



LOUISIANA DEPARTMENT OF **WILDLIFE & FISHERIES** 2012-2013 ANNUAL REPORT



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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 2013-2014

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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 and LDWF's Legal Section.

➔ ENFORCEMENT DIVISION

The Law Enforcement Division 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.

➔ 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: accounting, budget forecasting and control, procurement and contract management, administrative services, information technology, strategic and operational planning, property control and fleet management, boat registration, motor and boat titling, human resources management, federal grant reporting, license and permit administration and issuing, fees, taxes, and penalties collections, public information, and web site.

➔ ADMINISTRATIVE SERVICES

The Administrative Services Section oversees the statewide purchasing activities, manages the state LaCarte procurement card program, and manages the Fueltrac fleet fuel card program. This section also provides mail services and duplicating/binding services for the Baton Rouge office.

➔ COMPUTER CENTER

The Computer Center oversees LDWF's information processing resources.

➔ FISCAL

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

➔ HUMAN RESOURCES

The Human Resources section handles all employee personnel actions and employee benefits, develops policies and procedures, conducts training and new employee orientation, and administers the performance planning and review program and LDWF's safety program.

➔ 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.

➔ PUBLIC INFORMATION

The Public Information Office is responsible for publications, audio-video productions, website, news and media relations, and special events.

Office of Wildlife

The Office of Wildlife consists of two divisions, Wildlife Division and Coastal & Non-game Resources Division.

➔ 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 & endangered species are the primary division responsibilities. This responsibility is addressed through major programs: Rockefeller Wildlife Refuge; White Lake Wetlands Conservation Area; White Lake Property Advisory Board; Furbearer Management; Fur Advisory Council; Minerals Management; Habitat Program, including Environmental Permitting, Scenic Streams & Rivers, and Nongame; Natural Heritage Program; Oil Spill Response; Natural Resource Damage Assessment; Alligator Program; Alligator Advisory Council; and Coastal Operations Program.

Office of Fisheries

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. The Office of Fisheries is comprised of six sections: Marine Fisheries, Inland Fisheries, Fish Management, Fisheries Extension, Fisheries Oversight, Fisheries Administration, and the Louisiana Seafood Promotion and Marketing Board.

A Word From the Secretary



Looking back on FY 2012-2013, it was a year of change, progress and benchmarks for the Louisiana Department of Wildlife and Fisheries (LDWF).

To better serve outdoor enthusiasts, the Office of Wildlife launched a new iPhone app to provide current hunting regulations, waterfowl identification and regulations, schedules for wildlife management areas and much more. The Office of Fisheries launched a fish-tagging app that allows our citizen-scientist anglers to easily log fish tag information and to receive tracking updates about the fish they tagged.

Fisheries also introduced a free, offshore recreational landings permit and new reporting requirements for recreational harvest of reef fish to provide timely data collection from fishermen. These tools, when coupled with our red snapper quota monitoring program, give our researchers the best available data to manage our fisheries.

Fisheries continued to make strides in providing the public with safe and usable fishing and boating access through its aquatic plant control program. Herbicides were applied to over 100,000 acres of nuisance aquatic vegetation in lakes and water bodies throughout the state. The main targets were water hyacinth, giant salvinia, common salvinia and alligator weed. In addition, approximately 417,000 adult giant salvinia weevils and 72,000 adult common salvinia weevils were stocked into water bodies in Louisiana.

In October 2012, Fisheries launched the Louisiana Wild Seafood Certification Program (LWSCP). The primary mission of the LWSCP is to build a unified brand to attract consumers as well as food service and seafood distribution buyers who want to be sure they are sourcing the best quality seafood in the world—Louisiana Seafood.

Within the Office of Wildlife, duck hunters were presented with a new three-zone framework for the 2012-13 waterfowl season to provide more flexibility in the timing for scheduling hunting dates. Public fishing and waterfowl hunting opportunities were bolstered by donations from International Paper that gave the department control of over 7,500 acres including the Bussey Brake and Wham Brake reservoirs. The freshwater reservoirs located near Bastrop are popular recreational sites that will be improved with habitat renovations.

Hunter education student numbers totaled 15,817 during the fiscal year based on classroom courses, presented around the state by staff or certified hunter education instructors serving in a volunteer capacity, and home study courses taken on-line or with the CD-Rom home course option.

CNR Division biologists continued efforts to restore the whooping crane to the Louisiana landscape with the release of another 14 juvenile birds at White Lake WCA. At fiscal year's end, 23 birds were surviving in the wild with an additional 10 young cranes to be released in the upcoming fiscal year.

A \$2.6 million renovation project at Rockefeller State Wildlife Refuge replaced the boat launch and bulkheads at Joseph Harbor and upgraded the East End Locks Road. Both access points now provide improved public access to the refuge along the coast of southwestern Louisiana.

And once again the Enforcement Division was called upon to provide search and rescue support for the Governor's Office of Homeland Security and Emergency Preparedness during hurricane season when Isaac came ashore in August. Agents rescued over 1,600 citizens impacted by floodwaters produced by hurricane driven rainfall.

But the skies cleared for the 30th year of the state's National Hunting and Fishing Day events in September, bringing families to the outdoors through events scheduled around the state.

These are just a few of the highlights of a busy year for the men and women of your Department of Wildlife and Fisheries. The complete details on 2012-2013 are provided in the pages that follow.

Robert J. Barham
LDWF Secretary



Office of 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.

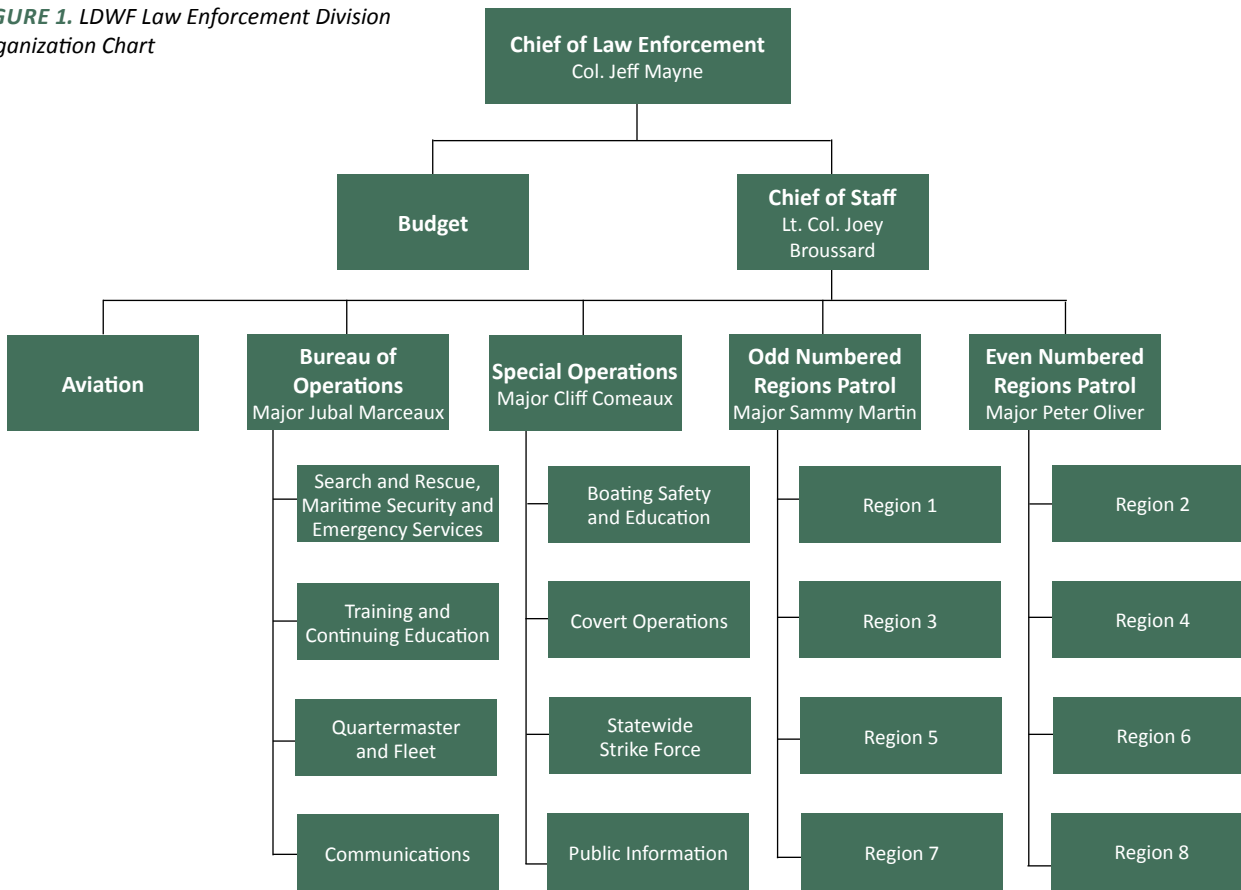
The Law Enforcement Division is responsible for enforcing laws as provided for in the:

- Constitution of the State of Louisiana
- Louisiana Revised Statutes
- U.S. Dept. 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 328,664 patrol hours in FY 2012-2013: 226,427 on land and 102,237 on water. Agents made 730,942 contacts with the public, the majority of whom were in compliance with state and federal wildlife and fisheries regulations. LDWF-LED agents issued 20,255 criminal citations and 5,675 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.



