchers to evaluate the effect of consumption of invasive apple snails on alliga-
tors. Apple snails have shown neurotoxicity to some taxa; in the short term feeding trial no adverse effects on alligators were noted. We plan to present these findings at the Louisiana Association of Professional Biologists meeting in August 2017, and publish the findings in a scientific journal.

We published several abstracts and full papers this year, one of which was selected for a Publica-
tion Award by the Louisiana Association of Professional Biologists. Staff members made presentations on the alligator programs in Ba-
ton Rouge in October 2016 at the Annual Con-
ference of the Southeastern Association of Fish and Wildlife Agencies, which LDWF hosted. Staff also assisted with the student field trip, and hosted the Director’s Retreat. Some manuscripts published in FY 2016-2017 include:


Elsey, R. M., M. Miller, D. Leleune, and W. Selman. 2016. Commensal nesting of Science-ls lateralis (Little Brown Skinks) in Alligator mississippiensis (American Alligator) nests and Ondatra zibethicus (Muskrat) houses in southwestern Louisiana. Southeastern Natu-

Elsey, R. M. 2016. Louisiana’s alligator manage-


ing growth trajectory of alligator hatchlings incubated with and without the eggshell. Poster presentation at the Experimental Bi-
ology meetings, April 2-6, 2016, San Diego, California. 779.16


**ALLIGATOR ADVISORY COUNCIL**

The Alligator Advisory Council monitors and addresses numerous issues affecting the alligator industry at local, national and international levels. The council supports husbandry and disease research through LSU AgCenter, addresses public concerns regarding animal welfare through media and education, engages in international conservation and trade issues, carefully monitors local and national legislation that may impact wildlife management, and develops markets for sustainable Louisiana products.

The council has continued to monitor Louisiana legislative bill AB2075 and public opinion related to animal use. The sale of alligator and crocodile products within the state of California is permitted as an exemption to the anti-wildlife trade laws under this bill until the sunset clause activates on Jan. 1, 2020. California has historically been a strong pro-animal rights state. The council continues to discuss the importance of exempting alligators from the anti-wildlife trade laws. The goal is to eventually remove the sunset clause and to maintain a permanent exemption status in California for crocodilians legally traded under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) regulations. The council developed a Request for Proposal to have a contractor follow up on this issue as part of the scope of services.

The council's participation in CITES, CGS and IACTS monitoring continues to provide a strong foundation for sustainable international trade. Through LDWF participation, the council continued to be engaged in CITES Standing Committees and has worked with a coalition of states and pro-sustainable use groups to stay on track with CITES sustainable use policies. Proposals that would undermine sustainable use policies, such as up-listing polar bears to Appendix I, were considered at the CITES meeting held in South Africa. Due to pressure from LDWF and this coalition of states and leading experts, the proposal was withdrawn. The council has advertised a Request for Proposal to hire a contractor to attend additional meetings.

The council contracted with the World Conservation and Monitoring Center to develop the International Alligator and Crocodile Trade Studies report. This report has been funded by LDWF and the council since 1988 to monitor world trade in all crocodilians and to increase accountability of sustainable management practices.

The council contracted with Glenn Delaney to monitor legislation in Washington D.C. that may impact Louisiana's alligator management program. Glenn Delaney works closely with the Louisiana delegation to educate them on issues important to LDWF and the Alligator Advisory Council.

The Alligator Advisory Council worked with the LSU School of Human Ecology to promote the use of lower grade alligator skins. LSU staff worked with student designers during New Orleans Fashion week in March 2017. Students from the Beijing Institute of Fashion Technology also worked with grade-3 alligator leather and showcased their products at the Beijing Fashion Week. The council has worked to develop a long-term collaboration to establish an alligator skin product design studio in Beijing to promote Louisiana alligator skins.

**COASTAL OPERATIONS PROGRAM**

**Program Manager - Lance Campbell**

The Coastal Operations Program is responsible for the stewardship of 11 coastal wildlife management areas (WMAs) and refuges totaling approximately 457,032 acres: Atchafalaya Delta WMA, Biloxi WMA, Isle Dernieres Barriers Islands Refuge, Lake Boeuf WMA, Marsh Island Refuge, Pass-a-Loutre WMA, Pointe-a-Chenes WMA, Salvador WMA, State Wildlife Refuge, St. Tammany Refuge and Timken WMA. Management of these coastal properties encompasses the oversight of all daily activities on these areas. Responsibilities include (but are not limited to) marsh management and restoration, facility and equipment maintenance, data collection, assistance with research, habitat enhancement, coordinating managed hunts, oversight/monitoring of projects such as oil/gas activities and maintenance dredging of federal navigation channels, posting of properties, management of fur and alligator resources on properties, and education/outreach.

The Coastal Operations Program oversees and operates heavy equipment (excavators, bulldozers, a tugboat, a push boat, barges and other equipment) to aid with restoration and management on coastal properties. Coastal Operations staff had a bulldozer (JD 550J) sandblasted and painted in September. Staff continued to properly maintain its heavy equipment since this equipment is crucial for the Coastal Operations Program to accomplish restoration and management activities on its properties.

Since most Coastal Operations Program properties are only accessible by boat, staff frequently provide assistance to stranded boaters and users of its WMAs/refuges. Coastal Operations staff provided emergency assistance to many boaters this year on our remote areas.

Overall, the Coastal Operations Program had a very successful year of numerous accomplishments. These accomplishments were aimed at improving refuges and WMAs for the good of the public and the natural resources that are present at these coastal areas. The Coastal Operations Program strives to provide excellent recreational opportunity, conserve coastal marsh habitats, and implement restoration projects to improve habitat conditions for wildlife and fishery resources.

**WATERFOWL**

The 2016-2017 waterfowl season was from Nov. 12, 2016 - Jan. 22, 2017 (closed Dec. 5-16) on coastal WMAs. Coastal Operations staff conducted hunter participation/harvest surveys on 11 days during the season on four coastal WMAs (Atchafalaya Delta, Pass-a-Loutre, Pointe-a-Chenes and Salvador WMAs). An estimated 4,040 duck hunters visited the WMAs during the 11 survey dates and averaged 2.1 ducks per attempt. Hunters also harvested approximately 3,855 coots, 205 gallinules, 17 mergansers and approximately 41 geese during the survey dates. Additionally seven waterfowl bag checks were conducted on Biloxi WMA. See Biloxi WMA Waterfowl Season section for details.
TEAL SEASON
The 2016-2017 teal season was from Sept. 10-25, 2016. Coastal Operations staff conducted hunter participation/harvest surveys on four days during the season on four coastal WMAs (Atchafalaya Delta, Pass-a-Loutre, Pointe-aux-Chenes and Salvador WMAs). An estimated 755 teal hunters visited the WMAs this year during the four days that waterfowl bag checks were performed. Theses hunters harvested an estimated 302 teal for a success of .4 teal per hunter effort.

DEER
Self-clearing permits and hunter check in of harvested deer revealed that 3,923 hunter efforts were expended to harvest 156 deer during the 2016-2017 hunting season on Atchafalaya Delta, Pass-a-Loutre, Pointe-aux-Chenes, Lake Boeuf and Salvador WMAs. This equates to a success of one deer for every 25.1 efforts. Eighty-eight percent of the effort and 83 percent of the harvest was on Atchafalaya Delta WMA.

HOGS
According to self-clearing permits and hunter interviews, approximately 271 hunter efforts were successful in removing 46 hogs for a success of one hog per 5.9 efforts. These statistics are for Pass-a-Loutre, Pointe-aux-Chenes, Salvador/Timken and Lake Boeuf WMAs only. Fifty-five percent of the effort and 83 percent of the harvest was on Pass-a-Loutre WMA. Eight hogs were reported harvested from Atchafalaya Delta WMA during the 2016-2017 hunting season. Hog harvest at Atchafalaya Delta most always occurs while pursuing other species such as deer and rabbits.

COASTAL OPERATIONS’ WMAS AND REFUGES

ATCHAFALAYA DELTA WMA
Area Biologists -
David LeBlanc & Lance Campbell

Atchafalaya Delta WMA is the largest WMA in the state at 137,000 acres and is located in southern St. Mary Parish. The WMA is owned by the state and has been managed by LDWF since 1978 under a lease agreement with the Louisiana State Lands Office. The habitat is dominated by fresh tidal marshes and extensive shallow water flats. This WMA includes a diverse range of ecotypes from broad upland ridge habitat to brackish marshes.

Atchafalaya Delta WMA is comprised of two active deltas that continue to accrete new wetlands. The Wax Lake Outlet Delta is located on the western portion of the WMA and was created as a result of a man-made channel dredged in the 1940s for flood protection purposes. This flood protection measure resulted in the creation of a phenomenal delta system that is of interest to a wide variety of users. One user group that is very intrigued by the Wax Delta is the community of professionals that study, construct and promote river diversions. The Main Delta is located on the eastern portion of the WMA and at the mouth of the Atchafalaya River. Many areas on this delta have been created/enhanced by beneficial use of dredge material.

WMA staff continued to work closely with the U.S. Army Corps of Engineers (USACE) on multiple issues related to the maintenance of the lower Atchafalaya River Federal Navigation Channel. See information below for specifics on projects and activities:

- USACE awarded a contract to Weeks Marine to dredge a portion of the Bar Channel south of Eugene Island in 2017. As part of this project, Weeks Marine beneficially used dredge material to increase the size and elevation of Aves Island. Aves Island is located on the west side of the channel south of Bird Island West and was created two years ago through beneficial use of dredge material as well. Dredging will begin in July of FY 2017-2018. The island continues to be a great foundation for future dredging contracts/projects.

- Coastal Operations staff continued to provide multiple options for beneficial use of dredge material ranging from small areas adjacent to Big Island and the headquarters to large areas of open water that could accommodate millions of cubic yards of material.

- The Deer Island Pass Coastal Impact Assistance Program Project was initiated in FY 2014-2015. Coastal Operations staff continued to coordinate with St. Mary Parish and CB&I (consultant) regarding this project. The project included the construction of a 3,900-foot long by 10-foot deep channel connecting the Atchafalaya River to the east side of the Main Delta. It also included approximately 80 acres of marsh creation near Plumb Island Point. The project was awarded during the fall of 2015 and construction began in late 2015. Construction was halted and the project suspended in January 2016 due to abnormally high river levels caused by extreme rainfall in the northern United States. Construction resumed this fiscal year and was completed in January 2017.

The Atchafalaya Delta WMA houseboat mooring lottery and lease program continued during the 2016-2017 hunting season. Four houseboat leases were not renewed this year. Lease fees collected for houseboat mooring on the WMA totaled $18,495 in FY 2016-2017. The remaining mooring areas were issued by computerized lottery drawing. Fees collected for lottery permits generated $21,605. A total of 64 houseboat permits (lease and lottery) were issued for the 2016-2017 hunting season. The fees collected were deposited into a houseboat mooring account that will be made available for future maintenance of mooring sites.

Coastal Operations staff assisted LDWF Minerals Management staff with coordinating oil and gas activities at Atchafalaya Delta WMA. Some oil/gas related activities for Coastal Operations staff included reviewing and commenting on proposals for proposed well locations, proposed pipelines and plug/abandonment projects. Staff also prepared special use permits for oil/gas activities as needed on the WMA.

The Louisiana Wildlife and Fisheries Commission voted to expand limited access areas on Atchafalaya Delta WMA this year. Operation

Youth hunt participant, chaperone and deer harvested at Big Island on Atchafalaya Delta WMA.
of internal combustion engines inside the limited access areas boundaries is prohibited from Sept. 1 - Jan. 31. Hunters and fishermen continue to be allowed to access and navigate limited access areas via use of paddles, push poles or electric trolling motors. Limited access areas were increased from approximately 5.5 percent of the huntable acreage on the Main Delta and 7.1 percent on the Wax Delta to 25 percent on both deltas.

Staff continues to support a wide variety of research and monitoring projects by granting access permits, providing lodging and assisting with logistics and information. Example projects are:

- U.S. Geological Survey monitoring of sediment transport, deposition and trapping efficiency in marshes at the Wax Delta.
- LSU, University of Texas and University of Minnesota’s National Science Foundation “Delta Observatory” Project designed to improve modeling and forecasting of delta growing processes that can support restoration and resource management.
- Coastal Estuary Services’ efforts to monitor Coast-wide Reference Monitoring System sites.
- Rockefeller Refuge staff conducted reddish egret nest surveys on the WMA. Two pairs of reddish egrets were documented on the bird islands.

Staff continued to maintain facilities, campgrounds and Big Island to a high standard this year. Atchafalaya Delta WMA staff and heavy equipment operators completed the following related projects.

- Constructed a new boat dock at the Main Delta campground for public use.
- Repaired/re-lifted the road between Atchafalaya Delta WMA headquarters and the Main Delta campground (end of camp canal).
- Repaired boatshed roof trusses that were causing support failures.
- Cleaned out ditches and installed drainage pipe to properly drain Main Delta campground and restricted area.
- Dredged Berwick slip and dock area to allow boat access to docks, fuel, storage building, vehicles, etc.
- Completed/finished the interior of the Berwick storage building.
- Installed shore power electric hook up for Tug Boat at the Berwick dock (save on fuel costs).

Recreational use of the WMA totaled approximately 17,000 visitors. Total rainfall for the year was 54 inches.

**Hunting Statistics**

**Teal Season**

During the four bag checks conducted this year an estimated 265 hunters harvested 99 teal for an average success of four teal per hunter.

**Waterfowl Season**

During the 11 waterfowl bag checks conducted, an estimated 1,705 hunters harvested 447 ducks, averaging 2.4 ducks per hunter. Average hunter success was very similar across the WMA with less than 0.2 duck per hunter differences between limited access areas and non-limited access areas. The top three species harvested on the WMA were blue-winged teal, green-winged teal and gadwall. Also harvested were 477 coots, six mergansers and 36 snow geese.

**Deer Season**

<table>
<thead>
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<th>Archery Season</th>
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<tr>
<td>Efforts</td>
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<tr>
<td>Harvest</td>
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<tr>
<td>Success</td>
<td>1 deer/28 efforts</td>
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<tbody>
<tr>
<td>Youth Participants</td>
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<tr>
<td>Efforts</td>
<td>51</td>
</tr>
<tr>
<td>Harvest</td>
<td>8 deer (2 bucks, 6 does)</td>
</tr>
<tr>
<td>Success</td>
<td>1 deer/6 efforts</td>
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</table>

<table>
<thead>
<tr>
<th>Total Season</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Efforts</td>
<td>3,434</td>
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<tr>
<td>Harvest</td>
<td>130 (73 bucks, 57 does)</td>
</tr>
<tr>
<td>Success</td>
<td>1 deer/26 efforts</td>
</tr>
</tbody>
</table>
Hog Season
Eight hogs were reported harvested from Atchafalaya Delta WMA during the 2016-2017 hunting season. Hog harvest at Atchafalaya Delta most always occurs while pursuing other species such as deer and rabbits. Hunters reported an interest in harvesting hogs during roughly 1,200 hunts on Atchafalaya Delta WMA.

Rabbit Season
During the two rabbit bag checks (first two Saturdays of season) conducted, hunters averaged 0.2 rabbit per effort. WMA staff surveyed 53 hunters at the Main Delta and five hunters at the Wax Delta.

Alligator Season
A total of 240 alligator tags were issued to Atchafalaya Delta WMA commercial (210 tags) and lottery (30 tags) alligator hunters for the 2016 season. A total of 240 tags were filled. LDWF generates operating budget as a result of alligator harvests on coastal WMAs.

BILOXI WMA
Area Biologist - Shane Granier

Biloxi WMA is owned by the Biloxi Marsh Land Co. and has been managed by LDWF since 1957. This 42,747-acre WMA located in St. Bernard Parish is dominated by brackish smooth cordgrass and black needle rush. Along its southern boundary is Bayou Loutre which was the historic path of the Mississippi River. This WMA has very diverse habitat from low saline marshes in the northeast to freshwater ridges in the south.
Various restoration projects were implemented or monitored this year including:
- Dredging for the NRDA TE-100 Caillou Lake Headlands Beach and Dune Restoration Project (Whiskey Island) began in the winter of 2016/2017 and will continue into FY 2017-2018. This project is estimated to cost $100 million and pump over 10 million cubic yards of material onto Whiskey Island.
- USDA-NRCS contracted with Soil Erosion Services, LLC. for Phase II of vegetative plantings associated with the Raccoon Island Shoreline Protection and Marsh Creation Project (CWPPRA - TE48). Soil Erosion Services, LLC completed the planting of over 45,000 plants (21,140 Spartina alterniflora, 11,750 Passalum vaginatum, 5,375 Spartina patens, 5,375 Distichlis spicata/Sporobolus virginicus and 1,925 Panicum amarum) in October 2016. The third and final phase of vegetative plantings (Phase III) for this project will be done in FY 2017-2018. LDWF assisted USDA-NRCS on both phases of this project (specifications, pre-construction meeting, field trips, staking out areas to be planted within the marsh creation area, final inspection, etc.).
- Coastal Operations staff assisted with Nicholls State University’s annual Calypseaux trip. Approximately 500 black mangrove seedlings were planted on the marsh creation area of TE-48 on Raccoon Island for this project. Black mangrove propagules were collected from Whiskey Island to aid in future planting projects.
- CPRA/University of New Orleans continued data collection for Barrier Island Comprehensive Monitoring project.
- CPRA conducted vegetation sampling for the monitoring of past coastal restoration projects (TE-20, TE-24, TE-27 and TE-37).

The refuge was host to multiple research and educational projects including:
- Nicholls State University continued with their 2016-2017 field season for their breeding water bird research project involving black skimmers and tern species. Nicholls State University staff also conducted research and barrier island monitoring via unmanned aerial vehicles.
- University of Louisiana - Lafayette conducted research on brown pelicans, mammalian predators, as well as using unmanned aerial vehicles to assist in counting nesting colonial water birds.
- Tulane University continued monitoring brown pelican foraging and movement activities via telemetry.
- U.S. Geological Survey accessed the refuge to conduct piping plover surveys, winter plover surveys and prey base monitoring as part of an extension from research starting in 2012.

Coastal Operations staff and others removed approximately 80 nutria from Raccoon Island in an effort to reduce herbivory damage to existing and newly planted vegetation. Staff plans to remove additional nutria during the winter of 2017/2018.

Staff worked with a Texas Gas Transmission, LLC. contractor on future removal of an abandon pipeline on Trinity Island. Abandonment/removal is expected to take place next fiscal year.

**LAKE BOEUF WMA**

Area Biologist - Shane Granier

Lake Boeuf WMA is an 802-acre WMA located in Lafourche Parish just south of Lake Boeuf. This WMA is dominated by cypress/tupelo swamp and has an extensive freshwater marsh dominated by bull tongue and maiden cane.

LDWF staff worked with the North Lafourche Levee District to approve a drainage improvement project by dredging canals around the WMA. Once completed, this project will enhance drainage for the residents and businesses of the surrounding areas.

**Deer Season**

Self-clearing permits revealed that 79 hunter efforts were made with one deer ( doe) harvested.

**Hog Season**

Self-clearing permits revealed that two hunter efforts were made with no hogs harvested.

**Alligator Season**

A total of six alligator tags were issued to Lake Boeuf WMA lottery alligator hunters for the 2016 season. A total of six tags were filled. LDWF generates operating budget as a result of alligator harvests on coastal WMAs.

**MARSH ISLAND REFUGE**

Area Biologists - Tyson Crouch & Lance Campbell

Marsh Island Refuge is a 76,664-acre refuge located in southern Iberia Parish. The refuge was donated to the state in 1920 making it one of the oldest and largest refuges in Louisiana. The refuge was donated to LDWF by the Russell Sage Foundation which was established by Margaret Olivia Sage in honor of her late husband. The donation came with a strict set of management stipulations which are audited annually by the Russell Sage Foundation.

USDA-NRCS and Coastal Operations staff continued to pursue funding for restoration work at the refuge via the Coastal Wetlands Planning, Protection and Restoration Act (CWPRA) program. During this fiscal year, the Lake Sand Shoreline Protection and Marsh Creation Project was proposed by USDA-NRCS at the CWPPRA Regional Planning Team and Technical Committee meetings. The project made it through the “Coastwide Electronic Votes” for further consideration but failed to make it through the Technical Committee Phase 1 voting. Coastal Operations staff provided technical support for the project and will continue to work with potential sponsors for submission of future projects. LDWF anticipates that new projects on the refuge will be proposed next year.
Coastal Operations staff provided support and worked closely with Ducks Unlimited to submit a North American Wetlands Conservation Act (NAWCA) funding proposal to replace three water control structures for the Northeast Management Unit. Ducks Unlimited presented the proposal in June 2017. Results are expected to be released around December 2017. If funded, this project would help ensure proper management of over 2,000 acres just east and south of the headquarters.

LDWF continued to pursue improvement to facilities and infrastructure at Marsh Island Refuge headquarters during FY 2016-2017:

- Coastal Operations staff continued to assist with a project to replace approximately 110 feet of bulkhead on the northwestern portion of the headquarters island that was damaged by a barge during Tropical Storm Lee. Broussard Brothers, Inc. was the contractor for this project. Construction began and was completed in July 2016.

- LDWF continued to work with Facility Planning and Control (FP&C) and the Governor’s Office of Homeland Security and Emergency Preparedness to move the Marsh Island FEMA Boatsheds, Living Quarters and Airboat Shed Project (previously Marsh Island FEMA Consolidation Project) forward. The Governor’s Office of Homeland Security and Emergency Preparedness has requested approval from FEMA for the living quarters location/footprint and to include boathed foundation/bulkhead replacement. Staff continues to await FEMA approvals to proceed.

- Coastal Operations staff continued to work with the designer on Phase 1 of the Marsh Island Master Plan to replace approximately 560 feet of bulkhead on the eastern portion of the headquarters island. Design was completed and bids were advertised at the end of this fiscal year. Bids will be opened in July 2017. Construction should be completed during next fiscal year.

- Multiple restoration and research projects on the refuge are in the planning stages, underway or in the monitoring stages:
  - Marsh Island staff continued to maintain the Bayou Platte Bird Islands for optimal nesting conditions this year. However, high spring and tropical system tides reduced nesting significantly on these islands. Staff anticipates nest production to return to normal next year if nesting conditions are favorable. This rookery is the largest known gull-billed tern colony and the largest artificial rookery in Louisiana.
  - Two FEMA levee repair projects were completed this fiscal year on the refuge. The smaller project was to plug and repair two breaches on Yute’s Cut near the Big Dam and was completed in mid-July 2016. The second project was much larger and encompassed repairing and relifting over 7 miles of the Big Impoundment levee (west of the eastern water control structure). The larger project was completed in December 2016. Berry Brothers General Contractors, Inc. was the contractor for both projects.
  - Coastal Operations staff continued to work with FP&C and the designer in developing the Marsh Island Water Control Structure Capital Outlay project. This project is to replace an eight-barrel water control structure in the Big Impoundment (west). Questions and concerns arose about proper breach repairs. It was determined that further geotechnical analysis and surveys were needed to ensure proper repairs. Bids for these services were advertised and opened at the end of this fiscal year. Surveys will be conducted in FY 2017-2018. Project design and bidding should be completed during next fiscal year.
  - CPRA and Coastal Operations staff conducted annual inspections, including vegetative sampling and elevation surveys, for the TV-14 and TV-21 projects.
  - The Natural Resources Conservation Service, the Soil and Water Conservation District and LDWF conducted two collaborative planting efforts this fiscal year. Nearly 7,000 plugs of seashore paspalum and seashore saltgrass were planted on the Big Impoundment levee during the first quarter of FY 2016-2017. Additionally approximately 9,700 plugs of smooth cordgrass were planted on the Southeastern Management Unit levees during the fourth quarter of FY 2016-2017.
Coastal Operations heavy equipment operators repaired/re-lifted degraded levee systems and plugs as per below.
- Repaired over 2 miles of levees on the Southeast Management Unit along Oyster and Bird Island Bayous. These repairs were crucial to maintain management functionality of the unit.
- Repaired two breaches/replaced plugs in bayous north of the Gordy Dam. These breaches were allowing water to exchange freely with Vermilion Bay and bypass water control structures. This contributed to inefficiencies in proper management of the unit.
- American oystercatcher surveys continued on the refuge this year. Staff also conducted mottled duck banding efforts. Coastal Operations staff attempts to capture and band mottled ducks this year on the refuge were unsuccessful due to abnormally high tides.
- Refuge staff prescribe burned just over 5,700 acres this year to provide improved habitat condition for wintering geese and reduce fuel loads to minimize wildfires.

The refuge hosted multiple research, monitoring and educational projects including:
- U.S. Geological Survey assessed Bayou Platte Bird Islands to obtain information for colonial seabird nesting habitat diversity modeling.
- Nicholls State University and the U.S. Environmental Protection Agency conducted coastwide wetland vegetative sampling on the refuge.
- Rockefeller Refuge staff and LSU students accessed the refuge to collect data for seabird nesting habitat research. Marsh Island staff assisted with accessing and the marking of skimmer and tern nests on the Bayou Platte Bird Islands and Southwest Pass Shell Rakes.
- Rockefeller Refuge staff conducted redish egret nest surveys on the refuge.

Refuge staff posted and maintained boundary signs throughout the year and continued to maintain the headquarters, grounds, facilities and public use areas.

Recreational use of the refuge totaled approximately 7,300 visitors. Rainfall data collected for the year was 56 inches.

PASS-A-LOUTRE WMA
Area Biologist - Shane Granier
Technician Supervisor - Trebor Victoriano

Pass-a-Loutre WMA is 115,000 acres and was established in 1921 by an act of State Legislature. It was designated as a “state shooting ground” which was the precursor to today’s WMA. It is Louisiana’s oldest WMA and one of the first in the country. Pass-a-Loutre WMA was Governor John Parker’s response to public outcry that the best hunting areas were all being leased by wealthy hunters, and that the common man did not have quality hunting opportunities. The WMA is dominated by freshwater Roseau cane marsh and fringed by a brackish vegetation community. The WMA lies within the Mississippi River Delta in Plaquemines Parish.

Pass-a-Loutre WMA has historically been a hotspot for mineral exploration and production. WMA staff continued to monitor mineral facilities and when appropriate respond to
There are a few restoration projects that were implemented or designed this year:

- Coastal Operations staff continued to coordinate with USACE related to maintenance dredging operations in the lower Mississippi River federally authorized navigation channels. Coastal Operations staff also coordinated with USACE about future plans for beneficial use activities and disposal protocols on Pass-a-Loutre WMA. As part of that effort, staff began preparing a right-of-entry permit for the dredging of the Head of Passes Hopper Dredge Disposal Area that included locations and compliance requirements for pumping dredge material on Pass-a-Loutre WMA (Sawdust Bend area). The finalized permit is expected to be completed in July 2017. USACE staff continues to be hopeful to secure funding to re-dredge South Pass in the coming years. If this occurs, a considerable amount of marsh creation will occur on the WMA.

- Coastal Operations staff continued to coordinate repairs to the Freshwater Reservoir Water Management Unit adjacent to Dennis Pass. Levees surrounding the northern cell of the Pass-a-Loutre WMA Freshwater Reservoir were in need of repairs due to severe damages caused by Hurricane Gustav. Leblanc Marine, LLC. was awarded the contract and began construction in May/June 2016. Construction was completed in December. FEMA funds were used for this project. Water breached the southern levee of the Freshwater Reservoir Water Management Unit at two locations during a high water event in January. LDWF received emergency authorization from the USACE to proceed with breach repairs. Coastal Operations heavy equipment operators re-lifted the two breached sections of levee in February. Coastal Operations staff plan to re-lift the remaining portions of the levee (not previously lifted by Leblanc Marine, LLC. in the previous project) during next fiscal year.

- Ducks Unlimited was successful at obtaining funding from NAWCA for the South Pass crevasse project. Coastal Operations staff continued to coordinate with Ducks Unlimited on the development of this project. The South Pass NAWCA Project included clearing out two existing crevasses (on the western side of South Pass) with a hydraulic dredge and using the spoil material to create bird nesting islands in East Bay. Coastal Dredging Company, Inc. was the contractor for this project and completed dredging during the third quarter of this fiscal year. Due to availability of spoil material only one of the two planned bird nesting islands were constructed but the benefits of that one island were experienced during the first nesting season in the spring of 2017. Several species of colonial nesting seabirds including Caspian terns, gull-billed terns and black skimmers utilized the newly created island for nesting.