FIGURE 1. LDWF Law Enforcement Division Organization Chart



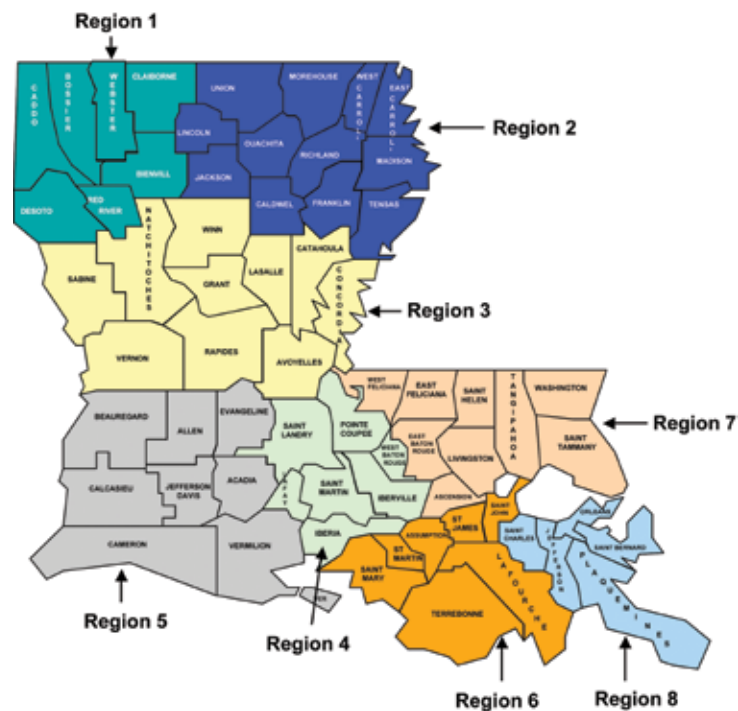
ORGANIZATIONAL STRUCTURE & PERSONNEL

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 is one lieutenant colonel who supervises search and rescue and field operations and the operations of the Aviation Section. There are four majors: one over the even-numbered enforcement regions of the state; one over the odd-numbered regions; one over the Special Operations section that includes the Statewide Strike Force and Covert Unit; and one over the Bureau of Operations that includes boater safety education programs, training, and quartermaster.

The Enforcement Division is divided into eight enforcement regions (Figure 2), each composed of two or three multi-parish districts, with headquarters in Baton Rouge. 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 235 enforcement agents, 24 administrative staff, six communications officers and two pilots. The actual number of filled positions (as of January 2014) is 235.

FIGURE 2. Enforcement Division Regions





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 WMAs 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 the 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, CBRNE prevention, and response and tactical support for LDWF's federal, state and local partners.

AVIATION SECTION

The Aviation Section contains two pilots and three airplanes. The Aviation Section's aircraft provide a valuable platform for detecting illegal hunting and fishing activities and frequently play a vital life-saving 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 320,000 registered boats, Louisiana contains many geographic, demographic and economic features that pose special challenges for boating safety enforcement. LDWF-LED agents made 275,113 public contacts during the course of 87,164 patrol hours dedicated to boating enforcement, education and accident investigation in FY 2012-2013. Of those hours, 67,939 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 opera-



tion of motorboats. In FY 2012-2013, LDWF-LED agents issued 68 citations for careless and reckless operation of a vessel and 76 citations for operating a vessel while intoxicated.

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. 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 2012-2013, 8,636 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.

LDWF-LED remained committed in marketing and promotion of boating education courses by creating special events and activities for students attending courses. LDWF-LED coordinated its third annual "Statewide Boating Education Lagniappe Day" certifying 164 boaters on May 11, 2013. LDWF-LED sponsored two Summer Day Camps for children 12 to 16 years old at the Waddill Outdoor Education Center and certified 42 children in both boating and hunter education. LDWF-LED participated in "Operation Dry Water" from June 28-30. LDWF-LED has been involved with this program since 2009. LDWF-LED also promoted and participated in "Safe Boating Week" from May 18-24 stepping up safe boating patrols and promotion of safe boating during the week.

SEARCH & RESCUE OPERATIONS

In FY 2012-2013, agents provided 26,670 patrol hours of search and rescue services, both on land and water. These operations have saved lives, reduced the suffering of accident victims, stranded hunters, boaters and anyone else needing assistance, and minimized the anxiety for family members eager to learn the fate of their loved ones. Agents regularly train to hone their search and rescue skills and constantly work to develop close working relationships with other agencies to coordinate response efforts.

In FY 2012-2013, LDWF-LED added a Unified Louisiana Evacuation Timeline document to the State Emergency Operations Plan on the Enforcement's Portal of the department's Intranet site.

From Aug. 26-31, 2012, LDWF-LED agents conducted search and rescue operations in response to Hurricane Isaac. A total of 1,667 people and 161 pets were evacuated from flooded areas and brought to higher ground for transport to a shelter.

From Jan. 10-14, 2013, LDWF-LED agents conducted search and rescue missions in St. Landry, Evangeline and Acadia parishes. In these parishes, LDWF agents evacuated a total of 105 people and 10 pets. Heavy rains caused some backwater flooding including Mallet Bayou in the Church Point area, Bayou Plaquemines in the Branch area, Des Cannes Bayou in the Iota area, and Boggy Bayou in the Easton area.

AGENT TRAINING PROGRAM

LDWF-LED initiated a new program that extends in-service throughout the year and consists of 10 training sessions conducted over a 10-month period. In addition to the required areas of training, this new program allows for areas of specialized training to be added to the curriculum each year while ensuring the continuance of training throughout unforeseen events and relieves the schedule burden of the consecutive week program.

Through the LDWF-LED NASBLA BOAT Program accreditation, all agents have received certificates of training in the NASBLA Level 1 Boat Accident Investigation Program and the NASBLA Boat Operators Search and Rescue Course. The LDWF Enforcement Division'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 the water.

According to NASBLA.org, the BOAT program establishes a national standard for the training and qualification of maritime law enforcement and rescue personnel. Adoption and implementation of the BOAT program provides a true national standard for the purpose of maritime interoperability at the federal, state and local levels. Standardization ensures maritime agencies can interact together and will bolster their ability to act as force multipliers nationwide.

In FY 2012-13, LDWF-LED also increased Maritime Security and Response Team training by 50 percent.



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 \$1,172,456 in FY 2012-2013 to patrol for compliance with federal commercial and recreational fisheries regulations, primarily in the Gulf of Mexico. Several patrol vessels and other necessary equipment has been acquired under this program. Agents have been very successful identifying illegal and unregulated fishing activity and obtaining a number of large cases involving commercial and recreational violations.

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 the 2012 year, OGT paid out \$22,100 in rewards. The OGT board reviewed a total of 53 cases with a total of 79 subject apprehended

and a total of 431 offenses/violations. The total amount of rewards paid by Operation Game Thief since its inception 27 years ago is \$324,700.

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, the Area Maritime Security Executive Steering Committee, 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.

LDWF-LED has developed a five-year maritime security strategic plan in order to provide direction and guidance for the expansion of its mission to include maritime security. This role further advances coordination efforts between the United States Coast Guard, Louisiana State Police, federal, state, ports and local government, and private partnerships to increase the efficiency and effectiveness of maritime safety and security and all hazards response for Louisiana and our nation. This expansion is necessary in order to meet the needs and threats that we face within Louisiana's maritime domain.

LDWF-LED created the Louisiana Maritime Security Working Group in order to provide better communication and coordination between the multiple regional layers of security on the state's waterways, so that we can safely and effectively support these layers at the state level. LDWF-LED is also 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.

LDWF agents provided security on the Mississippi River in New Orleans during the February 2013 Super Bowl week.