Improvements and maintenance to WMA facilities/infrastructure continued this year. Some of the larger projects underway or completed are as follows:

- Leblanc Marine, LLC. was awarded a contract to blast, treat and repaint two Quonset huts at the WMA headquarters during last fiscal year. This project was done to lengthen the useful life of the buildings that are suffering from extensive rusting. Notice to proceed was issued in May 2016 and the project was completed in August of FY 2016-2017.

- Pass-a-Loutre WMA staff maintained the shooting lanes and trails, planted food plots for deer season and planted summer crops. The food plots were planted to supplement the dietary needs of deer at Pass-a-Loutre WMA.

- The Venice lot used to store boats, trailers and other equipment was in desperate need of site improvements including site clearing and leveling, culvert installation, limestone and security fencing. LDWF awarded two contracts associated with this work during this fiscal year. Cucchero and Lockhart Truck Service and Contractor was awarded the contract for all site preparation (clearing, leveling, culvert installation, limestone). Amko Fence was awarded the fence work contract. Staff anticipates all work associated with both projects will be completed next fiscal year.

- The Pass-a-Loutre WMA headquarters needs some roof repairs. Coastal Operations personnel provided logistics and assisted LDWF facility staff with preparing specifications for these repairs. Work is expected to be completed next fiscal year.

- WMA staff maintained boundary markers throughout the WMA and the limited access area this year prior to waterfowl
season to clearly delineate the public/private land boundary. Additionally, administrative and legal staff continued discussions with the Delesdernier Heirs over a disputed boundary line at the corner of Pass-a-Loutre and Southeast Pass. This matter continues to be ongoing.

The Pass-a-Loutre WMA headquarters continued to serve as a field facility for multi-day field meetings, university research and educational events. This year the facility hosted numerous guests including but not limited to Loyola researchers collecting data for a larval blue crab study and LSU ecological students gaining field experience as part of college course work. The facility also hosted a wide variety of LDWF employees such as LDWF Enforcement Division staff conducting patrols and Office of Fisheries staff collecting fisheries data. Coastal Operations staff provided housing, logistical support, and/or information about Pass-a-Loutre WMA for these events. LDWF initiated and coordinated a 30-year anniversary celebration of the Louisiana Crevasse Project in November 2016. LDWF pioneered the crevasse restoration technique over 55 years ago when it first made cuts in the spoil banks of the river and passes. The Louisiana Crevasse Project consisted of the construction of three crevasses on Pass-a-Loutre WMA in 1986 that continue to build land today. Nearly 100 individuals from agencies (state, federal, parish, etc.), non-governmental organizations, media outlets, private landowners, etc. attended this celebration in November 2016.

Several research/monitoring projects are underway on the WMA including the following:
- Hog Exclosures and Vegetative Response (LSU)
- Fisheries Research and WMA Monitoring (Loyola University)
- In November 2016, Pass-a-Loutre WMA staff and neighboring property owners noticed a significant die-back in Roseau cane which prompted discussions and eventual monitoring and research on the cause of this die-back. Researchers from the LSU AgCenter have determined that a new insect to the United States, Roseau cane scale (*Nipponaclerda biwakoensis*), has begun to infest the Roseau cane and may be a contributing factor to the die-back. LSU AgCenter, with help from LDWF and USFWS, has begun an extensive monitoring program in the field to monitor the progression of the scale. LSU AgCenter is also conducting laboratory testing to hopefully determine other factors contributing to the die-back and possible solutions to combating the scale. LDWF has provided logistical and technical support for all of the sampling efforts related to the Roseau cane die-back.

WMA staff made a few attempts to band waterfowl and gallinule on the WMA this year, but were unsuccessful. The black-bellied whistling ducks did not show up in great numbers this summer as in years past, and thus no great effort was made to net any black-bellied whistling ducks this year.

The headquarters recorded approximately 393 visitors this year. Recreational use of the WMA was estimated to be 10,750 visitors. Total rainfall for the year was 61 inches.

**Hunting Statistics**

**Teal Season**

During the four bag checks conducted this year an estimated 60 hunters harvested 44 teal for an average success of 0.7 teal per hunter.

**Waterfowl Season**

An estimated 655 hunters using the WMA during the 11 waterfowl bag check dates averaged 3.6 ducks per hunter effort. The limit-
Pointe-aux-Chenes WMA is a 33,488-acre WMA located in southern Terrebonne and Lafourche parishes. It was purchased from the Exxon Company in 1968 at a cost of $21 per acre and marked the first purchase of marsh land by the Wildlife and Fisheries Commission. It was purchased along with Salvador WMA. The habitat of this WMA is primarily brackish and intermediate marsh dominated by smooth cordgrass and wire grass. Point Farm is a 1,000-acre bottomland hardwood ridge that is also located on the WMA.

Terrebonne Levee and Conservation District continued to design and construct flood protection and mitigation projects on the WMA. LDWF staff frequently coordinated with Terrebonne Levee and Conservation District staff regarding these projects. Some of the accomplishments of the Terrebonne Levee and Conservation District include:

- Terrebonne Levee and Conservation District and the South Lafourche Levee District continued to design, construct and lift portions of the J, K and L reaches of the “Morganza to the Gulf” hurricane protection levee during FY 2016-2017. These reaches are all the portions of the levee within the WMA.
- Terrebonne Levee and Conservation District continued to building terraces in and around the Pointe-aux-Chenes/Ducks Unlimited and Montegut units. These terraces are built as mitigation for wetland impacts from several levee projects.

LDWF designed, and produced a new map for public distribution for Pointe-aux-Chenes WMA this year. These new maps are called Z-cards and provide a pocket sized (folded) detailed aerial image of the WMA, along with a summary of relevant regulations specific to the Pointe-aux-Chenes WMA.

Pointe-aux-Chenes WMA staff worked with the Apache Louisiana Minerals LLC (neighbor- ing landowner) to distribute weevil infested giant salvinia on the WMA this year. This effort was done in an effort to help control the invasive exotic plant.

USDA-NRCS and Coastal Operations staff pursued funding for restoration work at Pointe-aux-Chenes WMA via the CWPPRA program. During this fiscal year, the Bayou Terrebonne Freshwater Diversion Project was proposed by USDA-NRCS at the CWPPRA Regional Planning Team and Technical Committee meetings. The project made it through the “Coastwide Electronic Votes” for further consideration but failed to make it through the Technical Committee Phase 1 voting. Coastal Operations staff provided technical and logistical support for the project. This project planned to use existing parish forced drainage infrastructure along with the addition of some mechanical

**POINTE-AUX-CHENES WMA**

**Area Biologists -**

Jarrod Galloway & Shane Granier

Pointe-aux-Chenes WMA
pumps to provide a reintroduction of freshwater to wetlands on the WMA.

Multiple restoration projects were completed or were in the planning phase this year. The following list contains some of the larger projects:

- Ducks Unlimited and Coastal Operations staff continued to develop plans and pursue funding for the creation of a moist soil unit on the lower end of Point Farm.
- Coastal Operations staff continued to work with FP&C on the capital outlay project to replace and/or repair the S1 and S3 water control structures on the Pointe-aux-Chenes Water Management Unit. Additionally, staff met with National Marine Fisheries Service personnel and other regulatory agencies to discuss the idea of reversing the orientation of the S3 structure in this project to increase the input of freshwater in the unit. No major opposition was expressed and therefore plans are being made to incorporate this change into the final plans and specifications.
- Restore the Earth Foundation and LDWF collaborated on the planting of approximately 150 acres of bald cypress in the Montegut Unit this year as part of their ongoing efforts. Additionally, staff assisted with the carbon offset audit process which assigns carbon credits to the project. Carbon credits are the main tool used by Restore the Earth Foundation to fund additional projects.
- Pointe-aux-Chenes WMA staff assisted with the annual Terrebonne Aquatic Education Clinic which teaches all 4th grade students in Terrebonne Parish how to fish. The clinic was held at the Pointe-aux-Chenes WMA headquarters complex in April 2017.

Coastal Operations staff continue to allocate much time to coordinating improvements, maintenance and repairs to facilities/infrastructure at Pointe-aux-Chenes WMA this fiscal year. Coastal Operations staff continued to make progress on multiple projects. Some of the larger projects underway or completed are as follows:

- Coastal Operations staff continued to work with FP&C and the designer to proceed with replacement of the long damaged Quonset hut at the WMA headquarters. Bids were released in January and initially due back in February 2017. A potential contractor posed questions about the weight limits of the bridge to access the site during the pre-bid meeting. After inspection by an engineer, it was determined that the bridge would need to be replaced. This issue has caused a delay in the contract awarding for the Quonset Hut Replacement Project.
- Coastal Operations staff began coordinating with Louisiana Department of Transportation and Development on an agreement to replace the bridge at the Pointe-aux-Chenes WMA headquarters facility. This project came about as a result of weight capacity issues identified during Quonset Hut Replacement Project bidding (see previous item for details).
- Coastal Operations staff have continued to work with FP&C and the designer on the project to renovate the existing WMA headquarters facility. Due to a multitude of issues, plans to add additional space at the headquarters and renovate the existing residence building were abandoned. Plans are moving forward to renovate the existing office/dorm building.
- Coastal Operations and WMA staff continued to work closely with FP&C and designers on asbestos abatement projects for the storage buildings at the WMA headquarters complex as well as the WMA residence. All associated asbestos abatement was completed in January/February of this fiscal year. Coastal Operation staff will demolish storage buildings sometime after the WMA headquarters bridge is replaced.

Pointe-aux-Chenes WMA staff spent a considerable amount of time preparing for hunting season at Point Farm. Staff prepared, planted and fertilized the dove fields and planted food plots for deer season. Staff also prepared and conducted youth lottery deer hunts on Point Farm.

Hunter Statistics

Teal Season

During the four bag checks conducted this year an estimated 1,535 hunters had an average success of 1.3 ducks per hunter attempt. The top three species harvested were green-winged teal, gadwall and blue-winged teal. Hunters also harvested 3,268 coots, 133 gallinules and four mergansers. Hunters using the Montegut and Pointe-aux-Chenes limited access areas continued to have better success than non-limited access area hunters. The limited access areas averaged 3.8 ducks per hunter while the rest of the WMA averaged 1.1 ducks per hunter.

Dove Season

Eighty hunter efforts revealed by self-clearing permits and 40 lottery youth hunt efforts. There were no harvested deer reported by self-clearing permits and two deer harvested in the lottery youth hunts (one buck and one doe). This equates to one deer per 67 hunter efforts.

Rabbit Season

Self-clearing permit data showed 43 reported efforts resulting in 37 rabbits harvested for an average success of 0.9 rabbit per effort.

Squirrel Season

Self-clearing permit data showed 159 reported efforts resulting in 284 squirrels harvested for an average success of 1.8 squirrels per effort.
Alligator Season

A total of 228 alligator tags were issued to Pointe-aux-Chenes WMA commercial (198 tags) and lottery (30 tags) alligator hunters for the 2016 season. A total of 228 tags were filled. LDWF generates operating budget as a result of alligator harvests on coastal WMAs.

Salvador/Timken WMAs

Area Biologists - Jarrod Galloway & Shane Granier

Salvador WMA is a 35,121-acre WMA located in southern St. Charles Parish. It was purchased from Exxon in 1968 at a cost of $21 per acre, and marked the first purchase of marsh land by the Wildlife and Fisheries Commission. It was purchased along with Pointe-aux-Chenes WMA. This WMA is a freshwater marsh dominated by bull-tongue and maiden cane. Just to the east of Salvador is the 3,920-acre Timken WMA. It is owned by the New Orleans City Park Improvement Association and has been leased to LDWF since 1995. Both of these WMAs are currently the beneficiary of one of the largest restoration projects in the state. The Davis Pond freshwater Diversion Project diverts freshwater from the Mississippi River into the northern portion of Salvador WMA then drains into Lake Cataouatche.

LDWF staff continued to work with Ducks Unlimited to finalize the acquisition of a new tract of land to be added to the WMA this year. The White Tract is an approximately 1,700 acre tract on the northeast border of Salvador WMA. The tract will be purchased using NAWCA funds, LDWF funds and private donations.

LDWF and FP&C staff continued to work together to move forward projects associated with the buildings at the headquarters facility at Salvador WMA. LDWF and FP&C plan to use available FEMA funds from multiple project worksheets to renovate the “Care-taker’s Camp” (i.e., current living quarters). In tandem with the FEMA project, LDWF plans to use operating budget to repair the boat house and construct a new generator shed/fuel dock. Coastal Operations staff provided site visit transportation and continued input and comments on project designs, plans and specifications. During last fiscal year, some of the buildings were determined to require asbestos and lead abatement. Aims Group, Inc. developed plans for contaminant remediation. All abatement was completed by Zimmer-Eschette Service II, LLC. in February 2017. Coastal Operations staff plan to demolish all deteriorated buildings at the facility such as the old headquarters, tractor shed and tool shed in the future.

Coastal Operations staff continued working with the USACE in developing mitigation projects for the USACE Hurricane Protection Levee System for the West Bank of St. Charles, Jefferson and Plaquemines parishes. Project proposals included the potential creation of several hundred acres of fresh marsh, swamp and bottom land hardwood habitats on the WMAs. This project is still only in the early development stages and still has many hurdles to overcome before implementation.

Coastal Operations staff based at Pointe-aux-Chenes WMA continued to maintain the facilities and equipment at Salvador WMA. Staff routinely visited the WMA headquarters to perform needed work such as yard maintenance, building repairs and improvements, and generator maintenance. Staff also replaced numerous missing boundary signs at the WMAs.

An estimated 4,455 recreational users visited the WMAs this year.

Hunting Statistics

Teal Season

During the four bag checks conducted this year an estimated 45 hunters harvested 32 teal for an average success of 0.7 teal per hunter effort.

Waterfowl Season

During the 11 waterfowl bag checks conducted this season an estimated 145 hunters averaged 2.1 ducks per hunter effort. Based on staff recommendations the Louisiana Wildlife and Fisheries Commission removed the limited access area designation from the tank ponds area due to lack of utilization and no marked increase in success. This year the areas of the WMA outside of the Davis Pond and Tank Pond areas had the highest success rates. The top three duck species harvested were blue-winged teal, green-winged teal and gadwall. Hunters also harvested an estimated 35 coots and 70 gallinules during bag checks.

Deer Season

Self-clearing permit data showed that 181 hunter efforts resulted in the harvest of 14 deer. Hunter success was one deer per 12.9 efforts.

Hog Season

Self-clearing permits revealed that there was one hunter effort and no harvest of hogs for FY 2016-2017.

Rabbit Season

Self-clearing permit data showed 15 reported efforts resulting in 49 rabbits harvested for an average success of 3.3 rabbits per effort.

Frogging Season

There is an experimental night-time activity season on Salvador and Timken WMAs that is open from June 1 - Aug. 15. During the 2016 season 171 users completed a self-clearing permit indicating they were participating in frogging activities and reported harvesting 352 frogs. This equates to two frogs per effort.
**Alligator Season**
A total of 483 alligator tags were issued to Salvador/Timken WMA commercial (456 tags) and lottery (27 tags) alligator hunters for the 2016 season. A total of 477 tags were filled. LDWF generates operating budget as a result of alligator harvests on coastal WMAs.

**ST. TAMMANY REFUGE**
Area Biologist - Shane Granier
St. Tammany Refuge is a 1,310-acre refuge located on the north shore of Lake Pontchartrain in St. Tammany Parish. The refuge was purchased by the state in 1935 from the Great Southern Lumber Co. The refuge is managed in cooperation with the USFWS along with Big Branch National Wildlife Refuge.

USFWS pursued funding for restoration work on and adjacent to the refuge via the CWPPRA program. During this fiscal year, the Bayou Cane Marsh Creation Project was proposed at the CWPPRA Regional Planning Team and Technical Committee meetings. The project made it through the “Coastwide Electronic Votes” and the Technical Committee Phase 1 voting for further consideration. This project was voted through during the Technical Committee Phase 2 meeting in December 2017. LDWF supported this project.

Due to USFWS’ oversight, Coastal Operations staff had relatively little participation in the daily management of the refuge this fiscal year.

**Alligator Season**
Ten alligator tags were issued (one hunter) for St. Tammany Refuge for the 2016 season. All 10 tags were filled. LDWF generates operating budget as a result of alligator harvests on coastal WMAs.

**STATE WILDLIFE REFUGE**
Area Biologists -
Tyson Crouch & Lance Campbell
State Wildlife Refuge is a 13,000-acre refuge located in southern Vermilion Parish. It was donated to the state in 1911 by Mr. Edward McIlhenny and Mr. Charles Ward to be managed as a wildlife refuge. This is the oldest refuge in the state and one of the oldest in the country.

USDA-NRCS, Environmental Protection Agency, and Coastal Operations staff continued to pursue funding for restoration work at the refuge via the CWPPRA program. During this fiscal year, the West Vermilion Marsh Creation and Shoreline Protection Project was proposed as a cooperative effort between USDA-NRCS and the Environmental Protection Agency at the CWPPRA Regional Planning Team and Technical Committee meetings. The project made it through the “Coastwide Electronic Votes” for further consideration but failed to make it through the Technical Committee Phase 1 voting. Coastal Operations staff provided logistical and technical support for the project.

Coastal Operations staff continued to support efforts to repair/replace infrastructure at State Wildlife headquarters that was damaged during hurricanes Rita and Ike. See details on these projects below:
- FEMA bulkhead and dock replacement was completed last fiscal year. However, the dock subsequently subsided during the warranty period (current fiscal year). The contractor (B & J, Inc.) completed warranty repairs to the dock in March 2017. Staff provided input and logistical support for this project.
- Insulation Technologies, Inc. was contracted to remove all asbestos and lead from the old living quarters. All removal was completed in August 2016.
- Coastal Operations staff demolished the old living quarters and added limestone to the site in September 2016.
- Staff continued to work with FP&C on repairs of the small and large boat sheds and the lookout tower as well as the replacement of the tractor, tool, trapper’s and pump sheds. FEMA recommended building consolidation for the tractor, tool and trapper’s sheds. Staff is currently awaiting official FEMA approval to do so.

NAWCA funds associated with the Ducks Unlimited Tom’s Bayou Water Control Structure project remained unspent upon project completion. Therefore Ducks Unlimited requested and received approval to use the remaining funds to replace the Prien Bayou water control structure. Berry Brothers General Contractors, Inc. was the contractor and completed the project in June 2017. Coastal Operations staff assisted Ducks Unlimited with survey logistics and technical support for this project. Staff also plans to construct a new fishing dock on the water control structure during next fiscal year.

Coastal Operations staff participated in an annual operations and maintenance inspection trip of the Lake Portage Land Bridge CWPPRA Project (TV-17). The project has successfully maintained itself over the years and there are no current plans for any modifications or repairs.

Coastal Operations staff based at Marsh Island Refuge continued to maintain the facilities and equipment at State Wildlife Refuge. Staff routinely visited the refuge to perform needed work such as maintenance to facilities, grounds, water control structures and public use areas. Coastal Operations staff installed handrails on a standby generator platform and relocated the Tug Boat electric hook up due to new bulkhead construction.

Coastal Operations staff prescribe burned approximately 5,400 acres this year to provide improved habitat condition for wintering geese and reduce fuel loads to minimize wildfires.

An estimated 5,764 recreational users visited the refuge this year.
Conservation education is a vital part of the LDWF mission. The Education Program is a component of the Office of Wildlife and focuses on three main areas: Hunter Education, Aquatic Education and General Wildlife Education/Outdoor Skill Development.

Staffing for the Education Program consists of 12 educators who work in the field, three supervisors who have field responsibility in addition to their supervisory duties, one hunting heritage coordinator, one administrative specialist, one education manager, and one education program manager. The Archery in Louisiana Schools (ALAS) program has one supervisor, one regional coordinator and two part-time employees. Three full-time and one part-time wildlife technicians staff LDWF-operated shooting ranges, and one maintenance repairer is responsible for maintenance of an education facility, including a shotgun and air rifle range.

Hunter Education

Hunter and bow-hunter education classes cover firearm safety and operation, hunter ethics, principles of wildlife management, outdoor survival, and tree-stand safety. Hunter education certification is mandatory for hunters born on or after Sept. 1, 1969. There are exceptions to the hunter education requirement that allow persons to hunt without hunter education certification if they are directly supervised by someone 18 or older with hunter education certification or by a licensed hunter born prior to Sept. 1, 1969. An exemption is also provided for persons with a current POST certification or military experience, and a hunter education exemption card is issued to those who qualify. Most states have mandatory hunter education requirements, and these exemptions, including the POST/military exemption, apply only in Louisiana. The regular Louisiana hunter education certification card is honored in all 50 states.

Students have two options for taking a hunter education class. The classroom course consists of 10 hours of instruction, usually spread over two to three days. The online course consists of an interactive internet course that the student can complete at home and is followed by a mandatory four to six hour field day event. The field day reinforces the lessons learned in the online course and provides an opportunity for hands-on learning. Both the classroom course and the online/field day include a live-fire exercise where students must demonstrate that they can safely handle and discharge a firearm.

Hunter education classes are taught by Education Program staff and a network of volunteer instructors. There are approximately 1,700 active volunteer hunter education instructors in Louisiana. Volunteer instructors complete an instructor training course and background check prior to being certified. Education Program staff coordinate the delivery of classes with volunteers, recruit and train volunteer instructors, and keep volunteer instructors supplied with materials to teach classes. In FY 2016-2017, 92 new volunteer instructors were trained through 12 instructor courses. A volunteer instructor workshop was held at Camp Grant Walker in Pollock, La., with 130 instructors in attendance. Service and performance awards were presented to volunteer instructors. The time volunteered by hunter education instructors, volunteer range officers and ALAS coaches to deliver hunter education classes, shooting range operation, and train archers is used as in-kind match for the hunter education federal grant. In FY 2016-2017, volunteers contributed 31,644 hours of service time.

Volunteer Hunter Education Instructors viewing a field demonstration at the 2017 Volunteer Workshop.
STUDENT CERTIFICATION
Total hunter education certifications experienced a large decline from last fiscal year (14,544 in FY 2015-2016). The online/field day course remains popular as the proportion of students choosing this option increased in FY 2016-2017 (27 percent in FY 2015-2016). Demand for bow-hunter education remains low as this requirement is no longer mandatory to hunt with archery equipment on national wildlife refuges in Louisiana.

Certification details for FY 2016-2017 are as follows:

<table>
<thead>
<tr>
<th>Course Type</th>
<th># Courses</th>
<th># Students</th>
<th>Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom Course</td>
<td>300</td>
<td>8,298</td>
<td>71%</td>
</tr>
<tr>
<td>Home Study/Field Day</td>
<td>125</td>
<td>3,326</td>
<td>29%</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>425</strong></td>
<td><strong>11,624</strong></td>
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</tr>
</tbody>
</table>

BOWHUNTER EDUCATION
Five bow-hunter education classes were offered, with 25 students certified.

HUNTING INCIDENTS
During FY 2016-2017, there were 13 reported hunting incidents involving injury or death. One of the 13 resulted in a fatality. Four of the incidents involved falls from an elevated stand with the remainder involving firearms. Incidents were compiled and entered into the International Hunter Education Incident Database. Information on these incidents was presented to instructors at the Volunteer Instructor Workshop. Education Program staff and volunteer instructors are placing additional emphasis on tree-stand safety in their hunter education classes and field days.

<table>
<thead>
<tr>
<th>Type</th>
<th># Victims</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ricochet</td>
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</tr>
<tr>
<td>Careless Handling of Firearm</td>
<td>5</td>
</tr>
<tr>
<td>Loading/Unloading firearm</td>
<td>1</td>
</tr>
<tr>
<td>Victim Out of Sight of Shooter</td>
<td>1</td>
</tr>
<tr>
<td>Discharge of Firearm in/on Vehicle</td>
<td>1</td>
</tr>
<tr>
<td>Fall While Climbing in/out of Position</td>
<td>3</td>
</tr>
<tr>
<td>Failure to Use a Fall Restraint Device</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total Incidents</strong></td>
<td><strong>13</strong></td>
</tr>
</tbody>
</table>

Primary causes for these incidents were as follows:

**SHOOTING RANGE/ TRAINING FACILITIES**
Two education centers and four shooting ranges are available to the public and managed by the LDWF Education Program.

**BODCAU SHOOTING RANGE**
This range is located in Bossier Parish on the Bodcau WMA. In FY 2016-2017, range modifications were completed that included; installation of additional pistol shooting positions, a new pistol range backstop, a new HESCO® barrier separating rifle and pistol ranges, and installation of safety baffles on the rifle range. Accommodations for public use now include 13 rifle and 18 pistol shooting positions and a shotgun range with four manual clay target throwers. The range is open to the public three days a week and recorded 11,580 user visits last fiscal year.

**WOODWORTH EDUCATION CENTER**
The Woodworth Education Center located in Rapides Parish contains a classroom, lodging facilities and a public shooting range. Range facilities consist of a rifle range, handgun range and a five-stand shotgun range. The range is open for public access four days a week, and recorded 9,266 user visits last fiscal year.

**SHERBURNE SHOOTING RANGE**
Located in Pointe Coupee Parish on the Sherburne WMA, the Sherburne range consists of two shotgun ranges, one archery range, one
handgun range and one rifle range. It is open to the public seven days per week and recorded 10,440 user visits last fiscal year.

WADDILL OUTDOOR EDUCATION CENTER AND REFUGE
The Waddill Outdoor Education Center and Refuge in East Baton Rouge Parish provides an outdoor education environment in an urban setting. A classroom, shotgun range, archery range and air rifle range are used for hunter education instruction and recreational shooting opportunities. In August 2016, historic flooding along the Comite River inundated the property and flooded the facilities. The outside facilities (ranges and ponds) have been repaired and reopened to the public. The main classroom facility is still awaiting initiation of repairs.

HONEY ISLAND SHOOTING RANGE
The Honey Island Shooting range is located on the Pearl River WMA in St. Tammany Parish. The range is managed under an agreement with Southeast Louisiana Firearms Safety, Inc. (SELFs). SELFs is a non-profit organization staffed by volunteers that maintains and operates the range for public use. Shotgun, rifle and handgun shooting opportunities are available to the public. The range is open to the public three days per week. There is a $6 per day fee to use the range that is collected by SELFs to fund operation and maintenance of the range. The rifle berm was extended and two new shooting positions were added by SELFs during the reporting period. This range recorded an estimated 18,000 user visits last fiscal year.

AQUATIC EDUCATION
LDWF’s Education Program introduces people to the sport of fishing and promotes awareness of Louisiana’s aquatic resources. This is accomplished through fishing clinics, camps, teacher workshops and distribution of publications. Aquatic education programs are delivered by Education Program staff and volunteers. During FY 2016-2017, volunteer aquatic education volunteers provided 8,442 hours of service, which was used as in-kind match for the aquatic education federal grant.

FISHING CLINICS
Fifty-four aquatic education clinics were held across the state, with 6,396 total participants. Subjects covered at these clinics and workshops include outdoor ethics, fish identification, tackle selection, casting, and fishing techniques. Participants also had an opportunity to go fishing.

PUBLICATIONS
Three publications were distributed to teachers in Louisiana schools for classroom use. These publications promote appreciation of aquatic resources and habitats.

- “Fishing For Fun” - 9,800 distributed
- “Let’s Go Fishing” - 9,500 distributed
- “Finnie the Fingerling” - 7,000 distributed

TEACHER WORKSHOPS
Teacher workshops were conducted to provide training in aquatic education that can be brought back to the classroom. The following workshops were conducted:

NATIVE FISH IN THE CLASSROOM
Native Fish in the Classroom is a multidisciplinary, classroom-based aquaculture stewardship project for middle school and high school students. The goal of the Native Fish in the Classroom project is to develop an attitude of natural resource stewardship and to create a constructive, active learning situation in which students can explore strategies for sustaining aquatic ecosystems. Students obtain hands-on, science-based knowledge of the state’s aquatic resources. Teachers attended several workshops and meetings to ensure successful preparation for receiving paddlefish eggs in the spring. Teachers then participated in the spring paddlefish spawn where they received paddlefish eggs to hatch and raise in their classrooms. The paddlefish fingerlings were then returned to the LDWF Booker Fowler Fish Hatchery. Schools brought students on a field trip to the hatchery to return their classroom raised fish. The hatchery then released the student-raised paddlefish into suitable aquatic habitats. During the 2016-2017 school year, approximately 2,000 students participated in the Native Fish in the Classroom project.

GENERAL WILDLIFE EDUCATION AND OUTDOOR SKILL DEVELOPMENT
Education Program staff are involved in a variety of activities related to hunter and aquatic education. Staff provide information and make presentations on topics of interest to civic organizations, school groups and others. Outdoor skill development programs and efforts have increased in recent years.