Office of
Management
& Finance

COMPUTER CENTER

The Computer Center is responsible for maintaining the Louisiana Department of Wildlife and Fisheries' (LDWF) information processing resources. The center operates three mainframes and 45 virtual servers and 18 physical Windows-based servers. The Computer Center supports 850 users and 350 mobile devices in 16 locations throughout the state and supports and maintains the network infrastructure that ties them all together. We offer training, help desk support, custom programming, database services, email services, Internet access, user data backup for headquarter users, statistical analysis tools for biologists, and imaging services for Human Resources, Licensing and Fisheries.

In addition, the Computer Center has developed applications necessary to sell and maintain commercial licenses, hunting/boating safety, Alligator System, Lottery System, and the Enforcement application that allows us to track citations, as well as the motorboat registrations and titling systems that allows us to issue registrations and titles for every boat in Louisiana.

TECHNICAL SUPPORT

The Technical Section, which consists of four employees and one student, supports 850 users throughout the state. We maintain approximately 950 personal computer and 350 mobile devices ranging from iPads, iPhones, and Blackberry devices. Keeping these machines maintained and secure is one of the Technical Section's biggest challenges. Each of these devices must have regular updates applied and have certain software installed and updated (anti-virus, spyware).

Providing general help desk support for these computers occupies a large portion of a tech's time. Technical calls can be as simple as helping with an expired password, to helping with software problems/re-installations, cleaning a malware infection, or as complicated as helping repair and diagnose failed hardware. The technical staff must travel regularly to most of LDWF's remote facilities to perform this maintenance on machines.

The Technical Section maintains three mainframes and 45 virtual servers and 18 physical

Windows-based servers. Each of the mainframes/servers must be given daily maintenance. This includes not only keeping the operating systems and utility software up to date, but also providing regular backups for all critical data to prevent loss. Loss of data can come from simply losing a disk drive, losing entire computers or being hacked. Catastrophic loss of data can come from fire, flood, terrorism or other causes that would impact the entire organization. In addition, data can be lost through human error such as inadvertently deleting records that shouldn't be deleted. All these risks must be mitigated. Primarily this is done through daily backups of all pertinent data. Everyday all critical data on our servers are backed up and stored off-site. We also attempt to back up the majority of our user's important data that is stored on their hard drives.

Maintenance also includes keeping all the critical software that runs on the servers up to date and functional. The services we provide include things such as email, databases, anti-virus protection, Web-services, and network operating system services/security. All these software packages are regularly updated. Training to keep up with these updates could easily become a constant activity.

Accomplishments include:

- Used a mobile device management suite to push out and maintain a custom app to the 235 Enforcement Division's tablet computers.
- Upgraded our agency's email server.
- Switched to a managed antivirus solution for all our devices. This has enhanced the security of PCs and laptops.
- Recovered our agency's servers from a disaster due to a faulty water valve that submerged our data center in 2 feet of water. We executed our disaster recovery procedures recovering a majority of our critical services within 72 hours, and were fully restored in approximately two weeks. All IT staff operated out of two conference rooms while the first floor was reconstructed.
- Increased our Storage Area Network equipment to accommodate new servers after the datacenter recovery.

Finally, the Technical Section is responsible for maintaining the underlying network infrastruc-

ture that allows all the computers to communicate with one another. This involves monitoring the network for problems and diagnosing and repairing network routers, switches, hubs, VPN concentrators, and telephone data circuits (for local and all remote facilities). Included with this is guarding the network from internal and external threats (hackers/viruses) and maintaining Internet connectivity for all internal users.

APPLICATION DEVELOPMENT

The Application Development Team consists of six employees and is responsible for maintaining all custom written applications and new application development. Our applications run on a combination of mainframe and Windows server environments. Current applications that the staff has developed and supports include:

- Web based Enforcement system for issuing and tracking violations.
- Enforcement complaint system.
- Enforcement time sheet system.
- Enforcement revocations system.
- Enforcement seafood inspection system.
- Motorboat application for issuing motorboat registrations and titles.
- Commercial License application for issuing commercial fishing licenses for LDWF.
- Zip code lookup application.
- Alligator system for tracking all alligators processed commercially in Louisiana.
- DPS system for looking up DMV records for residency validation.
- Lottery application to choose participants in the randomly drawn hunts.
- Hunter and Boating Education system for keeping track of participants in the mandatory hunter education program. It provides the public with the ability to request a duplicate hunting safety or boating safety card online and receive online fulfillment.
- Revocation system for keeping track of individuals that may not purchase licenses.
- Sports License (lifetime license printing).
- Web-based displaced boat lookup (to help public locate lost boats).
- Web-based DMAP, system for keeping track of deer management applications.
- Web-based Oyster Tag sales system.
- Trip Ticket employee performance system.

- Legal application for tracking legal rulings and information.
- Track commercial fishing shipments from/to the state for the Enforcement Division.
- Employee Portal application used by employees to launch other LDWF developed web-based applications.
- JEA Patrol System to keep track of Enforcement officer's contact information with vessel operators and dealers.
- Motorboat registrations & renewals (new and backlog).
- Motorboat revenue checks.
- Other revenue checks.
- Shrimp Excise Tax forms (this helps our accounting division keep track of excise tax monies).
- Monthly submission forms.
- Crab Shedder forms.
- Commercial Fisherman surveys.
- Seafood Dealer surveys.
- Lifetime Licenses (new and backlog).
- Electronic signature logs.
- BP Oil Spill time sheets (for Fiscal)
- Computer Center forms

IMAGING

The Imaging Section consists of three employees and two students, and is tasked with scanning and indexing LDWF documents which include:

- Federally mandated Trip Ticket data (from commercial dealers, used in tracking commercial harvest information).
- Boating Safety applications.
- Hunter Safety applications.
- Bow hunter student applications.
- Enforcement complaint forms.
- Enforcement time sheets.
- Enforcement seafood inspection forms.

The Imaging Section takes requests from Louisiana seafood dealers in person, on the phone, by mail and by fax. These orders can be very time consuming as they often need to explain the variety of forms and their usage. The Imaging Section not only scans a vast number of documents for the agency, but verifies and corrects the data as well. This is very tedious work due to the wide ranges of handwriting and poor conditions of the forms when they arrive.

In addition to scanning duties, the Imaging Section runs nightly reports for LDWF's applications systems and helps compile and print reports for the Public Information, Enforcement, Commercial License, Hunter Safety, Motorboat, and Recreational License sections. The Imaging Section is working diligently with the Fisheries Division on the Cooperative Research Survey project of 2009, concerning hurricane recovery and demographic information. This is an 89-page survey that is mailed in from commercial fishermen and dealers and compiles significant data from that time period.

The system that the Imaging Section staff maintains is used by the Motorboat section to image and archive all motorboat applications/renewals. Human Resources also scan every employee document into the system. The imaging system cuts back drastically on the amount of paper documents that must be maintained, making it possible for instantaneous search/retrieval of these documents and allow multiple Human Resources analysts to access the same records concurrently and securely.

PROPERTY CONTROL

The Property Control Section is responsible for managing LDWF's Property, Risk Management Insurance Claims, and Fleet Management programs. The section is staffed with five full-time employees.

PROPERTY CONTROL PROGRAM

During FY 2012-2013 this program certified a moveable property inventory which consisted of 11,004 items for a total acquisition cost of \$71,018,072. Annually, the program is responsible for ensuring that a physical inventory of moveable property is conducted at the various 89 locations throughout the state.

The Property Control Section processed \$5,489,021 in acquisitions and \$3,539,783 in dispositions of inventoried movable property during FY 2012-2013.

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 583 fleet vehicles and 1,038 other licensed equipment.

The Property Control Section also managed the vehicles assigned to the Baton Rouge Headquarters Motor Pool.

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 900 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.

FISCAL

The Fiscal Section staff consists of 13 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:

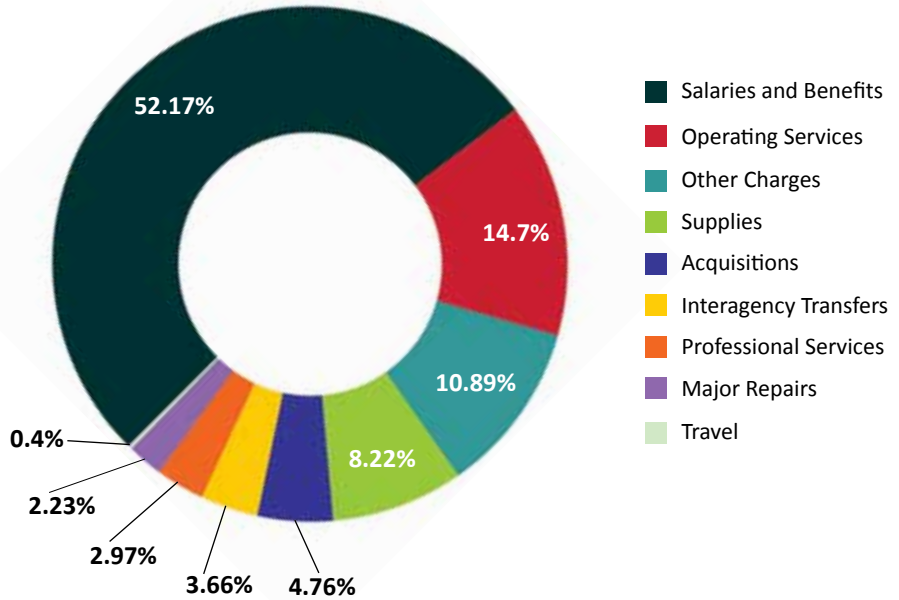
- budget and expenditure control and monitoring.
- federal grant tracking and reporting.
- preparation of all required financial reports.
- reviewing and processing professional and consulting contracts.
- payment of all vendors.
- receipt and classification of various sources of revenue.
- fund management.
- assessment of civil fines.
- processing of employee travel reimbursements.
- liability insurance reporting.
- strategic and operational planning.
- financial management of FEMA projects and other disasters.

During FY 2012-2013, the Fiscal Section staff:

- prepared four agency budgets consisting of six programs totaling \$212.1 million.
- reviewed 138 new contracts with a total amount payable of \$16.4 million.
- worked on two request for proposals totaling \$901,000.
- processed 859 payments on contracts for \$17.1 million.
- processed 26,082 vendor invoice payments.
- audited and processed 21,915 purchasing card transactions.
- audited and processed 1,606 travel reimbursements.
- processed 2,103 checks through Quick-Books.
- warranted funds and prepared periodic reports for 143 federal grants.
- deposited \$54.3 million in receipts from various sources on 409 pay in vouchers.

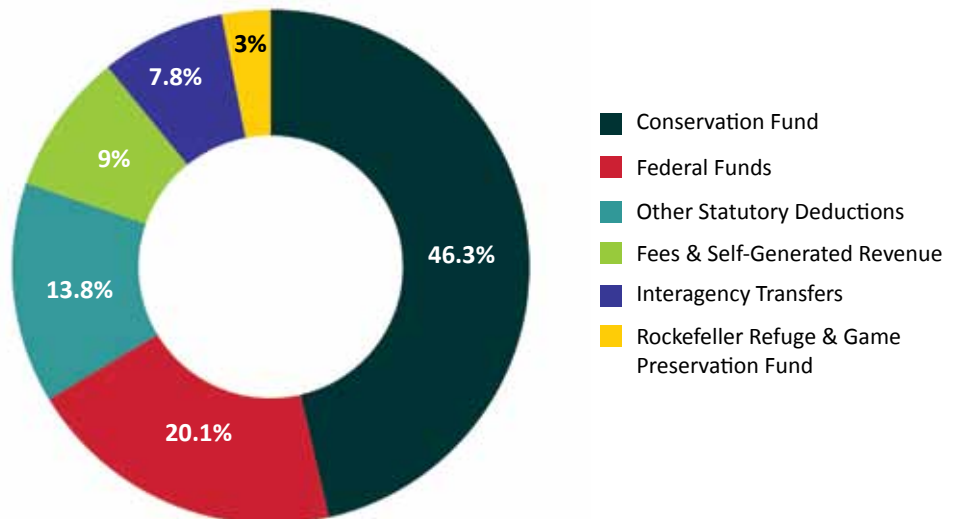
LDWF EXPENDITURES BY CATEGORY (FY 2012-2013)

Total Expenditures: \$133,430,466
Total Positions: 777



HOW EXPENDITURES WERE FUNDED (FY 2012-2013)

Total Means of Financing: \$133,430,466



EXPENDITURES BY CATEGORY	
Salaries and Benefits	69,605,691
Operating Services	19,619,197
Other Charges	14,535,923
Supplies	10,962,772
Acquisitions	6,345,634
Interagency Transfers	4,881,870
Professional Services	3,962,546
Major Services	2,977,588
Travel	539,245
TOTAL	\$133,430,466

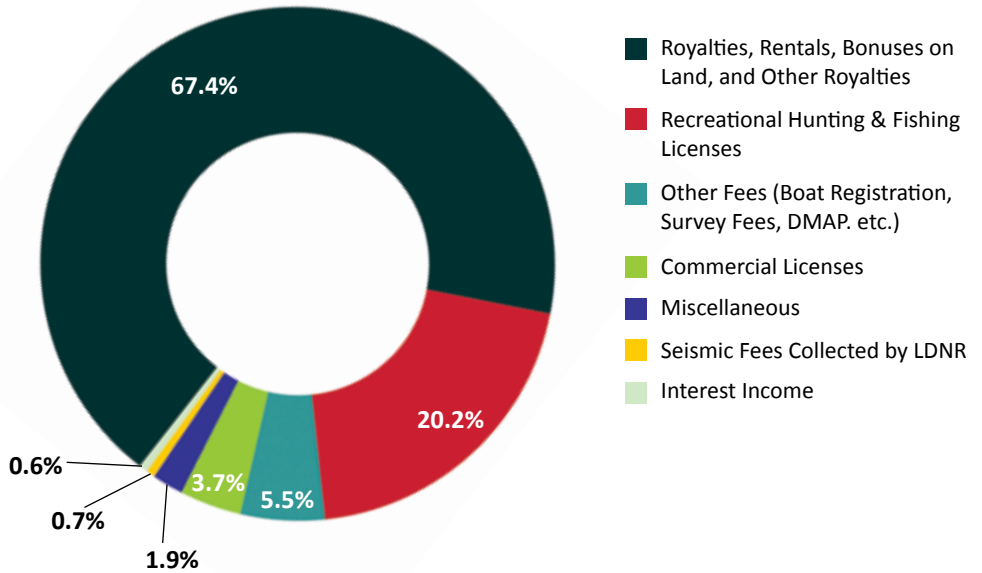
HOW EXPENDITURES WERE FUNDED	
Conservation Fund	61,823,116
Federal Funds	26,775,848
Other Statutory Deductions	18,407,295
Fees & Self-Generated Revenue	11,986,642
Interagency Transfers	10,387,257
Rockefeller Refuge & Game Preservation Fund	4,050,308
State General Fund	0
TOTAL	\$133,430,466

SOURCES OF REVENUE TO THE CONSERVATION FUND	
Royalties, Rentals, Bonuses on Land, and Other Royalties	60,296,298
Recreational Hunting & Fishing Licenses	18,079,922
Other Fees (Boat Registration, Survey Fees, DMAP, etc.)	4,942,709
Commercial Licenses	3,276,169
Miscellaneous	1,709,119
Seismic Fees Collected by LDNR	602,142
Interest Income	503,158
TOTAL	\$89,409,517

EXPENDITURES BY PROGRAM	
Office of Fisheries	52,114,952
Office of Wildlife	37,182,609
Office of Secretary - Enforcement	28,373,673
Office of Management & Finance	9,755,922
Office of Fisheries - Seafood Promotion & Marketing Board	5,108,576
Office of Secretary - Administration	894,734
TOTAL	\$133,430,466

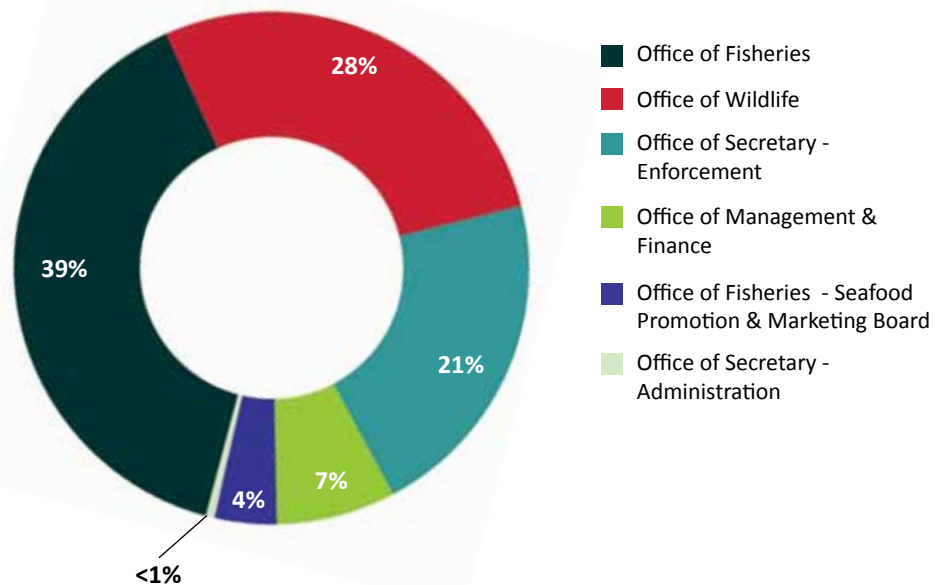
SOURCES OF REVENUE TO THE CONSERVATION FUND (FY 2012-2013)

Total Revenue: \$89,409,517



LDWF EXPENDITURES BY PROGRAM (FY 2012-2013)

Total Expenditures: \$133,430,466



HUMAN RESOURCES

The Human Resources section originates 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, American's with Disabilities Act, Safety and Training, Rewards and Recognition, Equal Employment Opportunity, and Worker's Compensation. The department works to make sure that all programs are in compliance with the Louisiana State Civil Service (SCS) rules as well as state and federal regulations and guidelines.