Students are given an opportunity to practice their fishing skills at the 2017 Terrebonne Aquatic Clinic.
Demand is high for programs that teach beginners about getting started in hunting, fishing and the shooting sports. In recognition that funding and support for conservation is directly linked to hunters, fishers and shooters, the LDWF Education Program has expanded its efforts to recruit and teach skills to new outdoor enthusiasts.

NATIONAL HUNTING AND FISHING DAY
The general public is invited to join LDWF and other conservation partners in an open house atmosphere that involves hands-on activities and information about conservation. The Education Section provided training to the public in the safe use of shooting and fishing equipment. Four LDWF-sponsored events were held at the following locations: Bodcau WMA, Monroe Field Office, and the Woodworth Outdoor Education Center. The Waddill event was cancelled last year due to flood damage to the facility.

BECOMING AN OUTDOORS WOMAN (BOW)
BOW is a popular program with women interested in learning about outdoor recreation. During the BOW weekend workshop, education staff and volunteers conduct classes on a variety of outdoor skills, including shooting, fishing, canoeing, hunting, orienteering, camping, and wildlife appreciation. One BOW workshop was conducted in FY 2016-2017 with 135 participants and a Beyond BOW deer hunt was conducted on Floy McElroy WMA.

FAMILIES UNDERSTANDING NATURE (FUN) CAMP
Families Understanding Nature provides both fun and education to a parent and youth through a weekend of staff-led outdoor activities. Family members are introduced to archery, rifle and shotgun shooting, kayaking, fishing and camping. The education staff conducted two FUN Camps during FY 2016-2017. One camp was Mother/Child and the other was Father/Child with a total of 55 participants.

ARCHERY IN LOUISIANA SCHOOLS (ALAS)
ALAS is Louisiana's version of the National Archery in the Schools Program. ALAS promotes international style target archery as part of the physical education curriculum for grades 4-12. At the end of FY 2016-2017, 191 schools were participating in the program, impacting an estimated 22,920 students. Two regional and one state tournament were held last year. A 3-D competition was held as part of the state tournament format for the second time. Forty-four schools participated...
in the regionals and 37 of those participated in the state tournament. Total tournament participation was 2,596 archers in the elementary, middle, and high school divisions. This represents an increase of 24 percent in tournament participation from FY 2015-2016 (1,916 participants).

Teams and individuals from Louisiana schools participated in the National Archery in the Schools Program National and World Tournaments (23 and eight schools respectively). Louisiana schools had a strong showing at both tournaments with several schools placing in the top three of their respective divisions in both bulls-eye and 3-D competition.

LOUISIANA HUNTING HERITAGE PROGRAM
The Louisiana Hunting Heritage Program is a program to recruit and develop new hunters by matching individuals who want to learn to hunt (apprentices) with experienced hunters (mentors). Many individuals have an interest in hunting but lack the social network to become involved. Once accepted in the program a pairing is made of an apprentice with a mentor who agrees to take the apprentice under their guidance. Since the program began 137 apprentices and 49 mentors have signed up, with two new pairings being made for FY 2016-2017.
The primary objective of the Environmental Education Section is to provide current, accurate information and resources to PK-16 educators and students in the state. This section, consisting of two full-time and one part-time staff member, acts on behalf of the governor-appointed Louisiana Environmental Education Commission (LEEC) and acts under the legal authority and funding granted in R.S. 30:2503 et seq. This section also receives grants and donations from outside funding sources in support of programming. In FY 2016-2017 the Environmental Education Section administered six primary programs: Grants, Green Schools, Professional Development, State Conference, Environmental Awareness Contest, and Outreach.

**GRANTS PROGRAM**

The LEEC Grants Program supports curriculum based on sound scientific principles, having an environmental focus, and impacting Louisiana students, educators or Louisiana issues. Teachers, university students and non-formal educators apply for these competitive mini-grants ranging from $1000 - $5000. Environmental Education staff solicits assistance from professionals in the greater science community to review and score the grants in a competitive, anonymous award process. Staff then monitors the grants and provides technical guidance and oversight as needed. Posters submitted by research students to various symposia are also monitored. Much success was noted in the grants program, despite severe impacts from August flooding to awarded schools.

**GREEN SCHOOL GRANTS**

Green School Grants support school-wide initiatives that fall under the broad categories of reducing environmental impacts and costs, improving student and staff health and wellness, and providing effective environmental and sustainability education. Three grants were awarded during FY 2015-2016 that completed implementation during the 2016-2017 school year. Approximately 1,983 students were impacted by these grants on projects that included solid waste reduction, improving water literacy, recycling and school garden initiatives.

Six grants have been awarded in FY 2016-2017. Approximately 1,835 students will be impacted by the projects that these grants support. School sustainability initiatives supported include:

- Water quality testing and remediation, and reduction of plastic water bottle use.
- Installation of a nature trail.
- Replacing school-yard exotics with native plants, initiating composting and vermiculture systems and installation of a rain barrel.

St. Aloysius School students benefit from LEEC grant.
PROFESSIONAL DEVELOPMENT GRANTS
Three nonprofit organizations received funding to support professional development of teachers in the past school year. The Barataria-Terrebonne National Estuary Program provided a seven-hour workshop to 23 educators who received WETMAAP information and training on Louisiana wetlands, specifically the Barataria-Terrebonne Estuary. Sci-Port Discovery Center trained 13 Caddo and Bossier parish teachers on the importance of watersheds, wetlands and water quality. The Academic Distinction Fund provided ongoing professional development to 18 preschool teachers in the Baton Rouge area.

Five new professional development grants were awarded in FY 2016-2017. Awarded projects include continued support of the Academic Distinction Fund and Sci-Port Discovery Center programs. It adds an overnight nature-focused workshop at Audubon Nature Institute and training of non-formal educators on the new Louisiana Student Standards for Science. Lastly, it will provide Lafayette Parish teachers with training on using an Application Programmable Interface to design solutions for a cleaner future.

UNIVERSITY RESEARCH GRANTS
Six university students attending LSU and pursuing their Masters or PhD conducted research supported by LEEC grants during FY 2016-2017. The research topics pursued included:

- Characterizing the fungi community of *Phragmites australis*: geographic and genotypic variation.
- Carbon Transport and transformation in the Mississippi-Atchafalaya Rivers.
- The effects of predation on disease transmission in the soybean looper.
- Life history traits of native insects *Ischnodemus falcatus* and *Prokelisia marginata*.
- Development of spatial patterns in dominant bunchgrasses at a pine savanna restoration site.
- Assessing sediment availability in the lowermost Mississippi River for Louisiana coastal restoration.

Seventeen university students attending Southeastern, LSU, UNO and Tulane were awarded new grants in FY 2016-2017. Their upcoming research includes the following topics:

- Growth responses of three wetland plant species to various levels of flooding and nutrients
- Long-term population dynamics of an old-growth longleaf pine population
- Impacts of climate change - the roles of abiotic and biotic interactions on community-dynamics in the monarch butterfly system
- Differential gene expression in roots of *Spartina alterniflora* under oil pollution stress
- Social and environmental information use by foraging brown pelicans
- Individual and density dependent movement of an insect within a patch, matrix and at the border
- Biological control at a range margin: interactions between multiple agents and host genotypes
- Migration stopover ecology of the semipalmated sandpiper (*Calidris pusilla*) in the northern Gulf of Mexico
- Biomarker of resilience in *Crasostrea virginica*
- Genetics of a migratory bird population
- Temporal heterogeneity as a driver of microevolution of plasticity in thermotolerance in the differential grasshopper
- Impact of soil microbes on cogongrass growth in native and non-native soil
- Determination of carbon sources in the Mississippi-Atchafalaya River System
- Interacting effects of disease and non-native milkweed species on the behavior and survival of monarch butterflies
- Effects of hurricanes, in the context of ongoing sea level rise, on plant communities in coastal transitions
- Assessment of sand storage of large channel bars in the Lower Mississippi River
- Diversity in an invasive plant: a historic and contemporary perspective

Research students are required to share their findings with PK-12 educators at the Louisiana Environmental Education Symposium.

GREEN SCHOOLS
The Louisiana Green Schools program supports schools seeking to reduce their environmental impacts and costs, improve student and staff health and wellness, and provide effective environmental and sustainability education. The program’s goals are achieved through administering of Green School Grants (as outlined above), providing professional development and outreach, including hosting the Louisiana Green Schools Youth Summit, and by administering the U.S. Department of Education Green Ribbon School Award for the state in partnership with the Louisiana Department of Education.

PROFESSIONAL DEVELOPMENT AND OUTREACH
The Green Schools program provides information and technical assistance to educators, school administrators and custodial staff through field visits, phone calls, webinars, and emails. The Louisiana Green Schools Network was initiated, and three meetings held, in FY 2016-2017 to bring together state agency and non-profit personnel to advance green school initiatives. The first Louisiana Green Schools Youth Summit was also held in FY 2016-2017 at the Audubon Zoo in New Orleans. The summit places students at center, and allows them an opportunity to present to their peers about their school’s sustainability. Attendance reached capacity of the venue, with over 100 students, educators and chaperones present.

GREEN RIBBON SCHOOL AWARDS
The U.S. Department of Education Green Ribbon School award is a national program that recognizes schools that have made significant contributions to improving their environmental sustainability. This award is a mechanism to not only share these schools’ achievements, but to communicate the best practices and programs that can be replicated at other school sites. Louisiana Green Schools and the Louisiana Department of Education submitted three schools for consideration, all of which were confirmed as Green Ribbon Schools by the U.S. Department of Education. The awarded schools include Belle Chasse Academy (Belle Chasse), LSU (Baton Rouge) and Mayfair Laboratory School (Baton Rouge). A total of 3,119 K-12 students and 31,527 collegiate students were impacted by this program. Additionally, delegates from the U.S. Department of Education Green Ribbon School awardees attended a ceremony in Washington D.C.
**PROFESSIONAL DEVELOPMENT AND CURRICULUM**

**WATERSHED WEEBS**

LDWF’s Environmental Education staff secured a $90,000 National Oceanic and Atmospheric Administration grant in 2014 to administer Watershed Webs, which is a three-year program aimed at educating teachers and students about watersheds and the impacts of trash in our waterways. This program includes the development of the Watershed Experience Tracker (WET) app, development of classroom curriculum, teacher workshops and student field experiences.

1. **WATERSHED EXPERIENCE TRACKER (WET)**

LDWF Environmental Education and GIS staff developed the WET app, which is used by teachers and students involved in this program. It continues to be used to track the location of litter cleanups and the number of pieces of plastic, metal, foam, paper, fishing gear and miscellaneous materials collected at teacher workshop beach cleanups and student field experience cleanups in the schools’ communities.

2. **CLASSROOM LESSONS**

Classroom lessons developed by LSU, UNO and LDWF’s Environmental Education staff continue to be presented at the teacher workshops. Lessons include “Mapping Watershed Debris,” “How Long Does it Last?” and “Data Collection of Debris.” Students learn to track debris through their watershed, estimate the time it takes for materials to degrade and scientifically collect data using various quantification techniques. “A Little Litter Story” is a newly-developed, hands-on activity designed to help students understand the relationship between watersheds, the Gulf and ultimately marine debris.

3. **FACILITATION OF PROFESSIONAL DEVELOPMENT WATERSHEDS WORKSHOPS**

Environmental Education staff facilitated two four-day professional development workshops for middle and high school teachers in FY2016-2017. The first was held at LUMCON during the summer of 2016 and the second was held in June 2017 at the LDWF Grand Isle Fisheries Research Lab. A total of 36 teachers from coastal communities within the Gulf States (Texas, Louisiana, Alabama and Florida) each received 32 professional development contact hours for their participation. Teachers participated in four days of activities, lessons, labs and a beach sweep held on either Trinity Island or Elmer’s Island. Participants were able to see just how much trash collects on a beach that the public does not have easy access to, helping them to understand that as much as 80 percent of the trash found in our oceans actually originates from land sources and waterways. Teachers were trained in how to conduct water quality testing and received over $300 worth of equipment and materials for their classrooms. They also viewed the impacts of coastal erosion on barrier islands and witnessed the success of coastal restoration projects.

4. **FACILITATION OF STUDENT FIELD EXPERIENCES**

Teachers participating in Watershed Webs qualified to have a similar one-day field experience conducted with their students in grades 5-12. Environmental Education staff traveled to the schools’ communities to help facilitate the field experiences. During FY2016-2017, Environmental Education Section staff and grant contractors conducted six student field experiences for workshop attendees and one field experience for students attending a Big Buddy mentoring day camp. More than 250 students took part in these field experiences.

The field experiences began with a discussion about watersheds, including the Mississippi River and Atchafalaya watersheds down to the students’ home watersheds, the pathways of debris to the Gulf of Mexico, and the non-point source nature of aquatic debris. The discussion was followed by a beach or waterway cleanup following a protocol developed by Environmental Education staff and contractors. Students and facilitators then sorted and weighed the debris, posted outcomes to an application developed by LDWF Environmental Education and GIS staff, and discussed those outcomes. Two field experiences also included water quality data collection. Students collected water samples and then tested the samples for dissolved oxygen, temperature, pH and clarity. The process included a discussion about how each of these parameters impacts wildlife and the broader ecosystem influenced by these water conditions.

**STATE CONFERENCE**

Environmental Education staff organizes and facilitates the annual Louisiana Environmental Education State Symposium, which is the premier environmental education state conference for formal and non-formal environmen-
tal educators, science teachers, pre-teachers and government staff working in complementary fields. This professional development event for educators stimulates new classroom ideas and techniques, provides an opportunity for educators to network, and offers additional information on resources, professional development and classroom or student opportunities. The 2017 theme was “Protecting Louisiana’s Endangered Species,” bringing attention to many little-known rare, threatened or endangered species in our state. This two day event, with 240 educators in attendance, included day-long short courses, concurrent sessions, exhibits and keynote address.

SHORT COURSES
Five optional short courses were offered to participants. “Growing up WILD” was led by Dr. Brenda Nixon, co-Director of the Gordon A. Cain Center for Science, Technology, Engineering and Mathematics Literacy at LSU, and was held at LSU AgCenter Botanical Gardens at Burden. This workshop taught participants how to connect early childhood students with the natural world. Barataria-Terrebonne National Estuary Program education specialist Alma Robichaux led a group of teachers on the “Eagle Tour” in the Atchafalaya Basin. Participants traveled by boat through the swamp to view eagles in their natural habitat. “Endangered Species and Zoos” was led by Brenda Walkenhorst, Director of Education Projects at Audubon Institute. Teachers learned about the causes of species decline and what conservation steps students can take to curb this trend. “Wetlands Workshop” was hosted by LDWF Aquatic Educator Angela Capello and LSU Sea Grant Marine Education Coordinator Dianne Lindstedt. Participants learned about wetland functions and values and why southeast Louisiana is experiencing the most rapid land loss in the world. “Young Environmental Science Stewards Project” workshop was conducted by Dinah Maygarden, UNO Pontchartrain Institute for Environmental Sciences Education Program Manager at LDWF Headquarters. Participants explored mapping tools and practiced hands-on water data collection following GLOBE protocols.

CONCURRENT SESSIONS
Fifteen 50-minute concurrent sessions demonstrating hands-on activities, exemplary programs and lesson demonstrations were offered to pre-K through college level educators. A wide variety of topics were covered: litter education, extirpation and extinction, coastal preservation, citizen science on public lands, using drones or high altitude balloons as monitoring and exploration tools, wetland lessons, pesticide poisoning, marine microplastics, wetlands as a commodity, historical review of human impacts, using videography in the classroom, watersheds education and composting. The post-event evaluations scored excellent (4.8/5.0) overall.

PLENARY SESSION
The plenary panel discussion was a highlight of the event. Monica Sikes from the US Fish and Wildlife Service provided a general overview of the process for listing and delisting threatened and endangered species. LDWF staff member Sara Zimorski provided information on the reintroduction of extirpated species (whooping cranes). LDWF staff member Maria Davidson explained the process of recovering a species that had been listed (Louisiana black bear).

EXHIBIT HALL
Twenty-one exhibitors provided informational displays throughout the event in the exhibit hall. Six university students attended and displayed posters featuring their grant research during the Friday evening poster session. Five high school students involved in the Young Environmental Science Stewards Project with Ms. Maygarden exhibited and answered questions on their project as well. Environmental Education staff also created trading cards highlighting 28 rare, threatened, endangered or delisted Louisiana species of plants or animals that were handed out by exhibitors as an ice breaker activity.

KEYNOTE AND AWARDS PROGRAM
Dr. Jessica Kastler, Coordinator of Program Development at the Gulf Coast Research Laboratory’s Marine Education Center in Mississippi, served as the keynote. The Green Ribbon Schools recognitions program was also held during the event to honor the three Louisiana awardees who were nominated for the U.S. Department of Education Green Ribbon Schools awards. Lydia Hill, Louisiana Department of Education Science representative, presented the awards. Past LEEC members Dr. Nancy Rabalais, former Board of Regents representative, and Ann Wilson, former Louisiana Department of Education representative, were presented with distinguished service awards.

ENVIRONMENTAL AWARENESS CONTEST
In the fall of 2016, LEEC announced its 15th Annual Environmental Awareness Student Art and Language Arts Contest. Open to public, private and home school students around the state from ages 5-18, the art and language arts contest invites applicants to submit paintings, drawings, poetry, fictional stories, and non-fiction accounts based on an environmental theme chosen by the commission. The 2017 theme was Protecting Louisiana’s Endangered Species. First, second and third place winners received cash prizes in the amounts of $200, $100 and $75, respec-
tively, at an awards reception at the Louisiana Governor’s Mansion in June 2017. In addition, each entry that placed in the prior year was included in the 2017 Louisiana Environmental Education Calendar, published in October 2016. More than 500 students from 23 parishes around the state submitted entries.

OUTREACH

FLOOD RELIEF

It quickly became apparent that there were many teachers, students and schools directly impacted by the August flooding event in the greater Baton Rouge area. In many cases, not only did teachers lose most of their personal possessions, they also lost all professional items when their schools were flooded. Environmental Education staff therefore put out a national call for environmental education supplies to help impacted schools and teachers. Federal and state agencies, non-governmental organizations, colleges, and individuals generously provided a large quantity of needed materials. Collected items included educational kits, posters, textbooks, manipulatives, curriculum guides, maps, Amazon gift cards and more. Donations collected were used to purchase supply items that were specifically requested. Recipient schools and teachers expressed their sincere gratitude for these much-needed educational materials.

EXHIBITS AND PRESENTATIONS

Environmental Education staff exhibit at various events to disseminate environmental education information and current programming. Exhibit venues in FY 2016-2017 included: West Baton Rouge Summer Camp, Louisiana Science Teachers Association State Conference, Keep Louisiana Beautiful Conference, Ocean Commotion, Louisiana Earth Day, Southeastern Association of Fish and Wildlife Agencies, Louisiana Envirothon and National Hunting and Fishing Day. Staff also presented at the National Oceanic and Atmospheric Administration Grant Workshop in Galveston.

ELECTRONIC DISSEMINATION

The Environmental Education Section published 40 electronic newsletters and bulletins to the LDWF website in FY 2016-2017. The newsletter promotes Louisiana Environmental Education programs and environmental news, professional development opportunities, grants and student competitions. The newsletters were distributed to more than 1,300 formal, non-formal and informal environmental educators from Louisiana and surrounding states.

WEBPAGE

A current, informative webpage benefitting educators and the general public is maintained on the LDWF website. Applicable educational resource links, grants information, and current programs are highlighted. The website is updated regularly to provide up-to-date information on programs, events and resources. The address is www.wlf.louisiana.gov/eec.
The objectives of the Habitat Section are to gather and compile data on fish and wildlife resources, determine the requirements for conserving the resources, and provide information to governmental agencies, nongovernmental organizations and the public. Data are also gathered on the potential impacts of human activities on the resources. These data and technical assistance are provided to regulators, planners and decision-makers in advance of execution of projects in order to avoid, minimize and/or mitigate any adverse environmental impacts. The Habitat Section is comprised of the four following programs: Statewide Environmental Investigations; Louisiana Natural and Scenic Rivers Program; Permits Coordination; and Seismic Section.

**STATEWIDE ENVIRONMENTAL INVESTIGATIONS**

**PERMIT REVIEW AND COMMENT - LDNR & USACE**

Statewide Environmental Investigations is authorized under the Fish and Wildlife Coordination Act and is partially funded by a U.S. Fish and Wildlife (USFWS) grant. Staff is responsible for reviewing and providing comments and mitigation recommendations on all permits sought from state and federal environmental regulatory agencies, primarily Louisiana Department of Natural Resources (LDNR) and the U.S. Army Corps of Engineers (USACE). Staff members reviewed and provided comments to 1,291 state and federal permit applications during FY 2016-2017. It was determined that compensatory mitigation was required on approximately 29 percent of the 1,291 projects reviewed. Written comments and recommendations aimed at avoiding, minimizing and/or mitigating adverse impacts were issued by LDWF for all state and federal permit applications received.

Staff continued to receive a number of USACE Section 10 permit applications for the withdrawal of surface water classified as waters of the United States. These water withdrawal requests were primarily for hydraulic fracturing of shale formations. LDWF responded to all such permit requests with recommendations on how to conduct these substantial water withdrawals while also avoiding adverse impacts to fish and wildlife resources. A total of 12 such permits were issued during FY 2016-2017. Staff also coordinated with USFWS on their document, “Recommendations Intended to Minimize the Impact of Oil and Gas Activities - Especially Fracking.”

In addition to permit review, staff participated in permit site inspections and habitat evaluations, provided technical assistance to the public on wetland issues, and worked with private developers and consultants involved in the regulatory process. During FY 2016-2017, staff conducted 21 on-site field inspections and participated in 46 meetings and conference calls with applicants, agents and regulatory agency personnel. Staff gave presentations to non-governmental organizations, state agencies and user groups and attended several multiday technical workshops aimed at providing regulators a deeper understanding of stream restoration and mitigation.

Staff members also represented the agency on two Mitigation Bank Interagency Review Teams chaired separately by the USACE Vicksburg and New Orleans districts. The purpose of the Interagency Review Teams is to provide regulatory review, approval and oversight of wetlands mitigation banks. During FY 2016-2017, staff evaluated, inspected and provided technical comments and recommendations on dozens of wetlands mitigation banking proposals, mitigation banking instruments and mitigation banking monitoring plans. A total of seven wetland mitigation banks were approved and authorized in Louisiana during FY 2016-2017, totaling over 3,400 acres statewide. Staff attended all Interagency Review Team meetings and nearly all of the site inves-

*Habitat Section staff and Mitigation Bank IRT monitoring a Pine Savannah Mitigation Bank.*
tigations. Staff worked with USACE to update multiple Mitigation Bank Templates.

Staff continued to provide technical assistance to USACE related to several large- and small-scale maintenance dredging projects, beneficial use projects, flood control projects, and navigation projects being undertaken by the New Orleans, Galveston, Fort Worth, and Vicksburg districts.

Statewide Environmental Investigations also assisted in protecting all lessees of private oyster grounds by reviewing and approving, sometimes with modification, water bottom assessments submitted by project applicants prior to the initiation of activities affecting state water bottoms under lease to private parties for oyster production. Coastal Use Permit applicants can be required at the request of Statewide Environmental Investigations staff to modify the activity if the proposed project unnecessarily impacts oyster resources. There were 35 water bottom assessments reviewed and approved by agency staff during FY 2016-2017.

PROJECTS OF OTHER AGENCIES AND THE PRIVATE SECTOR

LDWF worked with numerous governmental agencies in conducting environmental investigations including: USFWS; National Marine Fisheries Service; U.S. Environmental Protection Agency; USACE; U.S. Forest Service; U.S. Department of Agriculture; Federal Highway Administration; Federal Aviation Administration; U.S. Coast Guard; Department of Energy; Federal Energy Regulatory Commission; Department of Defense; National Park Service; Louisiana Department of Transportation and Development; LDNR; Louisiana Department of Environmental Quality (LDEQ); the Louisiana Department of Culture, Recreation and Tourism; Louisiana National Guard; and the Louisiana Division of Administration - Office of Community Development. On a local level, we worked with several parish governments and local authorities providing technical assistance to them in relation to preservation of riparian habitat and other wetlands, flood control and other drainage projects.

LANDSCAPE CONSERVATION COOPERATIVES

We have continued to commit time and resources to participating in the Gulf Coast Prairie Limited Conservation Cooperative. The Limited Conservation Cooperative, comprised of state and federal agencies, universities and non-governmental organizations, is charged with providing the best available science as the foundation in delivering a coordinated approach to meeting conservation needs across the Gulf Coast Prairie Limited Conservation Cooperative landscape (Figure 1). LDWF participates as both a Steering Committee member and Science Team member. This past year the Limited Conservation Cooperative funded several priority research projects and continued Landscape Conservation Design efforts for the tallgrass prairie and Edwards Plateau to the Gulf of Mexico.

TECHNICAL ASSISTANCE PROVIDED

Staff continue to track the number of telephone and e-mail responses provided to any request of a technical nature from the public, landowners, media, public agencies, universities, schools and non-governmental organizations for conservation recommendations, guidance, biological data or project reviews. During FY 2016-2017 we replied to a total of 1,444 requests for technical information.

LOUISIANA NATURAL AND SCENIC RIVERS PROGRAM

The Scenic Rivers Program is charged with the administration of the Louisiana Natural and Scenic Rivers Act. The act requires that LDWF, through the Scenic Rivers Coordinator, administer a permitting system for activities that have potential for significant ecological impact to designated Natural and Scenic Rivers, as well as a system of monitoring, surveillance, investigation and enforcement for the purpose of ensuring compliance with the act. The Scenic Rivers Act, and the rules and regulations promulgated under its authority, provide for the development of management plans, stream surveys and enforcement. There are currently approximately 80 streams and/or stream segments in the system constituting an estimated 3,100 linear miles of Louisiana’s streams, rivers and bayous.

The Scenic Rivers Program’s website continued to be updated throughout FY 2016-2017. Applications for proposed activities on Scenic Rivers were made available online for review and comment by all interested parties. The interactive map which allows users to see where activities have been permitted in the past along with information about the applicant and nature of the activity was regularly updated by staff. The website and forms continue to be updated and modernized.

Staff has continued work on the State Wildlife Grants project which funded the development of several Scenic Rivers Management Plans.

FIGURE 1. Gulf Coast Prairie Landscape Conservation Cooperative map.
Each Scenic River Management Plan aims to accomplish the following:
- Identify important features to be protected and preserved.
- Identify potential issues, problems and needs that impact the river.
- Recommend measures for enhancement and reclamation of resources.
- Set forth management goals for the preservation of the river.
- Provide for continuing public involvement.

Several enforcement actions were initiated in FY 2016-2017. These included issuance of seven Compliance Orders and the forwarding of a number of violations to LDWF’s Enforcement Division for citations. The coordinator and staff, through routine surveillance, project inspections and response to complaints, ensured compliance with permit conditions, utilization of adequate sediment control measures, and appropriate cleanup and restoration of permitted project sites. Staff continued to spend a considerable amount of time and effort on numerous sand and gravel operations to develop/implement water management plans aimed at minimizing impacts to Scenic Rivers. Scenic River’s staff also coordinated more closely with LDEQ, to address some of the construction site stormwater and sanitary issues impacting several system streams. We initiated joint site inspections with LDEQ Water Quality staff, bringing their expertise to bear.

Staff made 138 site investigations and surveys over 175 miles of streams. During surveys, Scenic River staff noted potential violations and continued efforts to document derelict vessels, attempted to locate responsible parties and have the vessels removed by whichever means prudent.

The coordinator and staff maintained regular contact with both state and federal agencies to ensure that designated scenic rivers were considered in all levels of planning and permitting. They also worked closely with city planners, police juries, mayors and local interest groups and organizations throughout the state. Staff coordinated with LDWF administrators to provide sound technical information to lawmakers regarding Senate Bill 132, which allowed for certain drainage projects to occur on Louisiana designated Natural and Scenic Rivers. Staff worked closely with LDNR to complete a report on Fracking and Water Withdrawals from Louisiana designated Scenic Rivers per House Concurrent Resolution 110. In efforts to promote recreational use of several system streams, staff continued to work with St. Tammany Blueway Committee, working closely with the National Park Service, non-governmental organizations and local governments to establish a paddling trail encompassing segments of the Abita, Tchefuncte and Bogue Falaya rivers. We coordinated with Louisiana Department of Transportation and Development to have Scenic River signage installed at numerous crossings along system streams.