The authorized number of funded positions for the Louisiana Department of Wildlife and Fisheries (LDWF) for the fiscal year was 777. LDWF also employs students and other temporary employees throughout the state and had a total of 991 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.
- Serving as the LDWF system administrator for the NeoGov (LaCareers) Online Hiring Center. Reviews and determines qualifications of approximately 12,184 applications for employment each year.
- Managing the notification process for the attainment of permanent status by probational employees and attainment of Career Progression Group (CPG) eligibility for LDWF employees. Processed 74 CPG reallocations.
- 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 allocation of positions to the appropriate job title by virtue of authority delegated from SCS. Reviewed and allocated approximately 550 job descriptions during this fiscal year.
- 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 related policies.
- Coordinating the office of human resources Strategic Plan.
- Serving as the employment webmaster.
- 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 926 personnel actions (new hires, agency transfers, reallocations, promotions, demotions, resignations, etc.) during this fiscal year.
- 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 4,100 prior period payroll adjustments.
- Maintaining and/or monitoring organizational management, costing issues, and position authority in LaGov HCM (Human Capital Management).
- Assuring appropriate documentation is maintained for all employees in compliance with record and retention policies.
- 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. Processed 46 new retirement requests during this fiscal year.
- 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.
- Advising employees and coordinating with ORM/Fara concerning issues relating to Workers' Compensation.
- 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 & our employees.
- Managing the claims made for unemployment by former employees of LDWF and clients. Processed approximately 154 separations from employment.
- Administering the Performance Evaluation System (PES) including reporting statistics to SCS. Training managers on the effective use of the PES program and advising managers regarding performance management.

Processed over 1,000 performance evaluation planning documents and entries required in LaGov HCM.

- Investigating performance and behavioral incidents, workplace violence, harassment, and discrimination claims.
- Investigating discipline issues and grievances on behalf of management. Managing disciplinary actions, SCS appeals and litigation resulting from employment actions in accordance with SCS rules and federal and state law.

- Managing the scheduling for LDWF and other clients for the state training program through the Comprehensive Public Training Program (CPTP) as well as the requirements of Minimum Supervisory Training (MST) implemented by SCS. Monitoring compliance with MST and training required by Executive Order such as Ethics and Sexual Harassment.

PUBLIC INFORMATION

The Public Information Office handles several communication programs for the Louisiana Department of Wildlife and Fisheries (LDWF). These programs cover a variety of communication avenues including publications, audio-video productions, website, telecommunications and special events. In addition to these responsibilities, this office operates the LDWF headquarters' reception area, which serves as the department's first point of contact and security check point.

PUBLICATIONS

The publications unit 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 through this unit.

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 2011-2012 Annual Report

Regulation Pamphlets

- 2013 Louisiana Commercial Fishing Regulations
- 2013 Louisiana Recreational Fishing
- 2012-2012 Louisiana Hunting Regulations
- 2012-2013 Louisiana Migratory Game Bird Regulations

- 2012-2013 Louisiana Trapping Regulations
- 2013 Louisiana Turkey Regulations

SPECIALIZED PUBLICATIONS

Brochures & Handouts

- 2012 Hunter Education Brochure
- Archery in Louisiana Schools (ALAS) Brochure
- Bear Snare Brochure
- Deer Management Assistance Program (DMAP) Brochure
- Recreational Boating Fact Sheet
- Wildlife Abstracts Booklet

Newsletters

- Forest Stewardship Newsletter: Winter 2013 and Summer 2013
- Behind the Badge Newsletter: Fall/Winter 2012

Posters

- Dove ID Poster

Books

- Turkey Report Book

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. Efforts are underway to digitize the department's vast catalog of analog video, making them more easily available for media and public access and utilization.

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. All pre- and post-production is handled in-house by Public Information staff.

Many of the department's video productions are located on YouTube.

DEPARTMENT VIDEOS

- Oyster Tagging Requirements
- National Hunting and Fishing Day 2012 (30 second spot)

VIDEO NEWS RELEASES

- Protect the Whooping Crane (30 second spot)
- Atchafalaya Basin Bass Limit
- Derelict Crab Trap Removal Program
- Enforcement Super Bowl Patrol
- Woodcock Banding
- 2013 DRX Training
- 2013 Louisiana Waterfowl Conservation Stamp Competition
- Derelict Crab Trap Removal Program
- Kid's PDFs Instructional video
- Step Outside Day

WEBSITE

The LDWF website, *wlf.louisiana.gov*, again had an increase in visitors this year with 2,363,003 visits. The breakdown of new and returning viewers was comprised of 51.3 percent and 48.7 percent categorized as returning visitors. Site visitors executed more than 8 million page views, at approximately 3.40 page views per visitor, and spent an average of 3.05 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 2012-2013, the site had 22,335 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.

TELECOMMUNICATIONS

The Public Information Office oversees the department's telecommunications duties. The new

Toshiba key system, installed in 2011, continues to operate with great success. The new phone system offers improved customer service with menu options to assist callers directly to the person/office they needed; allowed for quicker in-house service by providing extension-to-extension calls between offices statewide eliminating long distance charges between regional offices; and eliminated several outdated telecommunication charges, streamlining the billing process and saving money.

SPECIAL EVENTS

The Public Information Office is responsible for organizing and executing special public and promotional events for the department, coordinating with the different LDWF offices. The events range from trade show exhibits to organizing national conferences.

NATIONAL HUNTING & FISHING DAY

National Hunting and Fishing Day takes place each year in four locations around the state. The Public Information Office organizes the Baton Rouge event, which is open to public attendance

for hands-on experience with outdoor activities. The 2012 event included canoeing, fishing, sports shooting, children's fishing contest, education exhibits, a catfish pool for very young anglers, and samples of fish and wild game dishes. Local chefs donated their time and skill to prepare the fish and game. Admission and events are free, as well as the hot dogs, soft drinks and tasting booths. Approximately 2,150 visitors from Baton Rouge and surrounding parishes attended the event at the Waddill Outdoor Education Center.

RECEPTION AND SECURITY AREA

The Public Information Office is responsible for the reception and security desk at the headquarters office, serving as the first point of contact for all visitors.

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; 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:

- Issue in excess of 2.3 million recreational hunting, fishing, trapping and non-consumptive use licenses and permits sold to 800,000+ customers, generating in excess of \$21 million in revenue. Maintain license records for in excess of 68,000 lifetime licensees.
- 70,357 commercial licenses sold, representing 12,113 commercial fishermen, 2,953 business entities, 793 charter businesses, and various permits that generate in excess of \$3.6 million in revenue.
- 182,999 boat registration/title transactions that generate in excess of \$4 million in revenue. Maintain boat data in excess of 1 million records – 323,625 of which are actively registered.
- Make 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 2 million.

ADMINISTRATIVE SERVICES

The Administrative Services section consists of the Purchasing Section and General Services, whose mission is to provide support services for the Louisiana Department of Wildlife and Fisheries (LDWF) so that the overall mission of conservation of renewable natural resources is accomplished.

The administrative staff works closely with and supports other divisions. The Purchasing Section insures compliance with all state and department laws and regulations concerning procurement. The Purchasing Section also trains and serves as the help desk for all divisions in ISIS, the statewide-computerized system, the LaCarte procurement card system, and the Fueltrac fleet fuel card program for approximately 900 employees. They assist and initiate agency contracts and purchase orders, and purchasing specific to LDWF, seafood promotions, alligator harvest, timber sales and farm leases. This section also provides mail services and duplicating/binding services for the Baton Rouge office.