A total of 27 Scenic River Permits were issued during FY 2016-2017. In addition to considering permits, Scenic Rivers staff made 36 determinations of “no permit required” for activities undertaken near scenic rivers but with no potential to significantly degrade the ecological integrity of a scenic river. Staff held 36 meetings and conference calls with applicants and agents, specific to scenic rivers issues.

PERMITS COORDINATION

The purpose of the Permits Coordination Program is to ensure that LDWF receives, reviews and responds to and distributes comments and mitigation recommendations on all permit notices received from state and federal environmental regulatory agencies in an efficient and timely manner (i.e. prior to public notice comment period deadlines). LDWF’s written comments are in-turn used by the regulatory agencies to make final determinations on how to best avoid, minimize and/or mitigate adverse impacts to fish and wildlife resources.

In order to accomplish this task, the LDWF permits coordinator serves as the primary liaison and “single point of contact” for all regulatory agencies, primarily LDNR and USACE. It is the responsibility of the permits coordinator to ensure that the LDWF biologist with the appropriate authority and expertise is included in the formulation of written comments and mitigation recommendations. The permits coordinator also ensures that there is adequate department representation at all LDNR Geologic Review and pre-application meetings.

The permits coordinator also utilizes, maintains and populates a comprehensive searchable database for all permit notices. This database is of critical importance to ensure a timely response from LDWF. The database also archives LDWF’s formal response to all permit notices dating back to 2006.

During FY 2016-2017, the permits coordinator received, processed, tracked and disseminated 1,289 permit notices.

SEISMIC SECTION

The LDWF Seismic Section was created in 1939 specifically to protect fish, oysters, shrimp, wildlife and other areas of concern from the effects of seismic exploration. Seismic exploration uses energy waves to generate a profile of sub-surface reflective layers that help define potential oil and gas traps. The energy waves can be produced by explosives detonated below the ground, by air guns that emit a burst of air at the surface of water bodies, by large vibrating pads placed on the surface, or other energy sources. These projects can occur in sensitive wetlands, water bodies and upland habitats.

LDWF performs a Natural Heritage Review on each individual seismic job to determine the presence of rare, threatened and endangered species and other areas of conservation concern. The Natural Heritage Review includes specific conditions that the applicant must adhere to for the protection of such resources. LDWF Seismic agents also monitor geophysical companies to protect Louisiana’s fish and wildlife resources by ensuring compliance with LDWF seismic rules and regulations.

Some of the Seismic Sections accomplishments for FY 2016-2017 are:
- Monitored five seismic projects throughout the state.
- Six public meetings were conducted to inform landowners and user groups of seismic surveys beginning in there area.
- Three meetings with seismic survey companies were held to better minimize impacts to fish and wildlife resources.
- 63 days were expended on field monitoring.
- Closely interacted with seismic companies to ensure compliance with the rules and regulations of the Seismic Section.
- Ensured protection of threatened and endangered species and other areas of concern.
The Minerals Management Program, hereafter called Mineral Program, is responsible for ensuring that mineral activities on all LDWF properties are compatible with the environment, and that WMA/refuge goals and objectives are met. In FY 2016-2017 Mineral Program staff reviewed, evaluated and authorized 58 well locations, pipeline projects and other mineral exploration related activities on LDWF properties. During FY 2016-2017, the program also issued eight rights-of-way, surface leases, surface/subsurface leases, and one mineral lease for allowance on LDWF properties. All of these projects are reviewed and coordinated with field personnel to ensure that they are compatible with LDWF management area programs.

In FY 2016-2017 the Mineral Program continued to ensure significant revenues for LDWF, which includes mineral royalties, rights-of-way, surface leases and seismic fees. The Mineral Program represented LDWF at each monthly meeting of the State Mineral and Energy Board. The Mineral Program also coordinated with the Louisiana Department of Natural Resources (LDNR) Office of Conservation for the removal of numerous abandoned oil and gas facilities on WMAs and refuges. The Mineral Program continues to work closely with other programs within LDWF and the LDNR Office of Coastal Management in an ongoing effort to streamline the Coastal Use Permitting process.

**WETLAND MITIGATION BANKING**
The Mineral Program continued to ensure regulatory compliance and coordinate credit sales for LDWF’s two wetland mitigation banks located on Rockefeller Wildlife Refuge and Boeuf WMA. These restored wetland ecosystems functionally compensate unavoidable impacts, such as those associated with oil and gas exploration and production, occurring within LDWF’s WMA and refuge system.

**DREDGE FILL PROGRAM**
In addition to the above mentioned duties, the Mineral Program has continued to administer LDWF’s Dredge Fill Program. This program issues approximately 75 to 100 licenses annually for the dredging and severing of state water bottoms. This program also collects approximately $1 million in annual severance royalties. This past fiscal year commercial dredge fill pits were inspected to ensure operator compliance with program regulations and LDWF also actively investigated unlicensed commercial pit operators.

**PERMIT ACQUISITION**
The Mineral Program applied for and received 12 U.S. Army Corps of Engineers permits and 12 LDNR Consistency Determinations which authorized LDWF to undertake management actions on LDWF properties statewide. All
permit requests must also be coordinated with and approved by federal resource agencies (i.e., U.S. Fish & Wildlife Service, Environmental Protection Agency and National Oceanic and Atmospheric Administration National Marine Fisheries Service).

WATER RESOURCES
LDWF continued to serve on the Louisiana Water Resources Commission. The purpose of the commission is to develop a statewide water management plan for ground water and surface water use and conservation. Much of the focus of this initial plan was on ground water resources. The commission convened twice during FY 2016-2017 to receive reports on progress of implementing the recommendations of the initial plan. As the commission continues its work, our role will be to ensure that the conservation of fish, wildlife and their supporting habitats as well as outdoor recreation are an important consideration when making water management decisions.
Office of Fisheries
**MISSION**

The purpose of the Fisheries program is to manage living aquatic resources and their habitat, to support the fishing industry, and to provide access, opportunity and understanding of the Louisiana aquatic resources to the state’s citizens and others beneficiaries of these sustainable resources.

**OBJECTIVES**

- To provide high-quality fishery management information through effective data collection, analysis and information sharing.
- To be an effective, efficient steward of our renewable aquatic resources.
- To provide and enhance the recreational fishing experience through improved access, opportunity and public awareness.
- To maintain a sustainable and economically viable fisheries environment.
- To create a work environment in which all Fisheries staff are enabled and empowered to achieve the office’s goals and objectives.

**ORGANIZATION**

The Office of Fisheries structure is comprised of the following sections:

- Marine Fisheries - to manage the marine (saltwater) fisheries resources of the state.
- Inland Fisheries - to manage the inland (freshwater) fisheries resources of the state.
- Fisheries Research and Assessment - to provide technical and scientific research in support of fisheries management.
- Fisheries Oversight - to provide guidance and assistance to Louisiana’s valuable commercial fishing industries.
- Fisheries Extension – to provide fishery management information to the recreational fishing sector through hatcheries, improved fishing and boating access, aquatic outreach and volunteer activities.

**FISHERIES FUNDING**

The Statutory Dedications utilized by the Office of Fisheries are primarily from the Conservation Fund and the Artificial Reef Trust Fund. The Conservation Fund is funded primarily by license revenue and oil and gas revenue from Louisiana Department of Wildlife and Fisheries (LDWF) property. The Conservation Fund is a general funding source used to fund invasive aquatic plant, marine fisheries monitoring and research and general office operations. The Artificial Reef Trust Fund is funded through donations from oil and gas companies. Oil and gas companies donate one half of the realized savings over a traditional onshore removal of obsolete oil and gas offshore structures. The Artificial Reef Trust Fund is used to fund the building and monitoring of inshore, nearshore and offshore artificial reefs, and operations of the Artificial Reef Program.

Federal funds used by LDWF come from various federal entities, such as the U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA) and Gulf States Marine Fisheries Commission (GSMFC). Funds from USFWS are primarily from federal assistance in the Sport Fish Restoration Program. These funds are dedicated to marine and freshwater monitoring, research, management and boating access, aquatic education, and aquatic outreach. The funds from NOAA represent various grants that are utilized to collect offshore fisheries independent data and commercial fisheries dependent data. The funds from GSMFC represent various grants that are utilized to collect recreational and commercial fisheries dependent data.

Interagency transfer funds are provided by other state agencies and used to fund various projects. These projects include fisheries monitoring associated with freshwater diversions, oil spill response and damage assessment, and oil spill restoration projects.

Self-generated funds are provided by other non-governmental entities and are used to fund various projects. These projects include funding for marine mammal stranding response and mapping.
ONGOING MONITORING OF 2010 DEEPWATER HORIZON OIL SPILL

DEEPWATER HORIZON NATURAL RESOURCE DAMAGE ASSESSMENT RESTORATION ACTIVITIES: RECREATIONAL USE RESTORATION

The Consent Decree was finalized on April 4, 2016, which resolved $14.9 billion in claims against the 2010 Deepwater Horizon oil spill responsible parties and set the stage for the next phase of restoration activities. Louisiana is set to receive a total of $5 billion for Natural Resource Damage Assessment Restoration funding out of the $8.8 billion total to be distributed Gulf-wide. Of Louisiana’s portion, $60 million has been earmarked to provide and enhance recreational opportunities which includes $22 million that had been allocated during Early Restoration for the Louisiana Marine Fisheries Enhancement, Research and Science Center. However, site issues arose during planning and development that precluded the Louisiana Trustee Implementation Group from moving forward with the project as initially proposed. Therefore, during FY 2016-2017, the Louisiana Trustee Implementation Group began the process to reallocate these funds towards alternative restoration projects within the “Provide and Enhance Recreational Opportunities” Restoration Type. In November 2016, the Louisiana Trustee Implementation Group passed a resolution to reallocate the $22 million, and issued a notice of initiation of restoration planning which included a series of public request for project suggestions (November 2016 and May 2017). Additionally, a series of meetings and presentations were held with user groups and stakeholders to discuss alternative projects and the restoration planning process. In June 2017, a notice to proceed was approved by the Louisiana Trustee Implementation Group to begin the drafting process for a recreational use Restoration Plan and Environmental Assessment.

PRESENTATIONS

RESOURCE MANAGEMENT

Louisiana’s fisheries resources benefit all constituent groups in Louisiana, across the Gulf Coast and throughout the nation. The Louisiana Constitution of 1974 provides the framework to protect and enhance habitat and to ensure sustainable commercial and recreational fisheries. Fisheries biologists collect the basic ecological data needed to efficiently and effectively manage fisheries resources to benefit all constituent groups.

LDWF is responsible for managing Louisiana’s fisheries and maintaining healthy fish populations and habitat for the benefit of Louisiana’s residents and visitors of both today and tomorrow. Responsible fisheries management starts with sound, scientific information about fish populations and the ecosystems in which they live, as well as the fisheries that harvest them. LDWF biologists use a variety of methods to gather this information, including examining fishermen’s catch (fishery dependent data) and conducting scientific studies (fishery independent data).

MONITORING
Monitoring fisheries, both fresh and saltwater, is a crucial component of resource management. Important biological data is collected specific to each type of sampling. In addition, hydrological data (conductivity, salinity and water temperature) are collected with each biological sample, as are wind direction and speed. The information gathered during monitoring efforts, such as fisheries independent sampling, gives biologists and administrators the information essential to manage each fishery appropriately; openings, closures, limits and emergency actions are based upon monitoring data.

SHRIMP SAMPLING
The long-term objectives of the shrimp fishery research program are to assess and monitor shrimp stocks and to evaluate shrimp fishery impacts on other fisheries and protected species. Each species requires an annual assessment of the condition of the stock, the fishery and sectors of the economy that are impacted by changes in either. The assessments are also needed so that LDWF can determine whether or not a stock is overfished.

Inshore and offshore shrimp sampling continued during FY 2016-2017. In inshore waters, 298 6-foot and 1,792 16-foot trawl samples were collected. In state offshore territorial waters, 309 20-foot trawl samples were collected. Information crucial to setting the opening dates of the 2017 spring inshore shrimp season, closure dates of the 2017 spring inshore shrimp season, open-
ing and closing dates of the 2016 fall inshore shrimp season, and the closing and reopening of shrimping in portions of state territorial waters in 2016 and 2017 was collected using these sampling procedures.

**OYSTER SAMPLING**
Management of the public oyster grounds and reservations relies heavily upon data gathered through a comprehensive biological monitoring program. Over 500 square-meter samples are collected each July, and approximately 2,800 dredge samples are collected during each calendar year. In February 2014, replication for the dredge sampling program decreased from three replicate samples per station to two per station. In 2016, 25 additional square meter sites were added in the Barataria basin for a total of 82 square meter sites in the Pontchartrain and Barataria basins sampled bi-annually (April and October) for the Coastal Protection and Restoration Authority’s SWAMP program.

Square-meter data is used to measure the annual oyster stock size and for yearly oyster season recommendations by the Office of Fisheries. Dredge data is used to monitor the overall health of the oyster resource during the year and to assess recruitment of new age classes of oysters into the population. Field biologists also gather hydrological data on public oyster areas and develop harvest and fishing effort estimates by conducting boarding report surveys of oyster boats.

**Annual Oyster Stock Survey**
The statewide oyster stock size in 2016 decreased over 2015 levels as approximately 899,799 barrels of oysters were available on the public oyster areas of Louisiana. Unfortunately, this stock size represents an approximate decrease of 19.3 percent from 2015 levels and 72.4 percent decrease from the long-term average of 3.26 million barrels.

**Sustainable Oyster Shell Stock Modeling**
Under contract and through collaboration with LDWF, a research team led by Dr. Tom Soniat at the University of New Orleans continued working with LDWF to test a sustainable oyster shell stock model for the public oyster areas of Louisiana. This computerized model provides guidance for fisheries management with the goal of conserving the oyster reef base. Oyster stock assessment sampling in 2016 provided model input data such as estimates of reef mass (grams per square-meter) and size-frequency of oysters. Utilizing additional data on oyster growth, mortality and estimated commercial harvest rates, the model estimates the amount of oyster harvest that can be allowed while preserving the reef mass. The model was tested statewide and showed promising results. It continues to be tested and strengthened utilizing updated data each year.

**Culch Planting**
There were no new culch plants constructed during FY 2016-2017. Monitoring of existing culch plants and planning for future culch plants continues.

**Oyster Hatchery and Research**
LDWF has continued its involvement and collaboration with Louisiana Sea Grant College Program at the Michael C. Voisin Oyster Hatchery on Grand Isle, La. The 2016 hatchery season ended the first week of December. Approximately 194 million larvae and just over 459,000 seed were produced at the hatchery in 2016 (totals include a combination of diploid, triploid and tetraploid larvae and seed).

The 2017 hatchery algal season began in January and the larval season began in March. The Algal Production Room was fully operational in February and algae produced was used to start conditioning broodstock in March. Furthermore, broodstock were taken from the farm, conditioned in a Warm Broodstock Holding System, and spawned on March 28, well before wild broodstock left in the farm were ready to spawn. Throughout the spring LDWF and Louisiana Sea Grant hatchery staff produced triploid and diploid oysters and grew algae to feed broodstock and oyster larvae.

In May 2017, approximately 50 million diploid pediveliger larvae were set on macrocultch.
Parish. Site construction includes a new con-
development Block Grant through Plaquemines
Restoration Authority and a Community De-
comes from LDWF, the Coastal Protection and
of work areas and the remote setting tanks are
site. Site improvements and the construction
lizing Buras Boat Harbor as the program’s work
-
LDWF is working closely with the Coalition
to Restore Coastal Louisiana to collect and
stockpile oyster shell at the Buras site. Oyster
shell is the material of choice for setting larval
oysters. This program began during FY 2013-
2014, and the coalition began delivering shell
to the Buras site for storage. By December
2016, approximately 2,764 tons of shell had
been delivered to the site.

MARINE FINFISH SAMPLING

The primary objective of the Finfish Program
is to make rational recommendations for the
management of coastal finfish stocks based
on a database of scientific information. The in-
formation in the database is collected through
fishery independent and dependent sampling.
The fishery independent monitoring program
is an ongoing collection of data by fisheries
biologists in the field conducting surveys de-
signed to sample coastal waters in an objec-
tive manner. The surveys collect information
based on geographic ranges independent of
commercial or recreational fishing operations.

Three gear types are used coast-wide to sam-
ple various year classes of estuarine-depen-
dent fish:

1. A bag seine is used to sample young-
of-the-year and provide information on
growth and movement. More significant-
tly, these samples provide information on
the forage species and ecological compo-
nents of marsh-edge and shoreline habi-
tats throughout the coastal zone. Seine
samples are taken monthly.

2. A gill net is used to sample juvenile, sub-
adult and adult fish. It provides information
on relative abundance, year class strength,
movement and gonad condition. Gill
net samples have been collected semi-
monthly from April through September,
and monthly from October through
March using a strike net technique.

3. A trammel net is used to sample juvenile
and sub-adult fish. It provides information
on relative abundance, standing crop and
movement. Trammel net samples are tak-
ен monthly from October through March.

During FY 2016-2017, the fishery-indepen-
dent finfish sampling program collected 936
(100 percent) gill net samples, 1,227 (100
percent) seine samples, and 271 (100 per-
cent) trammel net samples for 100 percent
overall completion rate statewide.

Biologists collected 1,636 cast net samples
as part of a sampling agreement with the
Coastal Protection and Restoration Author-
ity to collect data on estuarine species in the
Pontchartrain and Barataria basins.

Marine fisheries biologists also collected 45
electrofishing samples in the Barataria Basin as
part of State Wildlife Grant evaluating popula-
tions of certain estuarine species of concern.

FRESHWATER FINFISH
SAMPLING

Waterbodies throughout Louisiana differ in
their importance to the overall state fisheries
and in the degree to which they can be man-
age. LDWF routinely samples a subset of
rivers, streams, lakes and reservoirs based on
their importance to the fishing public, size,
productivity, and in the case of reservoirs,
drawdown capability. Other considerations
include existing and potential management
needs that are specific to the waterbody. Wa-
terbody sampling schedules are developed
each year and monitoring and management
results are reported in LDWF Waterbody
Management Plan updates, which can be ac-
cessed on the LDWF website.
Freshwater fisheries resources are monitored and managed through various sampling methods. In FY 2016-2017, biologists estimated relative abundance, age, growth and mortality, size class structure, species composition, and genetic composition of sportfish populations in addition to physiochemical characteristics of the water on 94 lakes, rivers and streams. Sampling sites on inland lakes, reservoirs and rivers are predetermined and selected to represent available aquatic habitats within the various water bodies. Sampling protocol is standardized to the extent possible to allow for comparison of data over time and includes electrofishing, lead net, seine net, hoop net and gill net gear types. Lotic sampling methodology follows lake methodology closely, with the addition of habitat type and river stage parameters. LDWF Inland biologists have developed standard operating procedures for sampling rivers and wadeable streams for biomonitoring of fish and mussel communities.

Electrofishing samples are collected in both spring and fall to provide an estimation of population trends including abundance, size, distribution, age structure and genetic composition. Sampling includes largemouth bass and crappie in the spring and fall for species population assessments, and fish community assemblage samples of all species collected in the fall of each year. A total of 575 stations were sampled for 155 hours of timed electrofishing during the fiscal year.

Seine samples are taken in many water bodies to determine fish community relative abundance and young-of-the-year recruitment of popular sport fishes that might be underrepresented with electrofishing gear. These samples occur from June to August each year. Twenty-nine seine hauls were made during the fiscal year.

Entanglement and trap net webbing are also used during standardized sampling throughout the year to collect crappie species, catfishes and sunfishes. A total of 254 gill net samples were taken on various lakes and rivers, while 367 lead net and hoop net samples were fished during the fiscal year.

With increased public demand for evaluation of freshwater fish harvest regulations, detailed largemouth bass age and growth assessment studies started or continued on 12 water bodies during FY 2016-2017, while crappie population assessment studies started or continued on nine lakes. The extensive age, growth and mortality data collected for these assessments are used to inform and evaluate future management decisions and are summarized in LDWF technical report series.

Water quality data is collected each time a fisheries sample is collected on a waterbody. In FY 2016-2017, approximately 236 water quality stations were sampled for physical and chemical criteria including temperature, dissolved oxygen, pH, salinity and conductivity. Additionally, at least one waterbody in each of nine districts is sampled monthly for one year in order to develop stratification profiles to determine thermocline formation and vertical changes in water quality throughout the water column.

**RIVER AND STREAM SAMPLING**

Standard operating procedures for conducting biomonitoring of fish and mussel communities in rivers and wadeable streams were developed and utilized to supplement sportfish standardized electrofishing samples. Understanding river basin biotic assemblages is an important aspect of fisheries management. Changes in community structure of aquatic biota in river and tributary systems within a watershed are indicators of anthropogenic and natural disturbances. Fish and mussel communities are sensitive to a wide array of direct and indirect stresses, including the effects of point source and non-point source pollution, sedimentation and changes in substrate deposition, habitat loss, riparian zone disruption, physicochemical changes in water chemistry, and flow modification. Fish and mussels occupy positions throughout the aquatic food web and share a unique relationship. The larval mussel stage, or glochidia, is attached and parasitic on the host fish’s gills. After a period of time, the larval mussel drops off of the fish and settles to the stream bottom. Inland Fisheries District 8 (Lacombe) analyzes species composition of fish and freshwater mussels, and conducts habitat assessments in multiple watersheds, as well as sportfish parameters on the lower reaches of the watersheds. Four different watersheds are sampled and analyzed on a rotating schedule of every four years. Inland Fisheries District 5 (Lake Charles) and District 7 (Baton Rouge) have also implemented the River and Stream Sampling Protocol for their areas.

**AQUATIC NUISANCE SPECIES MONITORING**

The “State Management Plan for Aquatic Invasive species in Louisiana” was written in 2005 and includes five objectives to help in the coordination and management of aquatic nuisance and invasive species within Louisiana. Briefly, the five objectives are to:

- Coordinate all aquatic invasive species management activities and programs within Louisiana and collaborate with other aquatic invasive species programs.
- Prevent and control nonindigenous invasive species through education.
- Eliminate locally established invasive species.
- Control the spread of established invasive species.
- Prevent the introduction of non-native species, or the spread of existing ones, through legislation and regulation.

In order to educate Louisiana citizens on the threat of aquatic nuisance and invasive species in our waterbodies, Inland Fisheries biologists conducted the following outreach and education activities during FY 2016-2017:

- Apple Snails - Three phone interviews for radio and TV
- Asian Carp - One interview (radio)
- Mississippi Interstate Cooperative Resource Association: Mississippi River Basin Panel - annual meeting
- Gulf and South Atlantic Regional Panel on Aquatic Invasive Species - spring meeting and webinar

A total of six apple snail surveys were conducted via watercraft and vehicles along rivers and roadways to document range expansion in the Mermentau River drainage. Sustained apple snail populations have been verified in 27 Louisiana parishes. The LDWF Inland Fisheries aquatic invasive species coordinator compiled records and locations of aquatic invasive species within Louisiana waters and added those occurrences to the U.S. Geological Survey Nonindigenous Aquatic Species Program center database. Below is a list of aquatic invasive species monitored and logged occurrences for FY 2016-2017:

- Apple Snail - 98 reports
- Tiger Prawn - 2 reports

![Invasive apple snail clutch (pink eggs) deposited by female.](image)
• Lionfish - 2 reports
• Tiger Shovelnose Catfish - 1 report
• Asian Carp (bighead, black, grass, silver) - 26 reports
• Tilapia - 4 reports: 30 tilapias in LDWF sample
• Rio Grande Cichlid - 3 anglers reporting catches
• Australian Spotted Jellyfish - 1 report
• Zebra Mussels - 1 report

FISH KILL MONITORING
LDWF is charged with managing, conserving and promoting fisheries resources in Louisiana’s waters. Investigating fish and/or mussel kills is a high priority that requires the immediate attention of Fisheries personnel. LDWF is responsible for responding to fish kills in a timely manner because the cause and effects of fish kills are typically unknown at the time of initial notification. Also, fish kills are highly visible to the public and often prompt related questions that must be addressed, and they may serve as a symptom of more significant problems in an area. When responding to a fish and/or mussel kill, LDWF biologist managers refer to the American Fisheries Society Special Publication #30 “Investigation and Monetary Values of Fish and Freshwater Mussel Kills” for protocol. The selection of the most appropriate method for estimating fish kill numbers and species composition is dependent on the type of habitats involved. In some cases, strand line counts may be used, while in other cases, transects, segments, or other methods are often necessary.

PRESENTATIONS
Reed, B.C. and J.M. LaCour. Report on Invasive Species in Louisiana. Louisiana Senate Natural Resources Committee Meeting, May 18, 2017; Baton Rouge, LA.


OYSTER LEASE PROGRAM
The leasing and permitting of state water bottoms for cultivating oysters is administered by the Office of Fisheries. The Oyster Lease Program is responsible for maintaining records, collecting revenue and issuing lease agreements for this purpose. At this time, there is a moratorium on the issuance of new leases. However, recent law changes have addressed lifting the moratorium which will require LDWF to redefine the rules and regulations relating to the leasing of water bottoms.

Currently, there are 8,020 leases covering 403,677 acres of water bottom which accounts for $1.2 million in annual revenue. This line of revenue is specifically deposited into the Public Oyster Seed Ground Development Account for the enhancement of the state’s public oyster resource.

Beginning in 2013, the Office of Fisheries was tasked with issuing Alternative Oyster Culture Permits. These permits offer commercial fishermen an opportunity to cultivate oysters using alternative methods on state leases or on privately owned water bottom. To date, the Oyster Lease Program has issued permits at six sites along the coast covering approximately 80 acres of water bottom.

COMMERCIAL HARVEST
Louisiana produces nearly one-quarter of the seafood in the continental United States. Louisiana comes in second only to Alaska in terms of commercial fishing production and is home to three of the top six commercial fishing ports in the country. Seventy-eight percent of the seafood production in the Gulf of Mexico comes from Louisiana shrimpers, crabs, oyster harvesters and fishermen. Nearly 14,000 commercial fishermen and 6,453 seafood dealers/processors and brokers register each year to provide the nation with fresh seafood.

LDWF utilizes the Trip Ticket Program to collect commercial seafood statistics. Through this program, commercial landings data are collected on a trip basis from wholesale/retail seafood dealers, crab shedders and commercial fishermen holding fresh products licenses. There were 244,412 commercial fishing trips reported last year producing in excess of 185 million pounds of seafood.

Beginning in May 2000, a computerized electronic trip ticket program was developed and made available to dealers. To date, roughly 200 dealers use the computerized program to submit their trip ticket data. Trip ticket information has been used:

• to enhance the accuracy of stock assessments conducted by state and federal fishery management agencies.
• to extend certain inshore shrimp seasons providing additional economic opportunity to fishermen.
• to develop a crop insurance program for oyster growers.
• to estimate damages from hurricanes Katrina and Rita in 2005.

Along with the collection of commercial landings data, LDWF also conducts trip interviews of commercial fishermen to gather detailed information about a specific fishing trip. The federally funded program focuses on species of greatest state and federal interest.

Shrimp are the state’s most valuable fishery. In 2016-2017, total shrimp landings measured over 98 million pounds (all species combined/heads on weight) and had a dockside value of $147.7 million. Brown shrimp landings in 2016-2017 measured over 15 million pounds (heads off) while white shrimp landings in 2016-2017 measured over 48 million pounds (heads-off) weight (Figure 1).

Louisiana commercial blue crab landings for 2016-2017 totaled approximately 43 million pounds and had a dockside value of approximately $48.6 million (Figure 2).

Louisiana regularly leads the nation in the production of oysters and continues to account for 40 percent of the nation’s oyster landings. Among Gulf of Mexico states, Louisiana consistently ranks first in landings, accounting for nearly 85 percent of all oysters landed (Figure 3).

Louisiana commercial freshwater finfish landings for 2016-2017 totaled approximately 12.3 million pounds and included common species such as alligator gar, blue catfish, channel catfish, flathead catfish, freshwater drum, buffalo, bowfin, carp and gizzard shad. Total dockside value of these species was approximately $5.5 million. Wild caught crawfish landings in Louisiana for 2016-2017 was approximately 7 million pounds with a dockside value of $9.8 million.
RECREATIONAL HARVEST

LDWF now monitors recreational fisheries through its own LA Creel Program and inland creel surveys. The LA Creel Program uses dockside interviews of recreational anglers to determine catch and a telephone survey to determine fishing effort.