PURCHASING

The Purchasing Section consists of three purchasing professionals.

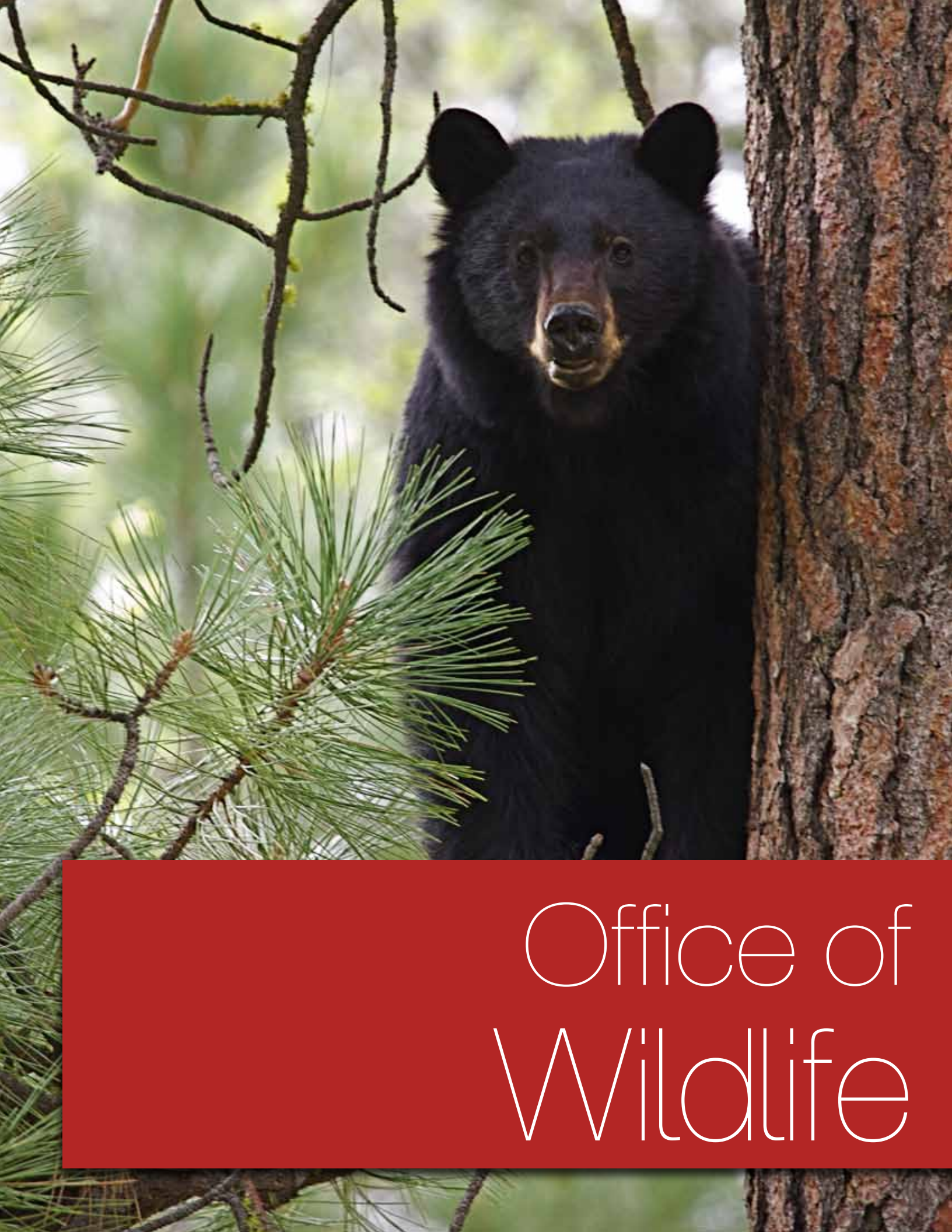
In FY 2012-2013 this section:

- maintained, initiated or updated leases for various equipment.
- maintained building leases.
- maintained state purchasing card accounts.
- maintained state fuel card accounts.
- Issued delegated purchase orders, requisitions for bids and reviewed for compliance all other agency purchase orders.
- Trained new employees in the purchasing system and/or purchasing card rules and regulations.

In addition to the above, the Purchasing Section handles rental and payment for state-wide trash pickup, pest and termite control, boat slip rentals, and one aircraft hangar.

GENERAL SERVICES

General Services, consisting of one employee, supports all divisions of LDWF by operating the mail system, receiving all deliveries, and shipping all packages for the Baton Rouge office. This section is also responsible for duplicating and binding large numbers of documents as required by the divisions. General Services maintains a supply of paper and envelopes to be distributed to the Baton Rouge office, district offices and remote facilities.



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. 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 personnel of the Louisiana Department of Wildlife and Fisheries (LDWF) 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 Game Birds, Wild Turkey and Resident Small Game, Waterfowl, Large Carnivore, and Wildlife Disease.

WHITE-TAILED DEER

During the 2012-2013 deer season, 203,900 deer hunters harvested 152,800* white-tailed deer. On wildlife management areas (WMAs), 2,416 deer were harvested during managed deer hunts. During managed deer hunts, hunters are required to bring their deer to a check station where LDWF staff collect biological data from the deer. The total hunter effort (a hunter having used a WMA for a hunt) for the managed deer hunts was 23,449.

** Senior hunters and harvest included for the first time in the mail survey.*

The Deer Management Assistance Program (DMAP) harvest was 14,039 deer. There were 734 clubs/cooperators with 1.65 million acres participating in the program, a slight increase from the previous year.

Deer harvest information from across the state was analyzed and evaluated. These data were used to establish deer regulations for the 2012-2013 season. Harvest data for WMAs and DMAP

cooperators are summarized in Federal Aid W-55-26 Report.

Bucks harvested during 2012-2013 that scored high enough to qualify for the Louisiana Big Game Records Recognition Program were documented in the annual Deer Program report. Trophy deer that qualify for the State Record List were also added.

In order to better manage the state's white-tailed deer population, several research projects are ongoing. Efforts by the Coastal and Nongame Resources Division to capture and mark deer at Pass-a-Loutre WMA continue. Fifty-seven deer have been ear tagged. Remaining deer are being monitored by remote cameras. Herd health collections and disease and parasite investigations continued on both private and public lands. A new deer research project designed to measure fawn mortality and adult deer movement at Tensas National Wildlife Refuge (NWR) was successfully implemented with 14 adult bucks, 30 does and 37 fawns collared.

WEBLESS MIGRATORY BIRDS

DOVE

Dove populations have been monitored nationwide since 1953 by a call-count survey. This survey is used by the U.S. Fish and Wildlife Service (USFWS) to monitor mourning dove population trends. Biologists record the number of doves heard calling for a prescribed time during the nesting season along certain roadsides. Louisiana's dove population is monitored during May and June along 19 routes randomly located throughout the state. The 2013 Louisiana breeding population index, based on doves heard along the routes, was 13.7. This is comparable to last year's index of 13.8. The 10-year and 48-year



LEFT: Banded mourning dove. CENTER: Dove field at Elbow Slough WMA. RIGHT: Collecting soil samples for lead deposition study.

trends for doves heard along routes illustrated 2.1 and 1.9 percent annual increases, respectively. The 10-year and 48-year trends for doves seen along routes represented 2.6 and 2.9 percent annual increases, respectively.

Dove hunting regulations for Louisiana in 2012-2013 were set at 70 days with a bag limit of 15 birds. A survey of resident license holders indicates that approximately 25,100 Louisiana hunters harvested approximately 566,100 doves during the 2012-2013 hunting season. An estimated 13,600 Eurasian collared-doves and 45,200 white-winged doves were also taken.

In addition to dove fields on 11 WMAs, LDWF leases property from private landowners for public hunting. This land is leased for public hunting on opening day only. In 2012, five fields totaling 1,100 acres were leased. During the opening day hunt, 708 hunters participated, bagging 562 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 1,362 doves during July-August 2012 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.

Soil samples were collected at four dove fields at Sandy Hollow WMA to examine lead deposition rates within these fields by dove hunters. Soil samples were collected post-hunt (October 2012, 2013), pre-field preparation (March 2013), and post-field preparation (June 2013). Soil samples will continue to be collected and will be subsequently analyzed for lead pellets. On opening day of dove season 2013, gizzards from mourning doves harvested at each of the four dove fields were collected and will be examined for presence of lead shot. Data will continue to be collected.