During the second half of 2016, fisheries biologists worked a total of 818 LA Creel assignments and conducted approximately 5,244 interviews of recreational fishing trips along Louisiana’s coast through the LA Creel program. This resulted in a total of 13,669 anglers being surveyed and 43,452 fish being counted during the second half of 2016. During the second half of 2016, 68,777 private angler effort phone call or email attempts were conducted to estimate effort. Of those attempts, 21,005 resulted in completed surveys. Approximately 875 charter captains were monitored with an estimated 104,014 charter angler trips taken during the second half of 2016. At the end of 2016, using LA Creel data, it was estimated that a total of 2,062,496 recreational angler trips were taken.

During the first half of 2017, fisheries biologists worked a total of 779 LA Creel assignments and conducted approximately 4,837 interviews of recreational fishing trips along Louisiana’s coast through the LA Creel program. This resulted in a total of 12,809 anglers being surveyed and 44,215 fish being counted in the first half of 2017. During the first half of 2017, 66,396 private angler effort phone call or email attempts were conducted to estimate effort. Of those attempts, 21,513 resulted in completed surveys. Approximately 850 charter captains were monitored with a total of 78,036 charter angler trips taken during the first half of 2017.

A revised Inland creel procedure was developed in 2015 in order to increase the number of completed interviews, facilitate consistent methodology across all waterbodies, and enable more accurate characterization of angler activities. A monthly creel sample schedule is generated for each waterbody designated for creel survey through the Inland Fisheries wa-

**TABLE 1. Louisiana Freshwater Creel Surveys for calendar year and fiscal year 2016-2017**

<table>
<thead>
<tr>
<th></th>
<th>2016-2017 CALENDAR YEAR</th>
<th>2016-2017 FISCAL YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Interviews</td>
<td>Anglers</td>
</tr>
<tr>
<td>Largemouth Bass</td>
<td>1,072</td>
<td>1,721</td>
</tr>
<tr>
<td>Crappie</td>
<td>621</td>
<td>1,000</td>
</tr>
<tr>
<td>Total</td>
<td>1,693</td>
<td>2,721</td>
</tr>
</tbody>
</table>
terbody prioritization procedure. This schedule consists of a random selection of survey days for each month that district biologists follow as they conduct the surveys.

Creel surveys put the fisheries biologist in direct contact with the fishermen. Information collected includes species sought and species caught, distance traveled, time fished, number caught and released, and length and weight measurements of all black bass and crappie harvested. Seven recreational creel surveys were conducted on inland waters during FY 2016-2017. These lakes and rivers include Lake Bistineau, Bundick Lake, Cane River, Lake Louis, Spring Bayou, Sibley Lake, and Lake Verret.

During FY 2016-2017, fisheries biologists conducted 1,652 interviews of 2,649 recreational bass and crappie anglers on Louisiana’s freshwater lakes and rivers. Fishing trips averaged 4.4 hours in length and recreational anglers targeting bass caught an average of 3.5 fish per trip while crappie anglers averaged 4.5 fish per trip (Table 1).

Assessment

Fisheries management involves sampling, analysis and development of recommendations to renovate and enhance fish populations. Information collected is used to evaluate the status of the fisheries through stock assessments, monitoring trends and evaluating the benefits of regulations.

STOCK ASSESSMENT

Marine

An updated stock assessment of striped mullet was completed and presented to the Louisiana Wildlife and Fisheries Commission for transmission to the Louisiana Legislature in February 2017. This stock assessment used a statistical catch at age model to estimate annual time-series of spawning stock biomass and fishing mortality rates. Current status of the stock was determined with estimates of reproductive potential. Based on results of this assessment, no overfishing is occurring and the stock is not considered overfished.


LA Creel

The Stock Assessment Section continues to provide weekly marine recreational landings estimates from the LA Creel Survey to marine fishery managers. Stock Assessment Section personnel also began developing a calibration procedure to allow hind-casting of the LA Creel Survey estimates that will be completed in early 2018.

Inland

Fishery-independent and fishery-dependent surveys are being conducted on Louisiana waterbodies with important largemouth bass and crappie fisheries to provide information to inland fishery managers to make science-based management decisions (Tables 2 & 3). Fishery-independent surveys are conducted for three consecutive years on each waterbody to provide population-specific information. A creel survey is conducted one of these years to provide fishery-specific information.

Assessment analyses include age-structured population models to simulate daily response to multiple size regulations. Results provide information to inland fishery managers to better understand the effects of current harvest regulations on their fisheries while also providing a baseline to compare future regulation changes against. Final project reports are available for waterbodies with completed sampling, describing the status of each waterbody’s largemouth bass (or crappie) population and fishery, as well as a comparison of population and fishery characteristics among all waterbodies included in this project. Citations for reports completed in the past year are presented below.

Publications


TABLE 2. Schedules of Louisiana Largemouth Bass Stock Assessments - 27 waterbodies

<table>
<thead>
<tr>
<th>WATERBODY</th>
<th>YEARS CONDUCTED</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atchafalaya Basin</td>
<td>2017-2019</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Bistineau</td>
<td>2016-2018</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Black-Clear</td>
<td>2010-2012</td>
<td>Completed</td>
</tr>
<tr>
<td>Bruin</td>
<td>2013-2015</td>
<td>Completed</td>
</tr>
<tr>
<td>Bundick</td>
<td>2015-2017</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Caddo</td>
<td>2011-2013</td>
<td>Completed</td>
</tr>
<tr>
<td>Calcasieu</td>
<td>2012-2014</td>
<td>Completed</td>
</tr>
<tr>
<td>Cane River</td>
<td>2015-2017</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Caney</td>
<td>2014-2016</td>
<td>Completed</td>
</tr>
<tr>
<td>Cataouatche</td>
<td>2010-2012</td>
<td>Completed</td>
</tr>
<tr>
<td>Chicot</td>
<td>2010-2012</td>
<td>Completed</td>
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<tr>
<td>Concordia</td>
<td>2010-2012</td>
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</tr>
<tr>
<td>Cross</td>
<td>2010-2012</td>
<td>Completed</td>
</tr>
<tr>
<td>D’Arbonne</td>
<td>2010-2012</td>
<td>Completed</td>
</tr>
<tr>
<td>False River</td>
<td>2010-2012</td>
<td>Completed</td>
</tr>
<tr>
<td>Grand Bayou</td>
<td>2015-2017</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Grassy, Verret, Palourde</td>
<td>2015-2017</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Henderson</td>
<td>2017-2019</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Iatt</td>
<td>2013-2015</td>
<td>Completed</td>
</tr>
<tr>
<td>Lacassine NWR Pool</td>
<td>2017-2019</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Larto</td>
<td>2016-2018</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Poverty Point</td>
<td>2010-2012</td>
<td>Completed</td>
</tr>
<tr>
<td>Raccourci</td>
<td>2015-2017</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Red River (Pools 1-5)</td>
<td>2013-2015</td>
<td>Completed</td>
</tr>
<tr>
<td>Toledo Bend</td>
<td>2010-2012</td>
<td>Completed</td>
</tr>
<tr>
<td>Turkey Creek</td>
<td>2016-2018</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Vernon</td>
<td>2010-2012</td>
<td>Completed</td>
</tr>
</tbody>
</table>

TABLE 3. Schedules of Louisiana Crappie Stock Assessments - 20 waterbodies

<table>
<thead>
<tr>
<th>WATERBODY</th>
<th>YEARS CONDUCTED</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bistineau</td>
<td>2016-2018</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Bruin</td>
<td>2013-2015</td>
<td>Completed</td>
</tr>
<tr>
<td>Bundick</td>
<td>2015-2017</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Caddo</td>
<td>2010-2012</td>
<td>Completed</td>
</tr>
<tr>
<td>Cane River</td>
<td>2015-2017</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Caney</td>
<td>2014-2016</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Cross</td>
<td>2010-2012</td>
<td>Completed</td>
</tr>
<tr>
<td>D’Arbonne</td>
<td>2010-2012</td>
<td>Completed</td>
</tr>
<tr>
<td>Fausse Point</td>
<td>2013-2015</td>
<td>Completed</td>
</tr>
<tr>
<td>Grand Bayou</td>
<td>2015-2017</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Iatt</td>
<td>2013-2015</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Larto-Saline</td>
<td>2009-2012</td>
<td>Completed</td>
</tr>
<tr>
<td>Louis</td>
<td>2013-2015</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Poverty Point</td>
<td>2010-2012</td>
<td>Completed</td>
</tr>
<tr>
<td>Raccourci</td>
<td>2009-2013</td>
<td>Completed</td>
</tr>
<tr>
<td>Red River (Pools 1-5)</td>
<td>2013-2015</td>
<td>Completed</td>
</tr>
<tr>
<td>Sibley</td>
<td>2015-2017</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Toledo Bend</td>
<td>2009-2011</td>
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</tr>
<tr>
<td>Turkey Creek</td>
<td>2016-2018</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Vernon</td>
<td>2009-2011</td>
<td>Completed</td>
</tr>
</tbody>
</table>
MANAGEMENT PLANS

INLAND VEGETATION MANAGEMENT PLANS

Inland Vegetation Management Plans provide a detailed compilation of lake description, vegetation history and current status, management limitations, plant pest control measures implemented, and recommended actions. During FY 2016-2017, 23 management plans were completed and/or updated and approved. A total of 77 management plans are now available to the public on the LDWF website and a discussion of nuisance vegetation can be found in the Fishing Access and Opportunity section.

INLAND WATERBODY MANAGEMENT PLANS

Inland Waterbody Management Plans provide a detailed compilation of lake description, history, authorities, synopsis of fisheries and vegetation sampling data, analyses, corrective measures needed, and recommended actions. During FY 2016-2017, the 30 management plans below were updated and approved. A total of 77 management plans are now available to the public on the LDWF website.

Waterbody management plans completed during FY 2016-2017 and available to the public on the LDWF website:

- Atchafalaya Basin
- Black /Clear Lake
- Bayou Plaquemine
- Caddo lake
- Caney Creek Reservoir
- Chicot Lake
- Cocodrie Lake
- Cross Lake
- D’Arbonne Lake
- False River
- Grand Bayou Reservoir
- Henderson Lake
- Ivan Lake
- Indian Creek Lake
- Kepler Lake
- Lake Bistineau
- Lake Bruin
- Lake Fausse Pointe
- Lake Lafourche
- Lake Martin
- Lake St. Joseph
- Lake St. John
- Lakes Verret, Grassy
- Lake Palourde
- Lower Pontchartrain Sub-basin
- Nantachie Lake
- Sabine River
- Saline Lake
- Spanish Lake
- Tangipahoa River

MARINE FISHERY MANAGEMENT PLANS

LDWF has been developing new and updating existing fishery management plans to provide a mechanism to strategically implement science-based management recommendations for proactively responding to and resolving fisheries issues. The goal of these plans is to ensure long-term conservation and sustainable use of these fisheries resources for the maximum environmental, social and economic benefit to the state and its citizens and visitors.

- LDWF created a document to guide the development of future fishery management plans to ensure they are consis-
tent with federal fisheries conservation and management practices and international best management practices, mainly applicable principles and standards of the United Nations Food and Agriculture Organization’s Code of Conduct for Responsible Fisheries.

- Using the guidance document referenced above, LDWF staff completed a new fishery management plan for oyster in the spring of 2016. LDWF previously completed new fishery management plans for blue crab and shrimp. Staff review new research and monitoring information for these species every year, document progress toward fishery management goals, and will fully review and revise management plans every five years, or sooner if necessary. LDWF will prioritize development of additional new fishery management plans for other species based on commercial, recreational, and ecological significance and management needs.

- These fishery management plans are also complemented by United Nations Food and Agriculture Organization-based self-assessments to document consistency with best management practices and identify any potential gaps in information or management to address in future plan updates.

**MANAGEMENT RECOMMENDATIONS**

Through utilization of the previously mentioned recreational and commercial sampling techniques, fisheries managers then analyze the resulting data to develop recommendations to manage and enhance fish populations. The information collected is used to produce recommendations for setting seasons and harvest limits and to monitor the species found in an area over time.

**SHRIMP MANAGEMENT**

Greater flexibility in managing the shrimp resource is now provided through the use of a basin type management approach, as opposed to the historical zone approach. Louisiana’s major estuarine basins include the Pontchartrain Basin, Mississippi River Basin, Barataria Basin, Terrebonne Basin, Atchafalaya River Basin, Vermilion-Teche River Basin, Mermentau River Basin, Calcasieu Basin and Sabine River Basin.

Based on analysis of historical data, as well as data generated from biological sampling conducted by fisheries biologists, the follow-
ing shrimp management recommendations were made to the Secretary of LDWF and the Louisiana Wildlife and Fisheries Commission. These measures were implemented during FY 2016-2017.

Lake Pontchartrain Basin and Portions of Mississippi River Basins

2016 - Spring Inshore Shrimp Season

Opened at 6:00 a.m. May 23, 2016, from the MS/LA state line westward to South Pass of the Mississippi River.

Closed at 6:00 p.m. July 3, 2016, from the MS/LA state line westward to South Pass of the Mississippi River except for the following waters:

- That portion of Mississippi Sound north of a line beginning at 30 degrees 05 minutes 00.0 seconds north latitude and -89 degrees 30 minutes 00 seconds west longitude; thence southeasterly to a point on the western shore of Three-Mile Pass at 30 degrees 03 minutes 00 seconds north latitude and -89 degrees 22 minutes 23 seconds west longitude; thence northeasterly to a point on Isle Au Pitre at 30 degrees 09 minutes 20.5 seconds north latitude and -89 degrees 11 minutes 15.5 seconds west longitude, which is a point on the double-rig line as described in R.S. 56:495.1(2).
- The open waters of Breton and Chandeleur sounds as described by the double-rig line.

Closed at 6:00 p.m. Aug. 1, 2016, except for the following waters:

- The open waters of Breton and Chandeleur sounds as described by the double-rig line.

2016 - Fall Inshore Shrimp Season

Opened at 6:00 a.m. Aug. 22, 2016, from the western shore of Freshwater Bayou Canal westward to the LA/TX state line.

Closed at official sunset Dec. 19, 2016, from the western shore of Freshwater Bayou Canal westward to the LA/TX state line.

2017 - Spring Inshore Shrimp Season

Opened at 6:00 a.m. May 15, 2017, from the MS/LA state line westward to the eastern shore of South Pass of the Mississippi River.

Closed at 6:00 p.m. July 14, 2017, from the MS/LA state line westward to the eastern shore of South Pass of the Mississippi River except in the following areas:

- Lake Pontchartrain, Chef Menteur and Rigolets Passes, Lake Borgne, the Louisiana portion of Mississippi Sound, and the open waters of Breton and Chandeleur Sounds.

Closed at 6:00 p.m. July 24, 2017, at the LA/TX state line.

2017 - Fall Inshore Shrimp Season

Opened at 6:00 a.m. Aug. 15, 2017, from the eastern shore of South Pass of the Mississippi River westward to Freshwater Bayou Canal.

Closed at 6:00 p.m. Aug. 22, 2016, from the eastern shore of South Pass of the Mississippi River westward to the Atchafalaya River Ship Channel.

2016 - Spring Inshore Shrimp Season

Opened at 6:00 a.m. May 23, 2016, from the eastern shore of South Pass of the Mississippi River westward to Freshwater Bayou Canal.

Closed at 6:00 p.m. July 3, 2016, from the eastern shore of South Pass of the Mississippi River westward to the western shore of Freshwater Bayou Canal.

2016 - Fall Inshore Shrimp Season

Opened at 6:00 a.m. Aug. 15, 2016, from the eastern shore of South Pass of the Mississippi River westward to the Atchafalaya River Ship Channel.

Closed at official sunset Dec. 19, 2016, from the eastern shore of South Pass of the Mississippi River westward to Freshwater Bayou Canal.

2017 - Spring Inshore Shrimp Season

Opened at 6:00 a.m. May 8, 2017, from the eastern shore of South Pass of the Mississippi River westward to the western shore of Freshwater Bayou Canal.

Closed at 6:00 p.m. June 23, 2017, from the eastern shore of South Pass of the Mississippi River westward to the western shore of Freshwater Bayou Canal.

2016 - Summer Inshore Shrimp Season

Opened at 6:00 a.m. June 23, 2016, from the MS/LA state line westward to the eastern shore of South Pass of the Mississippi River.

Closed at 6:00 p.m. Aug. 22, 2016, from the MS/LA state line westward to the eastern shore of South Pass of the Mississippi River.

2017 - Summer Inshore Shrimp Season

Opened at 6:00 a.m. May 15, 2017, from the eastern shore of South Pass of the Mississippi River westward to Freshwater Bayou Canal.

Closed at 6:00 p.m. Aug. 15, 2017, from the eastern shore of South Pass of the Mississippi River westward to the Atchafalaya River Ship Channel.

2016 - Offshore Shrimp Seasons

Closed at official sunset Jan. 2, 2017, in the following waters:

- That portion of state outside waters extending a distance of 3 nautical miles seaward of the inside/outside shrimp line as described in R.S. 56:495(A) from the northwest shore of Caillou Boca at -90 degrees 50 minutes 27 seconds west longitude westward to the western shore of Freshwater Bayou Canal at -92 degrees 18 minutes 33 seconds west longitude.

Closed at 6:00 a.m. March 17, 2017, in the following waters:

- The area extends a distance of three nautical miles, seaward of the Inside/Outside Shrimp Line, from the northwest shore of Caillou Boca at -90 degrees 50 minutes 27 seconds west longitude westward to the eastern shore of the Atchafalaya River Ship Channel at Eugene Island as delineated by the channel red buoy line.

Opened at 6:00 a.m. May 1, 2017 in the following waters:

- The area extends seaward of the Inside/Outside Shrimp Line out to the three mile line, from the eastern shore of the Atchafalaya River Ship Channel at Eugene Island as delineated by the channel red buoy line to the western shore of Freshwater Bayou Canal at -92 degrees 18 minutes 33 seconds west longitude.

Western Mississippi River, Barataria, Terrebonne, Atchafalaya River and Vermilion-Tecne River Basins

2016 - Spring Inshore Shrimp Season

Opened at 6:00 a.m. May 23, 2016, from the eastern shore of South Pass of the Mississippi River westward to Freshwater Bayou Canal.

Closed at 6:00 p.m. July 3, 2016, from the eastern shore of South Pass of the Mississippi River westward to the western shore of Freshwater Bayou Canal.

2016 - Fall Inshore Shrimp Season

Opened at 6:00 a.m. Aug. 15, 2016, from the eastern shore of South Pass of the Mississippi River westward to Freshwater Bayou Canal.

Closed at 6:00 p.m. Aug. 22, 2016, from the Atchafalaya River Ship Channel Buoy Line westward to the western shore of Freshwater Bayou Canal.

2017 - Spring Inshore Shrimp Season

Opened at 6:00 a.m. May 8, 2017, from the eastern shore of South Pass of the Mississippi River westward to the western shore of Freshwater Bayou Canal.

Closed at 6:00 p.m. June 23, 2017, from the eastern shore of South Pass of the Mississippi River westward to the western shore of Freshwater Bayou Canal.

Mermentau, Calcasieu and Sabine River Basins

2016 - Spring Inshore Shrimp Season

Opened at 6:00 a.m. May 23, 2016, from the western shore of Freshwater Bayou Canal westward to the LA/TX state line.

Closed at 6:00 p.m. July 15, 2016, from the western shore of Freshwater Bayou Canal westward to the LA/TX state line.

2016 - Fall Inshore Shrimp Season

Opened at 6:00 a.m. Aug. 22, 2016, from the western shore of Freshwater Bayou Canal westward to the LA/TX state line.

2017 - Spring Inshore Shrimp Season

Opened at 6:00 a.m. May 15, 2017, from the western shore of Freshwater Bayou Canal westward to the LA/TX state line.

Closed at 6:00 p.m. July 14, 2017, from the western shore of Freshwater Bayou Canal to the LA/TX state line.

Offshore Shrimp Seasons

Closed at official sunset Jan. 2, 2017, in the following waters:

- The area extends a distance of three nautical miles, seaward of the Inside/Outside Shrimp Line, from the northwest shore of Caillou Boca at -90 degrees 50 minutes 27 seconds west longitude westward to the eastern shore of the Atchafalaya River Ship Channel at Eugene Island as delineated by the channel red buoy line.

Opened at 6:00 a.m. March 17, 2017, in the following waters:

- The area extends seaward of the Inside/Outside Shrimp Line out to the three mile line, from the eastern shore of the Atchafalaya River Ship Channel at Eugene Island as delineated by the channel red buoy line to the western shore of Freshwater Bayou Canal at -92 degrees 18 minutes 33 seconds west longitude.
BLUE CRAB MANAGEMENT

The Louisiana blue crab fishery is the largest blue crab fishery in the United States and it accounts for more than half of the total blue crab harvest in the Gulf of Mexico. Landings of blue crab in Louisiana averaged 42.5 million pounds annually from 2000-2016. The dockside value of the harvest over that same time period averaged $44 million annually.

Management of the blue crab fishery strives for the maintenance of the stock while providing for long-term benefits to the fishery. Key objectives of management include:

- Conservation, restoration and enhancement of habitat essential to blue crabs.
- Reductions in juvenile blue crab incidental mortality, wasteful harvesting practices within the fishery, and conflicts among crab fishermen and other user groups.
- Enhancement of social and economic benefits derived from resource use.
- The assessment of biological, social and economic impacts of existing and proposed fisheries management regulations affecting the fishery.

These objectives are met via licensing, record keeping and reporting requirements, minimum size limit, time, gear and area restrictions.

Blue Crab Stock Assessment

The stock assessment for blue crab was updated in early 2016. The assessment indicated that the Louisiana blue crab stock had crossed the overfished benchmark in 2015. The assessment also indicated that the fishing mortality rates during the 2012 and 2014 seasons had exceeded their targets and were very close to their overfishing benchmarks. LDWF and the Crab Task Force entered into discussions on potential changes to the fishery to allow the stock to recover. Options that were discussed included a seasonal closure of the commercial blue crab fishery, raising the size limits of blue crab, restricting the harvest of immature female blue crab, increasing license fees, and implementing trap limits. In 2016, the Louisiana Wildlife and Fisheries Commission promulgated a rule that prohibited the harvest of blue crabs during a 30-day period that began the third Monday in February. This rule will take place during the 2017, 2018 and 2019 blue crab harvest seasons.

OYSTER MANAGEMENT

Oysters provide both important economic and ecological benefits to Louisiana. They act as barometers for the overall health of the ecosystem, providing forage and shelter habitat for a variety of fish and invertebrate species.

Oysters improve water quality through filter-feeding activities, affect estuarine current patterns, and may provide shoreline stabilization. Due to their economic and ecological importance, wise management of the public oyster resource is critically important to ensure that this valuable species continues to thrive in Louisiana’s coastal areas.

The Office of Fisheries Mollusk Program is responsible for the oyster resource on nearly 1.7 million acres of public oyster seed reservations, public seed grounds and public oyster areas.

Seed grounds are designated by the Louisiana Wildlife and Fisheries Commission and include a large continuous area east of the Mississippi River as well as a portion of the Vermilion/Cote Blanche/Atchafalaya Bay system. Seed reservations and the public oyster areas of Calcasieu and Sabine lakes are designated by the legislature. LDWF manages four seed reservations, including one east of the Mississippi River (Bay Gardene), one in the Barataria Bay system (Hackberry Bay) and two in Terrebonne Parish (Sister Lake and Bay Junop).

State laws mandate that LDWF open the oyster season on Louisiana public seed grounds on the first Wednesday following Labor Day of each year and close these areas no later than April 30 of each year. However, the Louisiana Wildlife and Fisheries Commission is authorized to extend the season beyond April 30, provided sufficient stocks are available for harvest. The secretary of LDWF may close seasons on an emergency basis if oyster mortality occurs. The secretary can also delay the season or close certain areas where significant spat catch has occurred with good probability of survival, or if an excess amount of shell in oyster loads occurs. Management practices often use rotational openings of the four oyster seed reservations in alternating years. The public grounds may be opened to the harvest of seed oysters between the first Wednesday following Labor Day and the second Monday in October; after which the

<table>
<thead>
<tr>
<th>PUBLIC OYSTER AREA</th>
<th>SEASON OPENING</th>
<th>SEASON CLOSURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Public Grounds East of MS River and North of MS River Gulf Outlet, (excluding Drum Bay sacking area and Mississippi Sound): SEED</td>
<td>Nov. 14, 2016</td>
<td>Nov. 20, 2016</td>
</tr>
<tr>
<td>Primary Public Grounds East of MS River and North of MS River Gulf Outlet, including Lake Borgne(excluding Mississippi Sound): SACK</td>
<td>Nov. 14, 2016</td>
<td>Jan. 8, 2017</td>
</tr>
<tr>
<td>LDHH Harvest Zones 3 &amp; 4 within the Biloxi Marsh; SACK</td>
<td>Jan. 31, 2017</td>
<td>April 30, 2017</td>
</tr>
<tr>
<td>Primary Public Grounds East of MS River and South of MS River Gulf Outlet (excluding Bay Long): SEED</td>
<td>CLOSED</td>
<td></td>
</tr>
<tr>
<td>Primary Public Grounds East of MS River and South of MS River Gulf Outlet (excluding Bay Long): SACK</td>
<td>CLOSED</td>
<td></td>
</tr>
<tr>
<td>Bay Long</td>
<td>Nov. 14, 2016</td>
<td>April 30, 2017</td>
</tr>
<tr>
<td>Little Lake, Barataria Bay,</td>
<td>Closed</td>
<td></td>
</tr>
<tr>
<td>Hackberry Bay Public Oyster Seed Reservation: SEED</td>
<td>Nov. 14, 2016</td>
<td>Nov. 15, 2016</td>
</tr>
<tr>
<td>Hackberry Bay Public Oyster Seed Reservation: SACK</td>
<td>Nov. 15, 2016</td>
<td>Nov. 22, 2016</td>
</tr>
<tr>
<td>Vermilion/East &amp; West Cote Blanche/Atchafalaya Bay Public Oyster Seed Grounds: SACK</td>
<td>Oct. 9, 2016</td>
<td>April 30, 2017</td>
</tr>
<tr>
<td>Lake Tambour, Deep Lake, Lake Felicity, Lake Chien Public Oyster Seed Ground</td>
<td>CLOSED</td>
<td></td>
</tr>
<tr>
<td>Sister Lake Public Oyster Seed Reservation: SEED</td>
<td>CLOSED</td>
<td></td>
</tr>
<tr>
<td>Sister Lake Public Oyster Seed Reservation: SACK</td>
<td>April 4, 2017</td>
<td>April 14, 2017</td>
</tr>
<tr>
<td>Calcasieu Lake - West Cove</td>
<td>Nov. 1, 2016</td>
<td>Jan. 24, 2017</td>
</tr>
<tr>
<td>Calcasieu Lake - East Cove</td>
<td>Nov. 1, 2016</td>
<td>Feb. 13, 2017</td>
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</tbody>
</table>
public grounds may be opened to harvest of market-size oysters.

In FY 2016-2017, the oyster season was not as productive on public grounds due to oyster stocks being well below average and due to subsequent area closures. A more conservative management approach is essential to rebuild populations and prolong the life of restoration investments (culch plants). Based on harvest estimates collected from fishermen interviews on the water, the public oyster areas produced approximately 35,840 barrels of seed oysters and 43,512 sacks of market-size oysters during the season. The majority of harvest came from the Mississippi Sound area of the public grounds. During that short opening, approximately 32,265 barrels (seed) and 18,072 (market sized) sacks were harvested. Lake Calcasieu produced the next sizeable share of the market-oyster harvest, as fishermen harvested approximately 21,780 sacks of oysters.

**MARINE FINFISH MANAGEMENT**

The primary objective of the finfish program is to make rational recommendations for the management of coastal finfish stocks based on a database of scientific information. The information in the database is collected through fishery-independent and fishery-dependent sampling.

The following management recommendations were made to the secretary of LDWF and the Louisiana Wildlife and Fisheries Commission and implemented during FY 2016-2017:

**July 2016**

- Commercial king mackerel season opened on July 1 at 12:01 a.m., concurrent with a federal opening of the 2016-2017 harvest season.
- Commercial fisheries for small coastal sharks re-opened July 1 following an annual seasonal closure from April 1 - June 30.
- Louisiana closed the season for the commercial harvest of greater amberjack on July 17, 2016 concurrent with a closure in federal waters.
- Louisiana closed the season for the recreational harvest of greater amberjack on July 22, 2016 concurrent with a closure in federal waters.
- Louisiana closed the season for the recreational harvest of gray triggerfish on July 23, 2016 concurrent with a closure in federal waters.

**August 2016**

- Louisiana closed the season for the recreational harvest of greater amberjack on Aug. 1, 2016 concurrent with a closure in federal waters.
- Louisiana closed the season for the recreational harvest of gray triggerfish on Aug. 1, 2016 concurrent with a closure in federal waters.

**September 2016**

- Louisiana closed the state waters season for the recreational harvest of red snapper on Sept. 5, 2016 at 11:59 p.m. after preliminary LA Creel landings data indicated the state’s self-imposed quota was projected to be met at that date.

**October 2016**

- Louisiana re-opened the state waters season for the recreational harvest of red snapper on Oct. 7, 2017. The season was opened as a weekend only (Friday, Saturday and Sunday) season.
- Commercial season for the harvest of striped mullet opened on Oct. 17.

**December 2016**

- Louisiana closed the state waters season for the recreational harvest of red snapper on Dec. 15, 2016.
- Louisiana waters closed for the commercial harvest of small coastal sharks on Dec. 31, 2016 concurrent with a closure in federal waters.
- Commercial fishery for the harvest of spotted seatrout closed on Dec. 31.
- Recreational fishery for the harvest of gag closed on Dec. 31.

**January 2017**

- Commercial fishery for small coastal sharks opened at 12:01 a.m. on Jan. 1.
- All Louisiana waters closed to the commercial harvest of striped mullet with a mullet strike net on Jan. 16.
- Commercial fishery for the harvest of spotted seatrout opened on Jan. 2.
- Louisiana closed the season for the recreational harvest of gray triggerfish for all of 2017 concurrent with a closure in federal waters.
- The Louisiana Wildlife and Fisheries Commission, at its January 2017 meeting set the 2017-2018 season for the commercial harvest of king mackerel in state waters to open on July 1, 2017.
- The Louisiana Wildlife and Fisheries Commission, at its January 2017 meeting passed a Notice of Intent to modify the harvest regulations for large coastal sharks.

The proposed Notice of Intent would adjust the daily possession limit of commercially harvested large coastal sharks from 36 to 45 and allow multiple permit holders to each harvest a daily possession limit from one vessel. Public comments will be taken on the rule until April 6, 2017. In a related action, the Louisiana Wildlife and Fisheries Commission passed a Declaration of Emergency that mirrors the above Notice of Intent to allow commercial shark fisherman an opportunity to harvest at the higher possession limit for the 2017 commercial season, which begins Feb. 1, 2017, concurrent with an opening in federal waters.
- Louisiana closed the season for the commercial harvest of king mackerel for the 2016-2017 fishing year on Jan. 21, 2017.

**February 2017**

- The annual stock assessment for striped mullet was presented to the Louisiana Wildlife and Fisheries Commission for transmittal to the Louisiana Legislature.
- Commercial fishery for non-sandbar large coastal sharks opened at 12:01 a.m. on Feb. 1.
- Louisiana state waters opened for the recreational harvest of red snapper on Feb. 1, 2017. The season is open daily with a two-fish bag limit at 16 inches.

**March 2017**

- Louisiana opened the commercial season for the harvest of bait menhaden on March 15, 2017, two weeks prior to the opening of the regular commercial menhaden season to meet the demand for bait.
- Louisiana closed the state waters season for the recreational harvest of greater amberjack on March 30, 2017 concurrent with a federal closure.

**April 2017**

- Louisiana waters closed to the recreational and commercial harvest of all sharks on April 1, consistent with an annual state closed season that is from April 1 - June 30.

**May 2017**

- Louisiana waters closed for the commercial harvest of large coastal sharks on May 4, 2017 concurrent with a closure in federal waters.
- Louisiana waters closed for the commercial harvest of king mackerel on May 26, 2017 concurrent with a closure in federal waters.
June 2017

- Louisiana waters closed for the recreational harvest of gray triggerfish on June 1.
- Louisiana waters opened for the recreational harvest of gag on June 1.
- Louisiana closed state waters to the harvest of recreational red snapper on June 15, 2017 and re-opened concurrent with a special 39 day federal season that ran, weekends only (Friday, Saturday and Sunday) from June 16 - Sept. 4, 2017, including Monday and Tuesday July 3-4, 2017 and Monday, Sept. 4, 2017. Federal waters had previously closed to the recreational harvest of red snapper on June 12, 2017.
- Louisiana closed state waters for the commercial harvest of greater amberjack on June 20, 2017, concurrent with a closure in federal waters.

FRESHWATER FINFISH MANAGEMENT

Revisions were made to regulations for largemouth bass on the Sabine River and include the following:

- The change sets a minimum size limit of 12 inches (amended from 14 inches) for largemouth bass (Micropterus salmoides) on the lower Sabine River, in Beauregard, Calcasieu, Sabine and Vernon parishes on the eastern side of the Sabine River along the state boundary with Texas from the Toledo Bend dam down to the I-10 bridge.
- Changes in crappie (black crappie and white crappie) size limit and creel limit on Eagle Lake, on the Louisiana/Mississippi border: size limit is now 11 inches total length with a 30-fish daily limit.

Poverty point commercial netting season - Trammel and gill nets (a minimum mesh size of 3.5-inch bar and 7-inch stretch) will be allowed in Poverty Point Reservoir, Richland Parish, LA, for the legal harvest of commercial fish during a special recurring trammel and gill netting season to commence each year at sunrise on Oct. 1 and close at sunset on the last day of February the following year. Stocking data for LDWF waterbodies can be found in the Freshwater Fish Hatchery Program section of this report.

Presentations

Heimann, B.J. Pond Construction, Management, and Maintenance. Louisiana Recreation and Parks Association Annual Conference, April 27, 2016; Lake Charles, LA.


Heimann, B.J. Freshwater Fish Identification for LDWF Enforcement Academy. LDWF Enforcement Training Center, June 3, 2016; Baton Rouge, LA.

Publications


FISHERIES RESEARCH

GRAND ISLE LABORATORY

The Fisheries Research Lab, located in Grand Isle on the shore of Barataria Bay, is one of the richest estuarine complexes in the Gulf of Mexico. While fisheries research and monitoring is conducted throughout the state, the Fisheries Research Lab is the base for much of this work within the Office of Fisheries. This ideal location allows for the research and monitoring of many of Louisiana’s key recreational and commercial marine species including offshore species that are just a short boat ride away. The Fisheries Research Lab also provides fisheries biologists with the ability to develop and conduct additional research projects, collecting vital information for the management of Louisiana’s aquatic resources. Along with being a home-base for fisheries research projects, the lab also serves as a place that public, state and federal partners can utilize, as well as other entities engaged in fisheries research, management, enforcement, coastal restoration and marine education.

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) of 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, ichthyoplankton, vertical line and bottom longline. The surveys are conducted by teams of five 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 and the following summaries are based on the 2016 calendar year. Several changes were made to the survey design in 2016, including expansion of the geographic range of the both the vertical line and bottom longline surveys, removal of the plankton survey from the Fall Shrimp/Groundfish survey, and addition of a Fall Plankton cruise now conducted aboard LDWF’s R/V Defender.

SEAMAP Shrimp/Groundfish Survey

The SEAMAP Shrimp/Groundfish Survey collects information to characterize shrimp and groundfish assemblages west of the Mis-
Large red drum is weighed on a motion-compensated scale and released by a LDWF biologist during a SEAMAP Bottom Longline survey.

As part of LDWF’s component of the SEAMAP Bottom Longline survey, biologists set a 1-mile longline with 100 hooks baited with Atlantic mackerel for one hour. LDWF currently conducts this offshore survey from the Texas border to the mouth of the Mississippi River.

A large red drum is weighed on a motion-compensated scale and released by a LDWF biologist during a SEAMAP Bottom Longline survey.
Fisheries Management Research Projects

Reproductive Strategies in Gulf of Mexico Greater Amberjack
LDWF biologists from the Grand Isle Fisheries Research Lab collected greater amberjack as part of a collaborative research project with the University of Florida. The goal of the project is to evaluate if large female amberjack contribute more to spawning stock biomass than smaller females, and if so, whether alternate management strategies might be more effective for the rebuilding of this stock, which has been identified as both overfished and undergoing overfishing. Field teams from the Grand Isle Fisheries Research Lab collected 443 greater amberjack in 2016 and 585 in 2017. Following dock work-ups, gross histology was performed and slides were prepared for the 569 ovaries collected from female amberjack in the Grand Isle Fisheries Research Histology Lab and assessments of age, condition and fecundity were performed at the University of Florida. LDWF biologists participated in an amberjack reproductive biology workshop in March 2017 at the University of Florida, Gainesville. It is expected that the results from this study will be of immediate use to inform managers of this federal fishery on effective management alternatives. Additionally, fish donations to the Second-Hand Harvesters Food Bank from this project alone provided an estimated 1,500 meals to Louisiana families in need.

Capture Mortality and Post-Release Survival of Blacktip Sharks in the Gulf of Mexico Fishery
Working in collaboration with scientists from Texas A&M Galveston, the University of Southern Mississippi and Florida International University, LDWF biologists have been taking blood samples from blacktip sharks to help evaluate capture and release condition in an attempt to better estimate the survival of blacktip sharks when they are released from recreational fishing gear. Additionally, some blacktip sharks have been fitted with satellite tags to document survival and movement. During both the 2016 and 2017 field seasons, 56 blood samples were taken and 14 pop-up satellite tags deployed on blacktip sharks off the coast of Louisiana. This work is important because there is currently no estimate available for the survival of blacktip sharks when released from recreational gear. The current stock assessment is based on a rate calculated from a different species, the Atlantic sharpnose shark, which is generally believed to have a lower release survival rate than blacktips. Since the blacktip shark is an important commercial and recreational species along the Gulf Coast, we expect this study to produce data immediately relevant to management of this species.

Yellowfin Tuna Internal Archival Tagging
Yellowfin tuna are an important recreational and commercial species for Louisiana-based user groups, with the majority of both recreational and commercial catches in the northern Gulf being landed from Louisiana. In order to better understand the long-term movements and habitat use of these highly migratory fish, LDWF has been surgically implanting internal archival tags in yellowfin tuna since 2013. Internal archival tags are tiny computers that record depth, temperature and location. By making a small incision in the body wall, inserting the double-A battery-sized tag, and closing the incision.
LDWF biologists release a blacktip shark after fitting it with a satellite ‘survival’ tag and yellow ‘fin tag’ as part of a collaborative research project with Texas A&M Galveston, USM-GCRL, and FIU that aims to examine the post-release survival of blacktip sharks caught on recreational gear.

with two quick sutures, LDWF biologists implanted 165 of these tags in the abdominal cavity of yellowfin tuna from 2013 to 2015. However, biologist cannot get the data back from these tags without the help of anglers, who are asked to return the tags to LDWF upon capture of a tagged fish. To date 333 of the internal tags deployed in yellowfin have been returned, some of them having been at large for up to 1,017 days. While the tag return and data analysis phases of this project are still underway, preliminary results have been shared with the public in both the 2016 winter edition of “Louisiana Conservationist” and the February 2017 edition of “Sportfishing Magazine.” Those preliminary results indicate that while yellowfin tuna are a highly migratory species, individuals tagged in the northern Gulf of Mexico do tend to remain in the northern Gulf for extend periods of time.

**Origin of Yellowfin Tuna in the Western Atlantic Ocean**

Natural chemical ‘tags’ from the ear bones of yellowfin tuna were used to determine the nursery origin of adult yellowfin tuna caught in the Louisiana recreational fishery. From 2012-2015, researchers from Texas A&M collected young-of-the-year yellowfin tuna (i.e., less than 1 year old) from known yellowfin nursery areas throughout the Atlantic Ocean, and LDWF biologists collected young-of-the-year yellowfin from locations offshore of Louisiana as well as ear bones from adult yellowfin from Louisiana fishing docks. Because the tuna ear bones incorporate unique chemical signatures from these different nursery areas, researchers were able to compare this young-of-the-year ‘baseline’ chemical signature to the signature found in the very center (corresponding to the first year of life) of adult yellowfin ear bones collected in Louisiana and assign these “locally caught” adults a nursery origin. Interestingly, the majority of adults in the study were in fact from distant nurseries, particularly the west coast of Africa, though local production (i.e. spawning in the Gulf of Mexico) did account for almost a third of the adults sampled. Because of the success of this initial study, federal funding was awarded from the National Oceanic and Atmospheric Administration (NOAA) Saltonstall-Kenedy grant program to continue the work but expand the scope of the sampling component by attempt to ‘source’ the United States Atlantic fishery (as opposed to just the Louisiana fishery). In 2016 and 2017, LDWF continued to collect young-of-the-year and adult yellowfin from near Louisiana for this project with 21 young-of-the-year tuna and 338 adults collected during the FY 2016-17 period.

**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. Reproductive histological analysis has been completed on 209 seatrout ovaries from the 2015 spawning season and 334 females have been collected through June of the 2016 spawning season for future analysis. All of these fish have been aged and 11 batch fecundity estimates have been calculated thus far. This fiscal year 73 females and 19 males were collected through June of the 2017 spawning season. Female ovary tissue has been processed. By supplementing collections with charter catches we have increased the total number of older individuals which will aid in providing a better estimates 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 through the spawning season from each Coastal Study Area.

**Age and Growth of Yellowfin Tuna from the Northern Gulf of Mexico**

As part of a yellowfin tuna research initiative that began in 2012, LDWF biologists collected ear bones from 1,106 yellowfin tuna from recreational fishing catches through 2015. Yellowfin tuna in the Atlantic are managed by the International Commission for the Conservation of Atlantic Tunas, which assesses this stock every five years. During the previous assessment (2011), the need for better and age-specific ageing data was noted. Working with experts from Texas A&M Galveston’s Pelagic Fisheries Conservation Lab, and LDWF biologists were able to develop a new methodology for ageing yellowfin tuna and generate an updated growth curve for yellowfin from the Gulf of Mexico.

**Age and Growth of Wahoo from the Louisiana Recreational Fishery**

Previous work in the Atlantic has defined the age and growth relationship for wahoo, but no work has been completed in the Gulf of Mexico. LDWF has obtained ovaries and otoliths with lengths from wahoo as they are seasonally encountered during routine dock sampling at offshore recreational angling ports. Ages have been assigned for 97 female, 30 male, and three unknown (a total of 130) wahoo from the Louisiana coast. Fork length (cm) of aged individuals ranged from 86-176cm for females with a mean (±SE) of 136.7(±16.53) cm and 91-154cm for males.
with a mean (±SE) of 133.3(±17.41) cm. Ages ranged from 0.64-4.69 years for females with a mean (±SE) of 2.25(±0.10) years and 0.55-3.61 years for males with a mean (±SE) of 2.19(±0.15) years. All wahoo were sampled from the charter boat or recreational private boat fishery. Although some of the 28 ovaries collected within the spawning season indicate the occurrence of spawns in the short term, none of the ovaries were ripe, which does not allow for estimates of fecundity. Our future goal is to target summer fishing rodeos for wahoo (spawning season) in order to obtain possible fecund individuals and finalize a report on findings during the next fiscal year.

**Publications**


Lang, ET and BJ Falterman. A comparison of sampling methods and a continuation of red snapper life history metrics. SEDAR 52 WP-07.

Lang, ET and BJ Falterman. A continuation of results in the spatial distribution and occurrence of red snapper, Lujanus campechanus, sampled off the Louisiana coast during nearshore trawl sampling efforts. SEDAR 52 WP-08.

**Presentations**


Falterman, BJ. A review of a mixed-tag study on yellowfin tuna in the Gulf of Mexico. Integrated Tracking of Aquatic Animals in the Gulf of Mexico Network (iTAG). May 23-25, 2017, FWRI, St. Petersburg, FL.

Falterman, BJ. Assessing data deficiencies in a popular sport and commercial fish, the yellowfin tuna, in the northern Gulf of Mexico. NREM Graduate Seminar Series, April 21, 2017, Ames, IA.

Falterman, BJ. Assessing data deficiencies in a popular sport and commercial fish, the yellowfin tuna, in the northern Gulf of Mexico. Nicholls State University Environmental Reg, Law and Policy Workshop, April 24, 2017, Thibodaux, LA.


Lang, ET, CA Levron, BJ Falterman. Spawning at age of spotted seatrout (Cynoscion nebulosus) in Barataria Bay, Louisiana. Annual Meeting of the Southeastern Association of Fish and Wildlife Agencies, October 16-19, Baton Rouge, LA.

Leonhardt, ER. Production of Hatchery-raised Oyster Larvae at the Michael C. Voisin Oyster Hatchery in Grand Isle, Louisiana. Annual Meeting of the Southeastern Association of Fish and Wildlife Agencies, October 16-19, Baton Rouge, LA.

McKinney, JA and BJ Falterman. Movements and vertical behavior of whale sharks (Rhinodon typus) from a feeding aggregation off the coast of Louisiana. IATTC Tuna Conference, May 15-18, 2017, Lake Arrowhead, CA


Wells, RLD, JM Drymon, BJ Falterman, GW Stunz, MJ Ajemian, T Tinhans, JA Mohan, ER Hoffman, WB Driggers III, JA McKinney. Movement and Oceanographic Preferences of Scalloped Hammerheads (Sphyrna lewini) in the Gulf of Mexico. 69th Conference of the Gulf and Caribbean Fisheries Institute, Grand Cayman, Cayman Islands.

**AGE & GROWTH LABORATORY**

The collection of age, growth and reproductive information used to develop age-structured stock assessments is coordinated through the LDWF Age and Growth Laboratory in Baton Rouge. The Age and Growth Lab monitors 15 species of fish. Monitoring is done through the collection of otoliths and spines (Gray Triggerfish) for ageing purposes. Coastal Study Area biologists record length, weight, gender and location when fish are collected in the field. The 15 fish species consist of 12 saltwater and three freshwater species. The freshwater species are Black Crappie, White Crappie and Largemouth Bass. The saltwater species are Black Drum, Gray Snapper, Greater Amberjack, Gray Triggerfish (spines), King Mackerel, Red Drum, Red Snapper, Sheepshead, Southern Flounder, Spotted Seatrat, Striped Mullet and Vermilion Snapper. Tripletail and Yellowfin Tuna are also sampled by Coastal Study Area biologists. These are considered research species because they were added to this list to gain new fishery information through field dependent collection along with developing an ageing protocol. The Venice lab is in charge of collecting and processing the Tripletail and Yellowfin Tuna otoliths, but the Baton Rouge Age and Growth Lab assists with some of the reading and sectioning. All saltwater otoliths/spines are obtained through fisheries dependent sampling, except for Tripletail, which are collected by both dependent and independent sampling methods. Dependent sampling requires field marine biologists to collect the otolith or spine when they interview a recreational angler, and also includes interviewing commercial fishermen at commercial fishing docks. Freshwater otoliths are obtained through independent sampling, requiring Inland field biologists to target a particular species. The lab usually receives otoliths (and spines) throughout each month of the year.

During FY 2016-2017, the Age and Growth Lab in Baton Rouge received 13,334 otoliths. All of those otoliths have been aged. Within that total, 2,287 of those otoliths were fresh-
water, and all of those have been aged. Spotted seatrout was the most collected species out of any marine or inland species because quotas for spotted seatrout are the highest and it is very popular among anglers. The totals for each species are as follows:

- Black Drum – 1,397
- Black Crappie - 665
- Gray Snapper - 103
- Greater Amberjack - 9
- Gray Triggerfish - 0
- King Mackerel - 8
- Largemouth Bass - 1,237
- Red Drum – 2,092
- Red Snapper - 1,287
- Sheepshead - 673
- Southern Flounder - 665
- Spotted Seatrout - 4,280
- Striped Mullet - 448
- Vermilion Snapper - 85
- White Crappie - 385

Otoliths were also collected from the two research species, Tripletail and Yellowfin Tuna. As mentioned earlier, the Venice lab spearheads the sampling and processing of triple-tail and yellowfin tuna. The total for those two species are:

- Tripletail - 12
- Yellowfin Tuna - 339

The season for Striped Mullet, Black and White Crappie collection is typically during the fall. Largemouth Bass sampling is mostly done during the spring and early summer months.

Otolith sampling quotas were adjusted in early 2017 from the previous year. The number of marine otoliths has slightly decreased compared to last year’s numbers. All otoliths received during this time period have been processed, meaning they were cataloged, prepared to be sectioned, first and second read.

During FY 2016-2017, the Age and Growth Lab received the reference set for Black Drum, Gray Snapper, Gray Triggerfish, Greater Amberjack, Red Drum, Red Snapper, Sheepshead and Vermilion Snapper. The annual GSMFC Otolith Processor’s Workshop in May is held in Panama City, Florida, and hosted by Gulf States Marine Fisheries Commission. The reference sets are used to help sharpen Age and Growth biologists’ otolith ageing skills. The sets are also used to ensure all labs base their ages on the correct criteria.

**INLAND RESEARCH**

Many issues that Inland Fisheries biologists face require laboratory and field research to validate current techniques, investigate new methods of resource management and prioritize management actions across Louisiana’s freshwater ecosystem.

**Freshwater Artificial Reef Program**

LDWF facilitates this program by partnering with sponsor groups to construct artificial reef projects in Inland waterbodies. LDWF’s role in this program is that of administrator and/or consultant. As such, LDWF makes final decisions relative to project design, material selection and placement for all projects sanctioned by the department. The U.S. Coast Guard is consulted if artificial structures are proposed to be placed in navigable waterways. LDWF’s Inland Fisheries Biologist Managers serve as points of contact for proposed projects and must grant prior approval for proposed projects to ensure compliance with project guidelines. Once implemented, LDWF Inland Fisheries biologists monitor the reef via diving, snorkeling or underwater photography to evaluate usage by target species. Biologists also compare pre- and post-installment creel data to evaluate the influence on angler perception and success. LDWF biologists are also conducting research on the use of artificial reef structures in Booker Fowler Fish Hatchery to try and reduce mortality on Florida strain largemouth bass brood stock from avian predators. Two reef structure designs were built, one with shade and one without shade, to evaluate how the two different structure types provide cover from avian predators and provide thermal refuge that increases growth. See the “Fishing Opportunities” section for details on the Freshwater Artificial Reef Program.

**Florida Largemouth Bass Genetics**

LDWF Inland Fisheries has worked closely with LSU AgCenter to determine the genetic composition of selected largemouth bass populations in the state. The data is used to manage hatchery stocks, assess the relative mortality of native, Florida, and hybrid largemouth bass, and assess the introgression of Florida largemouth bass genes into Louisiana largemouth bass populations resulting from continuing stocking efforts by the department. During FY 2016-2017, 815 largemouth bass were tested for sub-species identification. These fish were from Lake Bistineau, Bundicks Lake, Lacassine National Wildlife Refuge, the Lake Verret/Grassy Lake/Lake Palourde complex, Grand Bayou Reservoir, and Cane River. (Table 5).
### American Eel Age and Growth

American eels have been studied very little along the coast of the Gulf of Mexico, which has lead our Inland Fisheries biologists to research the life history of eels found in Louisiana. This research aims to evaluate age, growth, sexual maturity, diet and internal parasites of eels collected during standard sampling by Fisheries staff throughout the state. The goal is to better understand eel populations, their abundance and what, if anything, is limiting their population. Future research is in the planning stages for using fin clips from these specimens to compare to Atlantic coast eel stocks.

### Marginal Increment Analysis on Channel Catfish Otoliths

Past catfish stock assessments in Louisiana have relied on pectoral spines as the primary ageing structure. A comparison of spines vs. otoliths was performed by our LDWF Age and Growth Lab in 2015, to determine the preferred ageing structure. Otoliths were identified as the structure of choice. In order to assign accurate age and margin information to each otolith, biologists began to collect ear bone structures to obtain a reference set, as well as to perform a marginal increment analysis. In March 2016, biologists began to collect otoliths from 25-50 channel catfish monthly from the Lake Verret, Grassy Lake and Lake Palourde areas located in southcentral Louisiana. This lake system is an open cypress-tupelo swamp, and is a prime area for recreational and commercial catfish harvest. During FY 2016-2017, 1,035 otolith pairs were collected for analysis. Otoliths will continue to be collected in 2017 and 2018, at which time the marginal increment analysis will be completed and a stock assessment will be performed.

### Presentations

Maxwell, R.J. and B. Reed. Life History and Management of Paddlefish in Louisiana. Native Fish in the Classroom Training, July 20, 2016; Booker Fowler Fish Hatchery, Woodworth, LA.


Maxwell, R. J. Spread the Good Word, How AFS Members Can Enhance the Louisiana Master Naturalist Program. Annual Meeting of the LA Chapter American Fisheries Society, June 3, 2016; Baton Rouge, LA.

### Advisory Group Membership

- Atchafalaya Basin Program Technical Advisory Group (chair)
- Lake Providence Watershed Council (chair)
- False River Watershed Council (chair)
- Louisiana Vegetation Managers Association (President)
- Association of Fish and Wildlife Agencies (SEAFWA) - state representative
- Mississippi Interstate Cooperative Resource Association - state representative
- Lower Mississippi River Conservation Committee - Executive ComMississippi Interstate Cooperative Resource Association - Paddlefish and Sturgeon Committee
- Catfish Management Technical Committee of the Southern Division of the American Fisheries Society
- Reservoir Committee of the Southern Division of the American Fisheries Society
- Warm Water Streams Committee of the Southern Division of the American Fisheries Society
- American Eel Subcommittee of the Warm Water Streams Committee of the Southern Division of the American Fisheries Society
- Pollution Committee of the Southern Division of the American Fisheries Society
- Gulf Coast Prairie Landscape Conservation Cooperative - Science Team
- Atchafalaya Basin Research and Promotion Board
- Lake Bistineau Task Force
- Mid-South Aquatic Plant Management Project (FERC/SRA) - Aquatic Resources Working Group
- Pallid Sturgeon Recovery Team
- Lower Basin Pallid Sturgeon Workgroup
- Gulf Sturgeon Recovery Team
- Mississippi River Basin Panel on Aquatic Nuisance Species
- Gulf and South Atlantic Regional Panel of the Aquatic Nuisance Species Task Force
- Louisiana Fish Contaminants Advisory Group
- Toledo Bend Power Project Relicensing Project (FERC/SRA) - Aquatic Resources Working Group
- Louisiana Aquatic Invasive Species Task Force
- Louisiana Aquatic Invasive Species Advisory Group
- Louisiana Aquatic Invasive Species Task Force

### OTHER RESEARCH

#### ACOUSTIC TELEMETRY TAGGING

LDWF is leading a collaborative research project in Lake Pontchartrain to study the movements and habitat preferences of important fish species using acoustic telemetry technology. Fish are surgically implanted with acoustic transmitters, enabling tagged fish to be detected when swimming near receivers deployed throughout various habitats in the lake. The receiver array is used to cooperatively track red drum, spotted seatrout and bull sharks tagged by LDWF, spotted seatrout tagged by LSU, red drum and bull sharks tagged by the University of New Orleans, and...
Gulf sturgeon tagged by USFWS and the U.S. Army Corps of Engineers.

During FY 2016-2017 a total of 14 juvenile bull sharks were acoustically tagged In Lake Pontchartrain. Tissue samples were collected from sharks prior to release, and subsamples were sent to the University of Southern Mississippi and Texas A&M Galveston for a population study. Data from the receiver array have been downloaded regularly throughout the fiscal year, filtered corresponding to tagging organization, and sent to our collaborating partners for analysis. Additionally, data is uploaded onto a website developed in collaboration with the University of New Orleans Technology Group that allows the public to visualize the movements of acoustically tagged fish (louisianafisheries.net/telemetry/). Site visitors are able to sort fish by species, weight, size or sex and track their movements throughout Lake Pontchartrain. While fish are moving, the date, time, temperature, salinity, tide and lunar cycle are displayed, allowing visitors the opportunity to observe seasonal migrations, habitat preferences and response to environmental changes. Detailed analysis of acoustically tagged fish is ongoing, including a graduate student at LSU that is analyzing the spotted seatrout data.

Presentations
Ferguson, A. and C. Gothreaux. Lake Pontchartrain Acoustic Telemetry Project: A Focus on Behavior of Spotted Seatrout (Cynoscion nebulosus) and Red Drum (Sciaenops ocellatus) Following the Opening of the Bonnet Carre’ Spillway. Fisheries Symposium, SEAFWA Annual Conference, October 17, 2016, Baton Rouge, LA.

TAG EVALUATION STUDY
The tag evaluation study has expanded into a field trial to compare reported recapture rates for red drum and spotted seatrout tagged with either T-bar tags or traditional dart tags. Twenty active taggers participated in the tag retention field study during FY 2016-2017. Citizen scientists participating in this study were selected based on their elite status in the Cooperative Tagging Program, having tagged over 100 fish in the previous year. Experimental tagging kits were distributed at hands-on training workshops held in a series of locations.