Data are summarized in the Federal Aid W-55-27 Annual Report.

WOODCOCK

Beginning in October 2011, a research project to examine nocturnal habitat use by woodcock was initiated. Four treatments (mow, burn, disk,

mow/burn) were implemented on a 25.9-hectare tract on Sherburne WMA. Each was 0.81 hectare (2 acres) in size and replicated four times, for a total of 16 study plots. During the first season of this study, the mowed plots were used most frequently by woodcock, followed by burn plots. During the second year of this study, burn plots were used most frequently. Habitat structure appears to play an important role in nocturnal habitat selection by woodcock and consecutive annual mowing apparently removes too much cover, making sites less desirable for woodcock. A masters thesis from this research has been generated and a publication is in preparation.

LDWF participated in the USFWS Annual Woodcock Wing Bee in 2012. Data derived from aging and sexing about 12,000 woodcock wings were used to develop trend data on woodcock production and hunter success. These data, in combi-



Creating nocturnal woodcock habitat.

nation 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 1,900 Louisiana hunters harvested 10,500 woodcock during the 2012-2013 season.

ANNUAL HUNTER HARVEST SURVEY

Big and small game harvest indices for the 2012-2013 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 2012-2013. Prior to this year, senior license holders (those 60 and older that now are required to have a license) were not included in the survey. However, this year both lifetime resident senior license holders and resident senior hunt/fish license holders were included in the survey. This was done because senior license holders make up a significant proportion of the total license holders (33.2 percent for the 2013-13 hunting season). The 2012-2013 Game Harvest Survey was mailed to 16,573 (6 percent sample) residents who had purchased the license for the current year's hunting season (or had a lifetime license). Non-deliverables numbered 101. The survey questionnaires were completed and returned by 3,548 individuals before the cutoff date. The estimated harvest and hunter efforts for the 2012-2013 hunting seasons utilized 2,186 responses. According to the responses, the 2012-2013 basic license was not purchased by 71 respondents (~3 percent). The procedures used to calculate the 2012-2013 estimates were the same as those used for the 2011-2012 harvest estimates. The 2012-2013 harvest estimates were extrapolated based on the current year's license sales of 276,203. 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.

Data are summarized in the Federal Aid W-55-27 Annual Report.

WILD TURKEY AND RESIDENT SMALL GAME

WILD TURKEY

A poult production survey was initiated in 1994 to assess annual brood rearing success and monitor long-term production trends. The 2012 survey indicated an improved hatch in four of the five habitat regions. The North Mississippi Delta, Southeast Loblolly Pine, Western Longleaf, and Atchafalaya/South Mississippi Delta all experienced increases in production from the previous year. The Northwest Loblolly/Shortleaf/Hardwood region exhibited a slight decrease in production from 2011.

The most recent turkey hunter survey estimated 19,540 turkey hunters harvested 3,654 wild turkeys during the spring of 2013. These numbers do not include youth and exempted hunters. The wild turkey population in Louisiana is estimated at about 60,000 birds.

LDWF is involved in several wild turkey research projects. LDWF supports a wild turkey research project on Tunica Hills WMA in conjunction with the University of Georgia, with additional support from the National Wild Turkey Federation (NWTf). This project is investigating the movements of male wild turkeys during the spring hunting season. Another project on the Pearl River WMA uses cameras and marked wild turkey gobblers to monitor the site's recovery from Hurricane Katrina. LDWF is also engaged in banding gobblers on the Kisatchie National Forest. Banding and subsequent reporting by hunters of banded gobblers, provides information needed to estimate wild turkey harvest rates. Information collected in 2013 helped justify expanded youth hunting opportunities on Kisatchie for 2014.

QUAIL

Statewide fall whistling counts were conducted on 28 randomly located routes and an additional six routes on LDWF WMAs and the Kisatchie National Forest. Fall whistle counts did not differ among the five habitat types for 2012. All regions exhibited significant long-term (1983-2012) declines in calls per stop. A spring bobwhite survey was also conducted on the Sandy Hollow WMA. 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. Data are summarized in the Federal Aid W-55-27 Annual Report.

A survey of resident license holders indicates that approximately 1,100 Louisiana hunters harvested

8,200 wild quail during the 2011-2012 season. Hunters were also asked about their harvest of pen-raised quail. About 2,000 hunters harvested over 55,300 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 Grant Program have been developed and were operational in 2011-2012.

Average breeding conditions on arctic breeding grounds, and production was slightly above average. The increase in overall goose harvest was entirely accounted for by a 175 percent increase in light goose harvest (snow and Ross'), which overwhelmed the 35 percent reduction in Canada goose harvest and 31 percent reduction in white-fronted goose harvest. The total state-wide goose harvest comprised of 53 percent light geese, 41 percent white-fronted geese, and 6 percent Canada geese.

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 2013 returned to traditional methods in northeast and central Louisiana when last year's transect based survey could not be continued due to unexpected loss of observers and limitations on aircraft. Efforts to generate more scientifically sound, statistically based estimates of ducks and geese using that region will be made in the future as part of an effort with partners in Arkansas and Mississippi to produce a multi-state survey of waterfowl in the Mississippi Alluvial Valley using consistent methods. Survey methods in all other areas of Louisiana remained consistent with past years. The 2013 mid-winter inventory indicated 3.13 million ducks and 571,000 geese wintered in coastal marsh and inland areas of the Mississippi Delta. That was 11 percent fewer ducks than 2012 but only 5 percent below the most recent 10-year average. Similarly, that was 32 percent fewer geese than in 2012 and 15 percent below the most recent 10-year average.

For the first time since 1975, Louisiana increased the number of zones for waterfowl hunting and implemented East, West and Coastal zones to provide more targeted season dates in each region of the state and offer additional opportunity

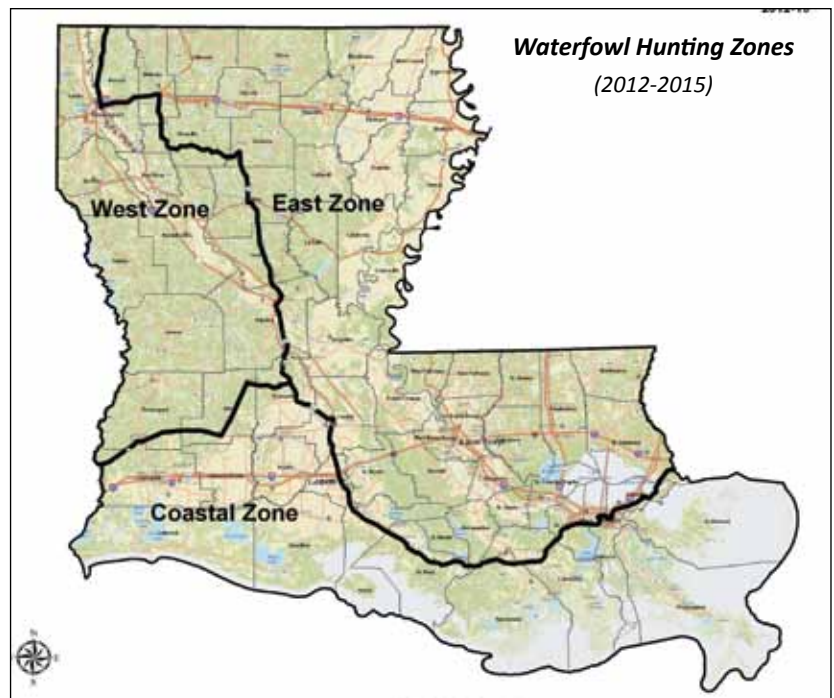
during the 2012-2013 season (*Figure 1*). Based on federal harvest estimates, 103,600 active duck hunters harvested 2.76 million ducks. This represents a 6.3 percent increase in the number of duck hunters and a 1.8 percent decline in duck harvest compared to the previous year. Furthermore, it is the seventh consecutive year of increasing hunter numbers since the 2005 season following hurricanes Katrina and Rita. Species composition in the 2012-2013 harvest included 25 percent gadwall, 21 percent blue-winged teal, 16 percent green-winged teal, 7 percent scaup, 6 percent wood duck, 6 percent mallards, and 5 percent ring-necked ducks. Shoveler, mottled duck, pintail, wigeon, canvas-back, and redhead comprised the remainder.