During FY 2016-2017, over 1,500 fish were tagged with T-bar tags as part of the tag evaluation study. There were 440 red drum tagged with T-bar tags, of which 21 were recaptured for a 4.8 percent reported recapture rate. There were 1,149 spotted seatrout tagged with T-bar tags, and 36 recaptured resulting in a 3.1 percent reported recapture rate. The total number of fish tagged in the comparison study through Year 13 is 7,361. Total, there have been 2,004 red drum tagged with 7.14 percent recaptured and 5,357 spotted seatrout tagged with 1.42 percent recaptured.

Presentations

Gothreaux, C., H. David, and A. Ferguson. Engaging Citizen Scientists Through Fish Tagging in Louisiana. Education/Outreach Symposium, SEAFWA Annual Conference, October 18, 2016, Baton Rouge, LA.

LOUISIANA COOPERATIVE MARINE SPORT FISH TAGGING PROGRAM
The Louisiana Cooperative Marine Sport Fish Tagging Program is a collaborative initiative between the Office of Fisheries, the Coastal Conservation Association of Louisiana, universities and non-profit organizations.

One of the main goals of the program is to maintain a volunteer marine fish tagging program. Participation in the tagging program offers anglers a unique opportunity to act as citizen scientists, working alongside biologists for a common goal - to improve the understanding of marine fish movements and patterns of habitat use. The program’s success can be attributed to a dedicated base of volunteer anglers who serve as citizen scientists by tagging fish and providing valuable data that can be difficult and expensive to obtain by other means. Fish tagging is an exciting and rewarding way for anglers to give back to the resource they treasure. Information obtained through fish tagging is useful for fisheries conservation.

Dedicated volunteer anglers are essential to the success of any tagging study. In FY 2016-2017, the tagging program was promoted at Coastal Conservation Association and LDWF events across coastal Louisiana. Anglers interested in participating in the tagging program can submit an application by phone, mail, email, Facebook message and www.taglouisiana.com or in person. Coastal Conservation Association or LDWF personnel will collect this information and assign the angler a unique ID number, tagging kit and 10 starter tags. The “Tag Louisiana” Facebook page, which has over 2,500 followers, provides a quick and easy means of communication between anglers and program administrators. Volunteer anglers can share the program’s Facebook page with their friends and post pictures of their fish tagging efforts. Continued maintenance of the program’s Facebook page has fostered a sense of camaraderie between volunteer anglers and researchers while increasing interest and awareness for the tagging program.

Tagging Program Statistics
The tagging program saw around the same level of participation from year 12 (FY 2015-2016) to year 13 (FY 2016-2017). Six-hundred-seventy-eight anglers tagged at least one fish. Active participants (tagged at least 10 fish per year) in the tagging program remained steady with approximately 350 anglers, and there was a slight increase in total number of fish tagged, from 33,112 to 39,590. Program totals since the program’s inception in 1988 are close to 300,000, of which over 10,000 have been recaptured.

Of the 39,590 fish tagged during year 13, 17,008 were red drum, 21,243 were spotted seatrout, two were yellowfin tuna, 514 were red snapper and 818 were non-target species. Fish were tagged and recaptured throughout the Gulf of Mexico, in every Gulf state from Texas to Florida, with the majority occurring in the state of Louisiana. During year 13, 1,513 fish were reported as recaptured. This includes fish that were tagged in year 13 and recaptured again in year 13. Of the 1,513 reported recaptures, 970 were red drum, 416 were spotted seatrout, 55 were red snapper and 71 were non-target species. There were 35 fish that were recaptured a second time.

The recapture rate for red drum tagged during year 13 was 5.7 percent, spotted seatrout was 2 percent, red snapper was 10.7 percent and yellowfin tuna was 50 percent.
FISHING ACCESS AND OPPORTUNITY

Louisiana is nationally recognized by anglers and fisheries professionals as a premier sport fishing destination. The Office of Fisheries strives to create, enhance and restore our state’s inventory of public boating and fishing access sites. Access sites, including marinas, boat launches and fishing piers, serve as doorways to our state’s natural resources.

ACCESS

In a cooperative effort, LDWF provides financial assistance to local government entities through a competitive process to construct, improve and repair boating and fishing access facilities. Improvements and repairs are also made to boating and fishing access facilities owned by LDWF. This program is funded through the Sport Fish Restoration Program and includes both freshwater and saltwater projects. Projects may include the construction of boat ramps, parking areas, docks, bulk heading and fishing piers.

BOATING ACCESS PROJECTS COMPLETED

- Port O’Bistineau Landing - Project included an extension of the existing boat ramp by 60 feet to provide convenient access to Lake Bistineau during times of low water levels. Plans also included renovations to existing structures at the facility and expansion of the parking area. This has been completed.
- Arizona Landing (Lake Claiborne) - Arizona Landing is owned by LDWF. Through a Cooperative Endeavor Agreement, The Claiborne Parish Watershed District Commission made repairs to the existing mooring dock.

BOATING ACCESS FACILITIES PLANNED OR UNDER CONSTRUCTION

- Slidell Municipal Marina, BIG-P, Tier II - Project plans include upgrading an existing facility to include accommodations for boats greater than 26 feet.
- West End-Breakwater Drive Boat Launch - Project includes renovating the existing two-lane boat ramp and parking area.
- Venice Marina, BIG-P, Tier I - Project plans include upgrading electrical pedestals and fuel pumps to accommodate large transient vessels.
- Deer Park Boat Launch - The Deer Park Boat Launch is owned and maintained by LDWF. Repairs include replacing sections of the concrete boat ramp, installing sheet piling and back fill to prevent future erosion and drainage improvements to the parking area.

FISHING ACCESS FACILITIES PLANNED OR UNDER CONSTRUCTION

- St. Tammany Fishing Pier Phase II - Project includes constructing amenities and additional wooden crossovers to connect the existing Phase I Twin Span fishing pier.
- Burns Point Recreational Area Fishing Pier - Project plans include construction of a fishing pier at the existing recreational area to provide fishing opportunities for visitors.
- Port Sulphur Civic Drive Fishing Pier - Project plans include construction of a fishing pier at the existing boat ramp and improvements to the parking area.
- Bussey Brake Reservoir - Bussey Brake Reservoir is owned and maintained by LDWF. Two boat lanes have been cleared to provide safe boating access in the reservoir. Additional project plans include installation of breakwater structures at the boat ramp, construction of a mooring dock, extension of two existing fishing piers, and the construction of two new fishing piers.

CLEAN VESSEL ACT PROGRAM

- Slidell Municipal Marina - Project plans include the installation of a pump out system at the renovated marina facility.

NUISANCE AQUATIC VEGETATION

Control of nuisance aquatic plant species is necessary to provide access to many public waterways. Aquatic vegetation management efforts are designed to ensure that the natural environment and human interests are mutually protected.

Our natural resources are constantly under attack from invasive species posing a threat to healthy habitats and access opportunities for the public. The flagship of these initiatives is our Aquatic Plant Control Program, which strives to provide the public with safe and usable fishing and boating access. Left unchecked, invasive plants have the potential to completely inundate the state’s abundant freshwater lakes, making them inaccessible and threatening the natural habitat of our valuable aquatic resources. Aggressive treatment of affected waters continued in FY 2016-2017 in an ongoing effort to restore and improve the aquatic habitat and the natural balance of plants and fish.

The Aquatic Vegetation Management Plan format was created for lakes that do not have an approved LDWF Waterbody Management Plan to provide a lake description, basic information, a listing of lake authorities, historical vegetation control information, current aquatic plant status, and recommendations for control. These documents are used as a guide for aquatic plant control and as a source of recommendations and information to provide to the lake authorities and the public. In FY 2016-2017, the Aquatic Plant Control Program completed 67 Vegetation Management Plans for Louisiana public waterbodies.

In FY 2016-2017, herbicides were applied to 70,108 acres of nuisance aquatic vegetation, and the majority of these efforts included control of 23,453 acres of water hyacinth, 39,023 acres of giant salvinia, 2,018 acres of alligator weed, and 1,911 acres of common salvinia. In addition, approximately 1,011,922 adult giant salvinia weevils and 33,800 adult common salvinia weevils were stocked in water bodies throughout Louisiana.

Another method used for control of aquatic vegetation includes water level fluctuations. Natural water systems benefit from high springtime water levels and lower water levels in the fall. Benefits include aquatic vegetation control and a healthier fish population. For impounded waters, partial drawdowns (typically called drawdowns) are often conducted to induce similar benefits. These drawdowns also provide the opportunity for improvements to shoreline properties. Drawdowns were conducted on 13 inland reservoirs in FY 2016-2017 (Table 6).

In recent years, aquatic plant control biologists have shifted efforts towards identifying and utilizing all effective plant control methods available. Integrated pest management involves combining the effects of chemical, mechanical and biological control methods to manage nuisance species more effectively and efficiently. The long-term benefits and cost efficiency provided by the integrated pest management strategy allows LDWF to more effectively manage the aquatic vegeta-

<table>
<thead>
<tr>
<th>LAKE NAME</th>
<th>PURPOSE OF DRAWDOWN</th>
<th>DATES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bistineau Lake</td>
<td>Giant salvinia control; bottom oxidation</td>
<td>Aug. 15 – Nov. 30, 2016</td>
</tr>
<tr>
<td>Bussey Brake</td>
<td>Lake Renovation</td>
<td>July 22, 2013 – until project completion</td>
</tr>
<tr>
<td>Cheniere Lake</td>
<td>Road repair, Spillway Replacement, Timber Removal</td>
<td>Aug. 11 - until project completion</td>
</tr>
<tr>
<td>Lake Louis</td>
<td>Bottom oxidation; turbidity reduction</td>
<td>Sept. 1 – Feb. 15, 2017</td>
</tr>
<tr>
<td>Iatt Lake</td>
<td>Vegetation control; control structure gate repair</td>
<td>May 15 – Dec. 14, 2017</td>
</tr>
<tr>
<td>Indian Creek Lake</td>
<td>Vegetation control; bottom oxidation</td>
<td>Sept. 7 – Feb. 15, 2017</td>
</tr>
<tr>
<td>Vernon Lake</td>
<td>Establishing a drawdown schedule initiated by VPGFC for bank and ramp improvements and for bottom oxidation, dam inspection and repair, habitat improvement, and to plant aquatics/reduce turbidity</td>
<td>Sept. 1 – Jan. 15, 2017</td>
</tr>
<tr>
<td>Chicot Lake</td>
<td>Vegetation control; Bridge Repairs</td>
<td>Sept. 12 – Oct. 17, 2016</td>
</tr>
<tr>
<td>False River</td>
<td>Sediment consolidation/compaction; Bottom oxidation</td>
<td>Sept. 13 – Jan. 15, 2017</td>
</tr>
<tr>
<td>Henderson</td>
<td>Vegetation control; bottom oxidation</td>
<td>Aug. 6 – Nov. 1, 2016</td>
</tr>
<tr>
<td>Clear-Smithport</td>
<td>Aquatic vegetation; bottom oxidation</td>
<td>Aug. 18 - Dec. 1, 2016</td>
</tr>
<tr>
<td>Saline Lake</td>
<td>Vegetation control; bottom oxidation</td>
<td>June 6 - Nov. 1, 2016</td>
</tr>
</tbody>
</table>

Vernon Lake drawdown conditions used by Inland Fisheries biologists as a tool to control nuisance aquatic vegetation and improve fisheries productivity.

Invasive aquatic weed infestations throughout Louisiana’s public waterbodies.

Maintaining Community Fishing Opportunities
Waters available and accessible to the public for recreation and fishing are often unavailable in big cities and urban areas. For this reason, those ponds and lakes that are available can experience increased use during the summer months. The New Orleans City Park lakes are no exception. They are both heavily fished and utilized by many local schools and organizations. During fall electrofishing samples, our District 8 crew noticed infestations of water hyacinth that had not been problematic in the recent past. During the fiscal year, a total of 17 acres of nuisance aquatic vegetation were treated in New Orleans City Park. Separate applications were made throughout FY 2016-2017 to treat water hyacinth with 2, 4-D at a rate of 0.5 gallons per acre with a nonionic surfactant at a rate of 1 pint per acre. Results were excellent. LDWF personnel assessed the pond frequently and made applications as necessary. The ponds were able to remain open and accessible to the public year-round.

Terrebonne Marsh Water Hyacinth Control
For many years, the U.S. Army Corps of Engineers Removal of Aquatic Growth Program was responsible for water hyacinth control in the freshwater marshes located in the Terrebonne Basin. In 2010, the Removal of Aquatic Growth Program lost its funding, and its plant control efforts completely ceased by the end of the year. Since that time, LDWF has assumed the responsibility of maintaining boating access in this area. This vast coastal freshwater area fills with water hyacinths each year, and main bayous can be completely blocked by the vegetation if left untreated. These plants inevitably get deposited into the public bayous and canals by tidal action and changes in wind direction. When large rafts of water hyacinths form blockages in the canals, it impedes both recreational and commercial activities. In order for the Aquatic Plant Control Program to maintain open canals and bayous in the Terrebonne marsh, herbicide applications usually begin in April and continue into December. In FY 2016-2017, LDWF treated 5,904 acres of hyacinth in the Terrebonne marsh. These concentrated efforts have been successful in providing both recreational and commercial use to the public throughout the year.

Evaluation of Giant Salvinia Control Methods
Since 2006, giant salvinia has spread to waters throughout much of Louisiana. As a result, identifying and implementing all efficient and effective control methods for this invasive aquatic weed has been a priority for the Aquatic Plant Control Program. Introduction and establishment of giant salvinia weevils, a species-specific biological control, has been a major focus of the program since that time. Most recently, salvinia weevil research has focused on finding a cold tolerant weevil in order to ensure overwintering in the northern part of the state. LDWF is currently collaborating with LSU on establishing a cold-tolerant weevil rearing facility in central Louisiana. In recent years, LDWF has evaluated the effectiveness of several mechanical control devices including the WaterMower, bucket boats, mashers, harvesters and weed cutters. Unfortunately, mechanical control options are typically slower, more labor intensive and more expensive than LDWF’s current giant salvinia control approach, which
includes herbicide applications, water level manipulation and weevil establishment. Although herbicide applications remain a major part of the salvinia control efforts, the Aquatic Plant Control Program continues to search for more effective and cost efficient chemicals available for use in aquatic systems. Since 2012, LDWF has worked closely with U.S. Army Corps of Engineers and LSU AgCenter weed scientists to explore the effectiveness of new herbicides and to test the potential of mixtures of herbicides and the effects of different surfactants. This research includes controlled, replicated experiments as well as field evaluations of mixtures that show potential for more cost-efficient control. Recent research indicated that a specialized adjuvant containing both methylated vegetable oil and an organosilicone component is as effective as the mixture of two unique surfactants that was being used previously. Along with this discovery, it has been proven that either of the herbicides Clipper (flumioxazin) or Stingray (carfentrazone) can be used as an alternative to diquat dibromide to act as an indicator and to initiate plant damage when combined with glyphosate for salvinia control. Experiments continued throughout FY 2016-2017, focusing on the effectiveness of alternative adjuvants containing methylated vegetable oil and organosilicone components. These efforts will continue as new herbicides become available and could lead to more effective control of giant salvinia in the future.

**Get Out and Fish! Sites**

Five new community fishing locations were added in FY 2016-2017, including Kirolí Park in West Monroe, Turner’s Pond in Minden, William T. Polk Park in Vidalia, Purple Heart Memorial Park in Ragley, and Grambling City Park in Grambling. With the addition of these five sites there were nine total in the Community Fishing Program for FY 2016-2017. A total of 14,430 pounds of channel catfish and 3,800 pounds of rainbow trout were stocked in all of the community fishing sites during this fiscal year.

One additional site was stocked in FY 2016-2017. The Waddill Outdoor Education Center in Baton Rouge was stocked with 400 pounds of channel catfish for the National Hunting and Fishing Day event (Table 7).

**Additional Sites**

LDWF biologists completed several site visits of potential locations to be added in FY 2016-2017 to the “Get Out & Fish!” program. Four additional sites are being considered to be added to the program in FY 2017-2018.

**ARTIFICIAL REEFS**

The Louisiana Artificial Reef Program was created by Act 100 of the 1986 Louisiana Legislature within LDWF. Act 100 also required the formation of the Artificial Reef Development Council, development of an Artificial Reef Plan, and establishment of the Artificial Reef Trust Fund.

The Artificial Reef Development Council is comprised of the Secretary of LDWF, the Dean of LSU’s School of the Coast and the Environment, and the Executive Director of Louisiana Sea Grant, or their designees. The council is charged with providing guidance on policy, procedural matters, site selection and allocation of funds to the program. The Office of Fisheries administers and manages the program in accordance with the National Artificial Reef Plan, Louisiana Artificial Reef Development Plan, pertinent regulations, laws, and budget allocation.

The Louisiana Artificial Reef Plan was developed and implemented in November 1987. The plan outlines the siting, permitting and monitoring requirements. The plan centers on nine artificial reef planning areas and the conversion of oil and gas platforms into permanent marine hard-bottom habitat. The program also includes special artificial reef sites, deepwater reefs, nearshore reefs and inshore reefs. The program works closely with stakeholders, public and private conservation groups, and appropriate regulatory agencies when developing, maintaining and monitoring Louisiana’s artificial reefs.

In FY 2016-2017, the program enhanced nine offshore reefs with 12 oil and gas platforms and received $5.4 million in donations from oil company participation. The program also accepted one nearshore platform with the

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**TABLE 7. Stocking Totals for FY 2016-2017: Number of Fish in Pounds.**

<table>
<thead>
<tr>
<th>PARKS</th>
<th>TYPE OF FISH</th>
<th>TOTAL POUNDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Girard Park (Lafayette, La.)</td>
<td>Channel Catfish</td>
<td>2200</td>
</tr>
<tr>
<td>Zemurray Park (Hammond, La.)</td>
<td>Channel Catfish</td>
<td>1230</td>
</tr>
<tr>
<td>Zemurray Park (Hammond, La.)</td>
<td>Rainbow Trout</td>
<td>400</td>
</tr>
<tr>
<td>Sidney D. Torres Memorial Park (Chalmette, La.)</td>
<td>Channel Catfish</td>
<td>1800</td>
</tr>
<tr>
<td>Sidney D. Torres Memorial Park (Chalmette, La.)</td>
<td>Rainbow Trout</td>
<td>400</td>
</tr>
<tr>
<td>BREC’s Burbank Park (Baton Rouge, La.)</td>
<td>Channel Catfish</td>
<td>3000</td>
</tr>
<tr>
<td>Kirolí Park (West Monroe, La.)</td>
<td>Channel Catfish</td>
<td>2000</td>
</tr>
<tr>
<td>Kirolí Park (West Monroe, La.)</td>
<td>Rainbow Trout</td>
<td>1400</td>
</tr>
<tr>
<td>William T Polk Park (Vidalia, La.)</td>
<td>Channel Catfish</td>
<td>600</td>
</tr>
<tr>
<td>Turner’s Pond (Minden, La.)</td>
<td>Channel Catfish</td>
<td>2000</td>
</tr>
<tr>
<td>Turner’s Pond (Minden, La.)</td>
<td>Rainbow Trout</td>
<td>600</td>
</tr>
<tr>
<td>Purple Heart Memorial Park (Ragley, La.)</td>
<td>Channel Catfish</td>
<td>800</td>
</tr>
<tr>
<td>Grambling City Park (Grambling, La.)</td>
<td>Channel Catfish</td>
<td>400</td>
</tr>
<tr>
<td>Waddill Outdoor Education Center (Baton Rouge, La.)</td>
<td>Channel Catfish</td>
<td>400</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td>Channel Catfish</td>
<td>14,430</td>
</tr>
<tr>
<td></td>
<td>Rainbow Trout</td>
<td>3,800</td>
</tr>
</tbody>
</table>

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**FISHING OPPORTUNITY**

Louisiana’s fishery resources, including habitat, benefit all of Louisiana’s constituent groups within the state and across the Gulf Coast. Habitat stewardship and resource management provide opportunities for the public to access these natural resources.

**COMMUNITY FISHING PROGRAM**

The “Get Out & Fish!” community fishing program was initiated in November 2014. The goal of the program is to work with local community organizations and governments to provide easily accessible, high-quality fishing opportunities to everyone in Louisiana. The program intends to recruit new anglers to the sport of fishing and promote outdoor activities for future generations. In order to accomplish this mission, public water bodies that met the required specifications were chosen by LDWF biologists to begin stocking fish on a regular basis.
creation of the Bay Marchand three nearshore reef site.

The Louisiana Artificial Reef Program has successfully created one new inshore reef site in FY 2016-2017. The site is an 87-acre reef named East Calcasieu, located in Calcasieu Lake. The reef included the deployment of 1,559 tons of crushed concrete and concrete pilings, which was completed in June 2017.

Pre-deployment monitoring activities were conducted at the East Calcasieu reef site, as well as at the Point Mast reef site in Lake Pelto, and the planned St. John reef site in Lake Pontchartrain. Additionally, biological monitoring was conducted at the following reef sites in FY 2016-2017: Independence Island (Barataria Bay), Pickets (Caillou Bay/Ship Shoal 26), East Calcasieu (pre-deployment survey), as well as Laketown and West End (Lake Pontchartrain).

The locations of all of Louisiana’s artificial reefs can be found on the LDWF website, including an Interactive GIS-based map (direct link - ldwf.maps.arcgis.com/apps/MapSeries/index.html?appid=4c4a4d9526c248c080c3eaa480b9bea).

**Important Figures for FY 2016-2017**
- 6 established nearshore reefs
- 34 established inshore reefs contained within 30 reef sites

**FRESHWATER ARTIFICIAL REEF PROGRAM**

Freshwater artificial reefs can be utilized to accomplish multiple Inland Fisheries objectives, but the primary objective for this program is to increase angler success. For many anglers, finding fish in a water body, especially one that is new to them, is a major obstacle to a successful fishing trip. Artificial reefs concentrate fish, and identifying the structures on maps and with buoys makes them available to all anglers. A secondary objective is increased fisheries habitat. As lakes age, flooded timber decomposes and water bottoms may accumulate silt and organic debris. This progression can lead to a reduction in fisheries productivity. If sufficient artificial cover or substrate is added, fisheries productivity can be maintained.

LDWF facilitates this program by partnering with sponsor groups to construct artificial reef projects. LDWF’s role in this program is that of an administrator and/or consultant. As such, the department makes final decisions relative to project design, material selection and placement for all approved projects. The U.S. Coast Guard is consulted if artificial structures are proposed to be placed in navigable waterways. LDWF’s Inland Fisheries biologist managers serve as points of contact for proposed projects and must grant prior approval for proposed projects to ensure compliance with project guidelines.

**Important Figures for FY 2016-2017**
- 69 total established freshwater artificial reef sites (pre 2016)
- 13 total new freshwater artificial reef sites

**FRESHWATER FISH HATCHERY PROGRAM**

The Louisiana Hatchery Program partners with local, state and federal agencies to produce and stock freshwater fish to start or enhance statewide sport fisheries, to hasten the recovery of fisheries affected by natural or man-made disasters, and to produce threatened or endangered species, if necessary. Fish are requested annually by Inland Fisheries according to the department’s "Resource Enhancement through Stocking" guidelines. The program also provides support services for the department’s outreach, education, and aquatic plant control programs.
**TABLE 8. FISH STOCKING BY WATERBODY (7/1/2016 - 6/30/2017)**

<table>
<thead>
<tr>
<th>BODY OF WATER</th>
<th>SPECIES</th>
<th>SIZE</th>
<th>NUMBER RELEASED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bayou Desiard</td>
<td>Triploid Grass Carp</td>
<td>Adults</td>
<td>9,150</td>
</tr>
<tr>
<td>Beaver Park Pond</td>
<td>Channel catfish</td>
<td>Adults</td>
<td>297</td>
</tr>
<tr>
<td>Black Lake and Clear Lake</td>
<td>Florida largemouth bass</td>
<td>Fry</td>
<td>334,800</td>
</tr>
<tr>
<td>BREC – Black Water</td>
<td>Triploid grass carp</td>
<td>Adults</td>
<td>20</td>
</tr>
<tr>
<td>BREC - Burbank</td>
<td>Channel catfish</td>
<td>Adults</td>
<td>1,043</td>
</tr>
<tr>
<td>BREC – Central Community Park</td>
<td>Bluegill</td>
<td>Fingerlings</td>
<td>750</td>
</tr>
<tr>
<td>BREC - Palomino</td>
<td>Florida largemouth bass</td>
<td>Fingerlings</td>
<td>200</td>
</tr>
<tr>
<td>Bundicks Lake</td>
<td>Triploid grass carp</td>
<td>Adults</td>
<td>10</td>
</tr>
<tr>
<td>Bussey Brake</td>
<td>Channel catfish</td>
<td>Adults</td>
<td>101</td>
</tr>
<tr>
<td>Caney Creek Reservoir</td>
<td>Florida largemouth bass</td>
<td>Fingerlings</td>
<td>35,676</td>
</tr>
<tr>
<td>Caney Lake, Combined</td>
<td>Triploid Grass Carp</td>
<td>Adults</td>
<td>1,870</td>
</tr>
<tr>
<td>Chicot Lake</td>
<td>Florida largemouth bass</td>
<td>Fingerlings</td>
<td>32,904</td>
</tr>
<tr>
<td>Corney Lake</td>
<td>Florida largemouth bass</td>
<td>Fingerlings</td>
<td>7,106</td>
</tr>
<tr>
<td>Cotile Lake</td>
<td>Florida largemouth bass</td>
<td>Fingerlings</td>
<td>23,972</td>
</tr>
<tr>
<td>False River</td>
<td>Bluegill</td>
<td>Fingerlings</td>
<td>314,928</td>
</tr>
<tr>
<td>Fullerton Lake</td>
<td>Florida largemouth bass</td>
<td>Fingerlings</td>
<td>84,350</td>
</tr>
<tr>
<td>Girard Park Pond</td>
<td>Channel catfish</td>
<td>Adults</td>
<td>231</td>
</tr>
<tr>
<td>Holbrook Park Pond</td>
<td>Channel catfish</td>
<td>Adults</td>
<td>749</td>
</tr>
<tr>
<td>Ivan Lake</td>
<td>Triploid Grass carp</td>
<td>Adult</td>
<td>464</td>
</tr>
<tr>
<td>Joe W. Brown Memorial Park</td>
<td>Triploid Grass carp</td>
<td>Adults</td>
<td>20</td>
</tr>
<tr>
<td>Kincaid Lake</td>
<td>Florida largemouth bass</td>
<td>Fingerlings</td>
<td>20,207</td>
</tr>
<tr>
<td>Lacassine Pool</td>
<td>Florida largemouth bass</td>
<td>Fingerlings</td>
<td>332,294</td>
</tr>
<tr>
<td>Lake Bistineau</td>
<td>Florida largemouth bass</td>
<td>Fingerlings</td>
<td>66,046</td>
</tr>
<tr>
<td>Lake Concordia</td>
<td>Florida largemouth bass</td>
<td>Fingerlings</td>
<td>10,220</td>
</tr>
<tr>
<td>Lamar Dixon 11-acre pond</td>
<td>Triploid Grass carp</td>
<td>Adults</td>
<td>30</td>
</tr>
<tr>
<td>Lamar Dixon 4-acre pond</td>
<td>Channel catfish</td>
<td>Adults</td>
<td>327</td>
</tr>
<tr>
<td>Larto Lake</td>
<td>Florida largemouth bass</td>
<td>Fingerlings</td>
<td>84,000</td>
</tr>
<tr>
<td>LDWF Woodworth Outdoor Education Center</td>
<td>Triploid Grass carp</td>
<td>Adults</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td>4,434,211</td>
</tr>
</tbody>
</table>

*For Non-Florida Largemouth Bass: Fry <0.25"; Fingerlings = 1-<12"; 1Yr-Old – 1 year old in age (length varies); Adult – sexually mature (length varies)*

*For Florida Largemouth Bass: Fry <0.25"; Fingerlings = 2-3"; Phase 2 Fingerlings = 3"+; 1 Yr Old – 1 year old in age (length varies); Adult – sexually mature (length varies)*
FISH STOCKING
This year, in partnership with the USFWS, the City of Shreveport’s Cross Lake Fish Hatchery, LDWF’s Rockefeller State Wildlife Refuge, LDWF’s Aquatic Plant Control Program, the Red River Waterway Commission, and the Cheniere Brake Lake Association, over 4 million fish were released in 54 water bodies around the state. Table 8 provides a comprehensive list of fish stocked in Louisiana waters during FY 2016-2017.

HATCHERY AND FISHERIES OUTREACH/EDUCATION
The hatchery program continued to provide support for departmental education and outreach programs. Support includes providing fish and/or fish transportation for community fishing and outreach events, along with maintaining, transporting, setting up, stocking and manning the department’s mobile aquarium at outreach events. The department also provided hatchery presentations and tours to groups and visitors by request. The hatchery program transported 3,400 pounds of catfish for U.S. Forest Service fishing derbies and 1,665 pounds of catfish for Fort Polk fishing derbies. Hatchery biologists assisted private pond owners with technical advice and pond water quality testing, and helped to coordinate and host the 2016 Cenla National Hunting and Fishing Day Event in Woodworth, La., which had an estimated attendance of 4,000 people.

INVESTIGATIONAL NEW ANIMAL DRUG PROGRAM PARTICIPATION
LDWF hatcheries continued to participate in the USFWS National Investigational New Animal Drug Program. This program provides “a means through which federal, state, tribal and private agencies or organizations located throughout the United States are 1.) allowed to use certain critical drugs necessary to maintain the health and fitness of aquatic species under Investigational New Animal Drug exemptions, and 2.) contribute important drug efficacy and safety data needed to support the future approval of new drugs for use in aquatic species.”

PRESENTATIONS

ADVISORY GROUP MEMBERSHIP
Aquaculture Technical Committee of Southern Division of the American Fisheries Society

FISHERIES OUTREACH AND EDUCATION PROJECTS

OUTREACH
The Aquatic Outreach and Education Program is designed to inform the public about programs and projects currently underway in the Office of Fisheries. Through outreach efforts including boat shows, school programs, community events and outdoor-related festivals, staff reached over 40,000 Louisiana citizens in FY 2016-2017.

The Fisheries Extension staff conducted fishing workshops and family events which focused on Sport Fish Restoration projects and providing hands-on fishing experience.

LDWF staff also worked effortlessly to recruit more women in the sport of fishing. LDWF staff hope to offer knowledge and experience to help the ladies gain confidence in order to continue fishing as well encourage others to participate. A partnership between LDWF, the Coastal Conservation Association of Louisiana, Cabela’s and National Wildlife Federation afforded women two opportunities to attend a one-day Women’s Fishing Workshop to learn the fundamentals of fishing. Upon completion of each one-day workshop, participants were entered into a lottery drawing for an opportunity to attend a Women’s Fishing Weekend in Grand Isle.

Through Fisheries Extension’s partnership with Wildlife’s Education division and the creation of the Aquatic Volunteer Instructor Program, numerous volunteers have been trained to help teach others about Louisiana’s great fisheries. These volunteers were trained all across the state of Louisiana and have assisted at multiple events where LDWF otherwise would not have had representation. The Aquatic Volunteer Instructor Program provided activity guides, lesson plans and LDWF resources for volunteers to utilize. In addition, loaner kits with equipment necessary to offer the activities and lessons were available to all certified volunteers.

LDWF organized three “Get Out and Fish!” events this year at community parks that are new to our Community Fishing Program. Each of the parks (Turner’s Pond in Minden, Kirol Park Pond in West Monroe, and William T. Polk Park Pond in Vidalia) hosted a “Get Out and Fish!” event with the initial stocking of adult size fish in their community pond. The events were led by LDWF staff and volunteers. Each event offered a fishing competition as well as “how to” demonstrations for everything necessary to fish successfully at that location. Over 800 participants enjoyed fishing and hands-on lessons to help them gain knowledge to return and fish at these easily accessible sites.

LDWF hosted a Family Fish Fest at Calcasieu Point Landing in Lake Charles which provided exciting activities such as fishing, fish tagging, fish aging, fish identification, invasive species identification, knot tying and more. Participants were provided with applicable literature and materials ranging from fishing regulations to how and why we age and manage some fish in Louisiana.

Our fisheries biologists also worked collaboratively with communications personnel to create promotional and educational material detailing research and fieldwork on a variety of topics relating to the conservation and management of fish, hatchery production, non-indigenous aquatic nuisance species and other aquatic resources.

This fiscal year, staff utilized several educational resources including a casting inflatable, mobile touch tank, and LDWF’s mascot, “Robbie the Redfish.”
LOUISIANA SALTWATER SERIES

The Louisiana Saltwater Series was created by the Louisiana Wildlife and Fisheries Foundation to promote the conservation and enhancement of Louisiana’s saltwater sport fish resources, while providing a competitive opportunity for avid fishermen and newcomers alike. The Louisiana Saltwater Series events also feature a youth division, and are used to encourage participation in the Louisiana Cooperative Marine Sport Fish Tagging Program, presenting the unique opportunity to tag and release large numbers of fish at one time and location.

Louisiana Saltwater Series events occurring during FY 2016-2017 span the last two tournaments of the 2016 series, including the championship. LDWF biologists staff each tournament and tag fish when the Aquarium of the Americas tagging crew is unavailable. The Audubon Aquarium of the Americas staff attended the Louisiana Saltwater Series championship event in Venice, tagging fish and providing technical support and information to the anglers regarding best fish handling practices.

There were a total of 108 redfish tagged at Louisiana Saltwater Series events in FY 2016-2017, with an overall reported recapture rate of 8.3 percent (Table 9). The recapture rates are variable for each tournament, with the overall rate consistently higher than typical results observed in the Cooperative Tagging Program. The event with the highest reported recaptures for this fiscal year was the 2016 tournament in Lake Charles, with a recapture rate of over 18 percent.

CRAB TRAP REMOVAL

The removal of derelict crab traps from fishing grounds reduces navigational risks to boaters and threats to public safety while reducing mortality of incidental species captured in traps, potentially increasing the number of crabs available for harvest by preventing crab mortalities in abandoned, out-of-use traps. In 2016, the Louisiana Wildlife and Fisheries Commission promulgated a rule prohibiting the harvest of blue crab for a 30-day period beginning the third Monday in February. The 30-day closure allowed for six derelict crab trap cleanups to be completed statewide.

The first volunteer day was in the Pontchartrain Basin. This cleanup, headed by the Lake Pontchartrain Basin Foundation, was based out of Sweetwater Marina in Delacroix, La., on March 4, 2017. Volunteers from the Lake Pontchartrain Basin Foundation, USFWS, local chapters of the Coastal Conservation Association of Louisiana, and members of the general public worked with LDWF personnel to collect 1,542 traps during the event, and LDWF and Lake Pontchartrain Basin Foundation staff continued to collect an additional 2,280 traps during the closure for a grand total of 3,822 traps removed.

A second volunteer day was held in the Terrebonne Basin. This cleanup, headed by LDWF, was staged out of Isle De Jean Charles Marina in Montegut, La., on March 11, 2017. LDWF staff, with volunteers from the general public and the Coastal Conservation Association, collected a total of 493 traps during the volunteer event. An additional 88 traps were collected by LDWF staff making the total traps removed from the Terrebonne Basin 581.

Three other derelict crab trap cleanups were conducted throughout Louisiana waterbodies during the 30-day closure: Baratry Basin, Calcasieu Basin and Vermilion-Teche Basin. The number of traps removed during these three cleanups was 213, 482, and 576, respectively.

### Table 9. Redfish tagged and recaptured during FY 2016-2017 Louisiana Saltwater Series Tournaments.

<table>
<thead>
<tr>
<th>DATE</th>
<th>LOCATION</th>
<th>TEAMS</th>
<th>REDFISH TAGGED</th>
<th>REDFISH RECAPTURED</th>
<th>RECAPTURE RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug. 20, 2016</td>
<td>Sweetwater Marina (Delacroix)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sept. 17, 2016</td>
<td>Calcasieu Pont Landing (Lake Charles)</td>
<td>23</td>
<td>33</td>
<td>6</td>
<td>18.2%</td>
</tr>
<tr>
<td>Oct. 14-15, 2016</td>
<td>Venice Marina (Venice)</td>
<td>38</td>
<td>75</td>
<td>5</td>
<td>6.7%</td>
</tr>
</tbody>
</table>

was staged out of Isle De Jean Charles Marina in Montegut, La., on March 11, 2017. LDWF staff, with volunteers from the general public and the Coastal Conservation Association, collected a total of 493 traps during the volunteer event. An additional 88 traps were collected by LDWF staff making the total traps removed from the Terrebonne Basin 581.

### Table 10. Number of crab trap closures and numbers of trap removed annually.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>AREA(S)</th>
<th>TRAPS</th>
<th>BOAT DAYS</th>
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<tbody>
<tr>
<td>2004</td>
<td>2</td>
<td>6,894</td>
<td>90+</td>
</tr>
<tr>
<td>2005</td>
<td>4</td>
<td>4,623</td>
<td>50+</td>
</tr>
<tr>
<td>2006</td>
<td>1</td>
<td>2,935</td>
<td>31+</td>
</tr>
<tr>
<td>2007</td>
<td>2</td>
<td>1,495</td>
<td>15</td>
</tr>
<tr>
<td>2008</td>
<td>1</td>
<td>1,234</td>
<td>3</td>
</tr>
<tr>
<td>2009</td>
<td>1</td>
<td>788</td>
<td>n/a</td>
</tr>
<tr>
<td>2010</td>
<td>1</td>
<td>477</td>
<td>n/a</td>
</tr>
<tr>
<td>2011</td>
<td>1</td>
<td>1,100</td>
<td>n/a</td>
</tr>
<tr>
<td>2012</td>
<td>2</td>
<td>2,798</td>
<td>66</td>
</tr>
<tr>
<td>2013</td>
<td>2</td>
<td>969</td>
<td>32</td>
</tr>
<tr>
<td>2014</td>
<td>1</td>
<td>1,051</td>
<td>24</td>
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<tr>
<td>2015</td>
<td>1</td>
<td>422</td>
<td>9</td>
</tr>
<tr>
<td>2016</td>
<td>3</td>
<td>2,580</td>
<td>50+</td>
</tr>
<tr>
<td>2017</td>
<td>6</td>
<td>5,674</td>
<td>68</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>28</td>
<td><strong>33,040</strong></td>
<td><strong>438+</strong></td>
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COMMERCIAL SEAFOOD PROGRAMS

One of the main objectives of the Office of Fisheries is to maintain the viability of Louisiana’s fishing industries through programs that protect native resources and provide technical assistance to the industry, including recovery from natural and man-made disasters.

In addition, the Office of Fisheries is pursuing several initiatives for Louisiana’s commercial fishing industry including a seafood certification program and a professionalization program that aims to create a more informed and efficient industry. Programs to collect and recycle used oyster shell and concrete to create artificial oyster and fishing reefs are also being developed in coordination with the Coalition to Restore Coastal Louisiana.

SEAFOOD CERTIFICATION

In 2009, LDWF reprogrammed grant money from a NOAA grant to fund certification programs for Louisiana’s seafood industry. The overarching plan for a broad certification program included five key components: seafood origin/quality certification; seafood sustainability certification; industry professionalization; electronic traceability; and seafood marketing.

The goal of the Louisiana Wild Seafood Certification Program is to increase demand for wild-caught Louisiana seafood. By creating an origin-based brand, LDWF, in cooperation with the Louisiana Department of Health and Hospitals and the Louisiana Department of Agriculture and Forestry, has the ability to communicate to the consumers that the seafood they are consuming is caught by a licensed Louisiana fisherman, landed in Louisiana, and processed by a Louisiana processor through the entire supply chain. The ability to create a national brand that can be sought out by chefs, consumers, distributors and retail chains will increase the demand and thereby prices for the Louisiana seafood fishery.

Several changes and developments to the program were implemented during FY 2013-2014 including the transition to an online application process as well as supply chain verification through invoice validation. Also introduced was a product registration requirement - retail packages possessing the program's logo must register with LDWF. In FY 2014-2015, the online renewal process was simplified, allowing participants to easily renew their permit instead of reapplying. Before applying, applicants must also participate in a 45-minute training video available through the program’s website. Once permitted, participants are given access to a participant portal where they may access program logo files and verify participation of their supply chain in the Louisiana Wild Seafood Certification Program.

Additionally, program participants are eligible for grant funds through the Seafood Technology and Equipment Program to assist them in increasing product quality and complying with program regulations.

The program’s first three years focused on building program interest among seafood dealers and processors within Louisiana. During FY 2014-2015, implementation was focused on the retailer and consumer aspects of the program, with an emphasis on creating demand for products bearing the Louisiana Wild Seafood Certification Program logo. The program has launched additional marketing campaigns including the use of social media. Within FY 2015-2016 the focus has been to build the interest of the program amongst the public to demand Louisiana seafood.

As of FY 2016-2017 there were a total of 71 permitted seafood businesses participating in the program and several “certified” labeled seafood retail packages are being sold in grocery markets across the state.

SUSTAINABLE FISHERIES AND SEAFOOD

The goal of the sustainability program is to manage Louisiana fisheries in a way that provides for today’s needs without damaging the ability of the species to reproduce. Many seafood purveyors worldwide are under pressure to demonstrate the seafood they are sourcing is from sustainable and responsibly managed fisheries. LDWF is meeting these challenges with multiple approaches.

LDWF has explored mainstream sustainability certifications for major fisheries, such as those offered by the Marine Stewardship Council. In March 2012, Louisiana’s blue crab fishery became the first blue crab fishery in the world to receive Marine Stewardship Council sustainability certification. This certification was scheduled to expire in March 2017, but it was extended to March 2018 as LDWF participated in a new pilot re-certification process. Recertification is expected to be awarded in the winter of 2017-2018.

In addition to Marine Stewardship Council certification, the Office of Fisheries has been developing a Gulf-centric sustainability certification system in partnership with the Audubon Nature Institute. The Audubon Gulf United for Lasting Fisheries Program is leading the development of this Responsible Fisheries Management certification program based on the United Nations Food and Agriculture Organization and International Standards Organization protocols. LDWF participates on the Audubon Gulf United for Lasting Fisheries Technical Advisory Committees, including a Fisheries Technical Advisory Committee, which previously functioned as the more general Technical Advisory Committee; and a new Chain-of-Custody Technical Advisory Committee that was established in May 2017. LDWF also provides advice through Working Groups on issues such as bycatch assessments and data deficient fishery assessment tools. The Fisheries Technical Advisory Committee met in May, September and December of 2017; the Chain-of-Custody Technical Advisory Committee also met in May and September 2017. The Data Deficient Fishery Assessment Tool Working Group held discussions in July and November 2017. Other discussions were held via conference call and internet-based technologies throughout the year on an ad-hoc basis.

The Louisiana blue crab fishery attained certification to the Responsible Fisheries Management Program in 2016. The fishery will be audited in fall of 2017. The Audubon Gulf United for Lasting Fisheries - Responsible Fisheries Management Program itself is currently being vetted by the Global Sustainable Seafood Initiative to receive its recognition as adhering to best international practices regarding certification systems. This assessment of the program as a whole began in early 2017 and is expected to be completed in early 2018.

We are continually vetting our program with seafood buyers to ensure Louisiana seafood
and the Audubon Gulf United for Lasting Fisheries Program will have market acceptance. LDWF has engaged national retail organizations and suppliers in intense dialogue concerning sustainable seafood market needs and desires. LDWF continues active conversations with private-sector actors about "fishery improvement projects" and "marine advancement projects" for those Louisiana fisheries that have not taken up formal certification. In January 2016, revised pre-assessments were conducted for the Louisiana shrimp fishery according to the Audubon Gulf United for Lasting Fisheries - Responsible Fisheries Management and the Marine Stewardship Council programs. Based on these pre-assessments, the Audubon Nature Institute is leading a joint fishery improvement project encompassing issues identified in both pre-assessments.

FINO
Developed in cooperation with GSMFC and the other Gulf states, FINO is a web-based portal that provides seafood buyers with easy to understand, science-based information about the responsible management of Gulf fisheries and the sustainability of Gulf seafood.

COMMERCIAL SEAFOOD INDUSTRY PROFESSIONALIZATION
The primary goal of Louisiana Fisheries Forward, the voluntary industry professionalization program, is to create a better-informed and more efficient commercial fishing industry that helps ensure the economic sustainability of the state’s commercial fishing industry. The program provides ongoing education opportunities for fishermen and industry participants to receive the most relevant and up-to-date information pertaining their industry.

Louisiana Fisheries Forward, Advancing Our Seafood Industry, is an LDWF Office of Fisheries, collaborative effort with Louisiana Sea Grant and LSU AgCenter. Louisiana Fisheries Forward is a multi-year, multi-phase professionalism program for all sectors of the state’s commercial fishing industry, including fishermen, dock owners, processors and distributors. This program is providing the education and training essential for the continued success of the industry and is focusing on a number of important topics through videos with corresponding fact sheets, the Louisiana Fisheries Forward Summit, hands-on workshops and the Louisiana Fisheries Forward website.

From July 2016 to June 2017, LDWF and Louisiana Sea Grant continued to execute Phase II of Louisiana Fisheries Forward; mainly, the production and post production of the training videos. Additionally, work continued on the production of educational materials (referred to as fact sheets), the offering of in-person training sessions (referred to as dock days), a refrigeration demonstration project, the Louisiana Fisheries Forward website (lafisheriesforward.org) and planning our biannual fisheries summit. Within the time frame stated above the Commercial Crab Trap Gear Requirements and the Oyster Harvester Training Requirements remain active (www.wlf.louisiana.gov/mandatory-oyster-harvester-training) as well as the exploration and communication of Phase III for Louisiana Fisheries Forward. As a sidebar initiative, Proposed Nearshore Artificial Reef Planning Areas was established, developed and executed as an information/communications plan (www.lafisheriesforward.org/artificialreef/).

Phase II training videos (available on lafisheriesforward.org):
- Best Practices for Oyster Harvesters
- Best Practices for Commercial Shrimpers
- Best Business Practices for Commercial Fin Fishermen
- Fisheries Management and the Regulatory Process

Legislation was passed during the 2014 regular session that required the Louisiana Wildlife and Fisheries Commission to establish a program to increase and elevate professionalism in the commercial crab industry. Throughout the fall of 2014, LDWF developed the Louisiana Fisheries Forward Commercial Crab Gear Requirement. The Commercial Crab Gear Requirement consists of basic training and field training requirements that focus on education such as proper fishing techniques necessary for the health and sustainability of crabs, proper techniques for the best capture and presentation of the crabs for marketability and proper placement, tending and maintenance of crab traps to reduce potential conflicts with other user groups. Beginning Nov. 15, 2014, any person who wishes to obtain a commercial crab trap gear license must first complete this program unless the following exception applies (possessed a valid crab trap gear license any two of the license years, 2011, 2012, 2013 or 2014). By June 2017, there were approximately 102 active participants and approximately 273 participants who completed the requirement. Commercial Crab Gear Requirement details are available at www.wlf.la.gov/crabtraining.

By June 2017, Phase II of Louisiana Fisheries Forward was nearing completion. Within Phase II, as noted previously, four videos were being produced with corresponding fact sheets, several hands-on workshops were being offered to include new and trending topics, and the Louisiana Fisheries Forward Refrigeration Demo Unit was being utilized on a regular basis (a 6,500 lb. unit that consists of a brine freezer, plate freezer and chilled water system).

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 – we believe it 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, and 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.

| TABLE 10. Louisiana Fisheries Forward Commercial Crab Gear Requirement. |
|-----------------|-----------------|-----------------|-----------------|
| PROGRAM STATUS | APPRENTICESHIP | SPONSORSHIP | GRAND TOTAL |
| Applicant Ineligible | 21 | 84 | 105 |
| Approved | 28 | 58 | 86 |
| Conditionally Approved | 7 | 6 | 13 |
| M S Ineligible | 22 | 51 | 73 |
| In Review | 1 | 2 | 3 |
| Opt Out | 2 | 5 | 7 |
| Program Completed | 64 | 209 | 273 |
| Grand Total | 145 | 415 | 560 |
OFFICE OF FISHERIES

TASK FORCES
The Office of Fisheries has three active task forces: Shrimp, Oyster and Crab. The task forces memberships are currently housed under LDWF, and cooperation between the task forces and the Office of Fisheries is essential as we move forward with the continued management of Louisiana’s natural resources.

SHRIMP TASK FORCE

Agenda items discussed include:
- Gulf-wide seafood certification and the Louisiana Wild Seafood Certification
- Recommendations for fall 2016/2017 shrimp season
- TED update from NOAA
- Amending the shrimp “Inside/Outside Line”
- Effects from Freshwater Sediment Diversions
- Shrimp enforcement and penalties
- Shrimp management and increasing domestic shrimp value
- Trawl board gear restrictions
- Recommendations for spring 2016 shrimp season
- Draft resolution to reduce Gulf hypoxic zone
- Overview of the 2017 Coastal Master Plan
- Oyster lease and boundary marker regulation
- Refrigeration Grant Program
- Discuss sending Louisiana Shrimp Task Force members to Washington D.C.

CRAB TASK FORCE

Agenda items discussed include:
- Louisiana Fisheries Forward Program and crab gear license requirements
- Sustainability Certification and industry options (Marine Stewardship Council/ Audubon Gulf United for Lasting Fisheries Certifications)
- Crab marketing opportunities
- 2016/2017 Derelict Crab Trap Clean-up
- Crab possession limits and new regulations
- New blue crab regulations and seasonal closure
- Recreational crabbing management options
- Blue Crab Mark-Recapture Study
- Imported crab tariffs

OYSTER TASK FORCE

Agenda items discussed include 2016 Louisiana Oyster Stock Assessment
- 2016-2017 Oyster Season
- Discussion of Dual Claimed Areas that Encompass Existing State Leases and Public Seed Grounds
- Oyster Harvesters Training Program
- Discussion and Results of the 2016 Dermoid Disease Study
- Update on oyster sampling in Barataria Basin for System Wide Assessment & Monitoring Program – CPRA
- Discussion of the Hardships Facing Oystermen Engaged in Aquaculture
- Louisiana Oyster Fishery Management Plan
- Discussion of Oyster Refrigeration Regulations
- Consider Recommendations for the Oyster Seed Grounds Vessel Permit Training Requirements
- Oyster Convention planning at the Grand Isle hatchery
- Discussion of the Audubon Gulf United for Lasting Fisheries Program
- Discussion of the Gulf and South Atlantic States Shellfish Conference
- Consider Recommendations and Changes to the Oyster Lease Acquisition Program
- Consider the use of the Oyster Seed Grounds and Oyster Development Accounts to Close Mardi Gras Pass
- Public Oyster Seed Grounds 2016/2017 Season Summary
- Consider Funding to Close the Bohemia Salinity Control Structure
- Additional enforcement needs
- Coastal Restoration and Master Plan Impacts to the Industry

The Oyster Task Force also continued their marketing efforts including the Task Force’s annual trip to Washington, D.C., where they sponsor the “Louisiana Alive” - D.C. Mardi Gras event, which draws members of the congressional delegation, staff and media, and provides an excellent platform to educate others on the importance of the Louisiana oyster industry.
SOCIOECONOMIC RESEARCH AND DEVELOPMENT

The Socioeconomic Research and Development Section was established in 1992 and currently resides in LDWF Office of Fisheries. The duties and responsibilities of the section are:

- To recommend, conduct and coordinate economic research studies pertaining to wildlife and fisheries resources of Louisiana and the Gulf region.
- To present research findings at appropriate professional and scientific meetings, and publish results in departmental publications and peer-reviewed scientific journals.
- To provide information and support to other sections and divisions within LDWF, as well as agencies outside LDWF, assisting them in accomplishing research needs, management tasks and short- and long-term objectives.
- To represent LDWF and Louisiana on various study groups, task forces and committees established to study, manage and improve wildlife and fisheries resources at the local, state, regional and national levels.
- To administer and implement special programs.
- To perform other activities as directed by LDWF’s appointing authorities.

With assistance from the various program managers within the offices of LDWF, the Socioeconomic Research and Development Section prepares Fiscal and Economic Impact Statements that accompany the Notices of Intent for rules and regulations considered for adoption by the Louisiana Wildlife and Fisheries Commission. During FY 2016-2017, eight Fiscal and Economic Impact Statements were developed and published along with the Notices of Intent in the Louisiana Register.

SURVEYS

FALL SURVEY OF LOUISIANA RECREATIONAL OFFSHORE LANDINGS PERMIT HOLDERS

In October, 2016, the Socioeconomic Research and Development staff conducted an on-line survey of 1,000 individuals who held a Recreational Offshore Landings Permit (ROLLP) and provided a usable email address to investigate saltwater anglers’ preferences for alternative combinations of different creel limits and season lengths. The survey received 374 responses for a response rate of 37.4 percent of the adjusted sample size after non-deliverable surveys were removed.

The Socioeconomic Research and Development staff conducted an on-line survey of 15,228 ROLLP holders with usable email addresses to assess their preferences for proposed alternative seasons for recreational red snapper fishing. The survey received 4,966 responses for a response rate of 32.8 percent of the sample adjusted for non-deliverable surveys.

PUBLICATIONS, REPORTS AND PRESENTATIONS


Isaacs, Jack C. “Results of an Online Survey of Louisiana Recreational Offshore Landings Permit Holders Soliciting Views of Alternative Proposals for Recreational Red Snapper Seasons in Waters off the Louisiana Coast.” June 2017

REPRESENTATION ON TASK FORCES, STUDY GROUPS AND COMMITTEES

During FY 2016-2017, Socioeconomic Research and Development staff members represented LDWF on the following task forces, study groups and committees:

- Louisiana Blue Crab Task Force
- Louisiana Shrimp Task Force
- Socioeconomic Scientific and Statistical Committee of the Gulf of Mexico Fishery Management Council
- Technical Advisory Committee for the USFWS’s National Survey of Fishing, Hunting and Wildlife-Associated Recreation.

GULF STATES MARINE FISHERIES COMMISSION

The Gulf States Marine Fisheries Commission (GSMFC), a compact among the five Gulf states, is charged with promoting better utilization of the marine fisheries including finfish, shellfish and anadromous species through the development of programs for the promotion and protection of these fisheries while preventing any waste of these resources.

Fisheries biologists and economists participate in a number of GSMFC programs and initiatives including Aquatic Invasive Species, Interjurisdictional Fisheries, Fisheries Information Network, and economics programs, as well as providing their expertise in the development of management recommendations. Additionally, Fisheries biologists serve on a number of GSMFC Technical Coordinating Sub-Committees including Data, SEAMAP, Habitat, Artificial Reef, Outreach, and species-specific committees and working groups. Fisheries’ biologists were present at meetings and discussions pertaining to the various SEAMAP programs. LDWF biologists participated in the creation of various fishery management plans for Gulf species.
The Gulf of Mexico Fishery Management Council is responsible for the management of commercial, recreational and for hire fishing activities in the Exclusive Economic Zone (EEZ), Gulf waters from the state territorial sea out to 200 miles offshore. The Council prepares Fishery Management Plans and amendments to these plans. Methods of regulation include quotas, size limits, bag limits, seasons, trip limits and other tools fisheries managers employ to control both recreational and commercial harvests.

The head of each state’s fisheries division has a seat on the council along with representatives from the fishing industry. Louisiana’s seat is assigned to Assistant Secretary Patrick Banks. His designee for Council issues is Myron Fischer, who is delegated to act on his behalf. In addition to the council seat, Office of Fisheries employees participate in advisory roles on various panels and committees: Outreach, Data Collection; Habitat Protection; and Scientific and Statistical Committees for red drum, mackerel, reef fish, shrimp, and socioeconomics. LDWF biologists are also part of the SEDAR pool, a panel assigned to producing the Council’s stock assessments.

A list of the Council’s Fisheries Management Plans include: Reef Fish, Coastal Migratory Pelagic, Red Drum, Shrimp, Lobster, Stone Crab, Coral, Aquaculture and Essential Fish Habitat. The council meets five times a year to work on amendments regarding these Fisheries Management Plans. Louisiana is considered a leader in the council’s fishery management process with creative and out-of-the-box methodologies.

Further information can be located at gulfcouncil.org.
## REPORT ACRONYMS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tr>
<td>ALAS</td>
<td>Archery in Louisiana Schools</td>
</tr>
<tr>
<td>BTNEP</td>
<td>Barataria-Terrebonne National Estuary Program</td>
</tr>
<tr>
<td>CITES</td>
<td>Convention on International Trade in Endangered Species of Wild Fauna and Flora</td>
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<td>CNCP</td>
<td>Coastal Nutria Control Program</td>
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<td>CPRA</td>
<td>Coastal Protection and Restoration Authority</td>
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