Louisiana goose hunters harvested 54,000 geese during the 2012-2013 waterfowl hunting season; a 27 percent decline from the previous year, renewing concerns about Louisiana's declining goose harvests. This spring was the third consecutive year of at least average breeding conditions on arctic breeding grounds. Production was expected to be about average, but the migration into Louisiana was extraordinarily late. Some central Louisiana habitats had no snow or white-fronted geese use until January. The decrease in overall goose harvest was mostly due to a 41 percent decline in snow goose kill, but harvest of all goose species declined at least 10 percent from last year. The goose harvest was comprised of 52 percent white-fronted geese, 46 percent white-fronted geese, and 2 percent Canada geese.

NORTH AMERICAN WATERFOWL MANAGEMENT PLAN (NAWMP)

Louisiana continues to play an important role in the NAWMP. LDWF strives to maintain ongoing projects and other activities associated with NAWMP. In FY 2012-2013, North American Wetland Conservation Act (NAWCA) project construction was initiated on Sherburne's South Farm and Russell Sage's Pump Trail Road green-tree reservoir. Work on the South Farm project included drilling a new water well, installation of an electric powered pump, associated pipeline, water delivery infrastructures, installation of new water control structures, and construction of a new levee. Work yet to be completed on the South Farm includes land levelling to improve moist soil management capability and increase wetland acreage. Enhancement work on Russell Sage included initiating repair to a damaged spillway and site preparation for the installation of a re-lift pump on Bayou Lafourche. Contractor and weather delays necessitate extending both of these projects into next fiscal year. Duck Stamp funds were used to complete shortfalls

FIGURE 1.



Bayou Pierre pump.

from previous NAWCA grant projects on Bayou Pierre and Buckhorn WMAs. Activities on Bayou Pierre included removing a dilapidated water control structure, swale excavation to improve water delivery and drainage, and installation of two new water control structures, pipes, and associated erosion fabric and rip-rap. Activities on Buckhorn included replacing a dysfunctional concrete outfall structure with a pipeline and road and swale improvements caused by water damage. Similar additional wetland enhancement activities were conducted on Loggy Bayou and Soda Lake WMAs using partner and non-government organization funding. Duck Stamp funds were also used to initiate installation of a large re-lift pump on Ouachita WMA and replacement of two

dilapidated water control structures. This project will be completed during next fiscal year. Another Duck Stamp funded project included water well and pipeline upgrades on Bayou Macon WMA. Water delivery was increased from 1800 GPM to 2900 GPM which will improve management capacity and reduce man power. The addition of a short pipeline will allow flexibility to manage units independently.

Efforts to chemically and mechanically treat invasive vegetation on Catahoula Lake were moderately successful with a short window of favorable lake levels. Herbicide spraying, bush hogging and bulldozing activities are planned for summer 2014 pending favorable lake levels. Herbicide ap-



Staff collecting wood ducks from rocket net.

plication and substantial mechanical treatments are planned for Sherburne's Des Ourses Swamp and North and South farms, Bayou Macon, Buckhorn, and Boeuf during summer 2014. Many other mechanical, chemical and prescribed fire treatments are planned on other WMAs to invigorate wetlands.

Construction of a 3,007-acre greentree reservoir on Dewey Wills WMA likely will begin during FY 2013-2014. This work includes construction of a large canal gate, installation of several weirs and screwgates, and elevating Hunt Road and an ATV trail. Preliminary investigations into habitat development opportunities on Wham Brake are being conducted. Survey and LIDAR data will be used to guide future project development. Lastly, permanent and higher capacity water delivery systems are being researched for two locations on Boeuf WMA.

WOOD DUCKS

During 2012-2013, LDWF banded 3,227 wood ducks which was a substantial increase over last year's 2,456, and was a new high for the second consecutive year. This unprecedented success was due to increased effort and success in all regions of the state following mandatory training courses held by the NAWMP Coordinator and Turkey Program Manager to improve trapping techniques and rocket-netting skills combined with continued maintenance and intense trapping at stations established last year near Baton Rouge. Pre-season rocket-netting accounted for 2,790 of the total bandings, and 437 hens were captured in nesting boxes. In addition, 1,047 black-bellied whistling ducks were banded during the winter. Although this is 42 percent lower than winter of 2011, it is still the second highest

number banded by LDWF, and birds were banded at new locations to support an expanded effort to obtain information on movement and survival of these birds to support future harvest management decisions.

The wood duck nest-box program completed its 24th year in 2013. LDWF personnel are maintaining 2,070 boxes currently in use. That is fewer than the 2,269 in use in 2012 because of substantial loss of boxes to Hurricane Isaac in southeast Louisiana. In addition to replacing lost boxes, staff continues to replace and relocate LDWF-maintained boxes. LDWF's focus is to replace old boxes that are productive, move boxes that are not successful into more productive habitat, and expand the number of boxes through growth in the Private Lands Program. Utilization is monitored currently at 1,777 boxes, also reduced from last year's 1,969 monitored boxes due to the loss of nest boxes. Utilization has ranged from 45-100 percent in past years with an average utilization of about 80 percent.

LARGE CARNIVORE PROGRAM

BEAR RESEARCH

The Louisiana black bear is designated as a threatened species under the Endangered Species Act. LDWF's bear research efforts are targeted at gathering information that will enable the department to remove the Louisiana black bear from the threatened list and effectively manage for sustainable black bear populations. There were 13 bears captured for research purposes. Bears were either marked and collared or marked based on age class and sex.

BEAR POPULATION VIABILITY

Tensas Study Area

Hair sampling to estimate population size at Tensas began in 2006. An M.S. thesis was completed by Hooker (2010) detailing analyses from 2006-2008. Based on those data, apparent survival (ϕ) was 0.91 (95% CI = 0.62-0.98). Model-averaged estimates of abundance for females were 143 (95% CI = 113-204), 106 (95% CI = 83-151), and 133 (95% CI = 100-195) and for males were 198 (95% CI = 117-360), 116 (95% CI = 69-209), and 185 (95% CI = 112-323) during 2006, 2007 and 2008, respectively. Mean population size for both genders averaged across years was 294 (SE = 31) and density was 0.66 bears/km² (SE = 0.07). We extended hair sampling through 2011 to refine our parameter estimates and to better estimate inter-annual stochasticity, which is essential for population viability analysis. Sampling was completed in 2009-2011, with 3,862, 8,148, and 5,838 hair samples collected, respectively.

During 2012, the monitoring program for the Tensas and the Upper Atchafalaya River Basin population was initiated. Sampling for mark-recapture DNA analysis was modified by reducing the number of sessions from eight to three to track changes in population trend over time. Summer hair-snare surveys were conducted again in the Tensas River Basin during 2013. Samples were collected from 154 sites per week resulting in 1,937 samples.

VHF signals were monitored by fixed-wing aircraft across all study areas for 34 bears fitted with VHF-only radio collars and one bear fitted with a GPS-VHF radio collar during each month of this reporting period. Locations were obtained for the GPS-VHF bear. Signals were active in all months for all but one VHF-only bear, which was found to have dropped its collar. Additionally, one VHF-only bear was euthanized by LDWF personnel due to repeated human-bear conflicts. Analysis of reproductive data and known-fate survival data collected in the Tensas River Basin and Three Rivers Complex since 2002 has been completed. The analysis of reproductive and survival data based on radiotelemetry will be included in a Ph.D. dissertation expected in 2014.

Pointe Coupee Study Area

Field research at Pointe Coupee began in May 2007. We baited and checked 115 hair traps weekly for 10 weeks during each summer from 2007 to 2009 from which we collected 432, 981, 1,564, and 3,451 hair samples, respectively. DNA was extracted from those hair samples and microsatellite genotypes were used to identify individuals. Encounter histories were analyzed using the

Huggins full heterogeneity estimator in a robust design framework in Program MARK. M.S. candidate Carrie Lowe completed her thesis titled “Estimating Population Parameters of the Louisiana Black Bear in the Upper Atchafalaya River Basin” (Lowe 2011). Apparent survival was 0.91 (SE = 0.06) and did not vary by gender or year. There was some evidence of temporary emigration for males only (0.10, 95% CI = 0.001–0.900). Overall mean weekly capture probability was 0.12 for males (SE = 0.03) and 0.25 for females (SE = 0.04). Recapture rates indicated a positive behavioral response to capture. Model-averaged mean annual abundance was 56 (SE = 4.5, 95% CI = 49–68). Lowe (2012) estimated population density using spatially-explicit maximum-likelihood methods; model-averaged density was 0.15 bears/km² (SE = 0.03). Her results updated previous abundance estimates for the bear sub-population and will be used in a population viability analysis to determine if recovery criteria for the Louisiana black bear have been met. A second M.S. candidate, Kaitlin O’Connell, began work to update that estimate and other population parameters in 2010, collecting 3,437 hair samples, 161 of which were genotyped. Of those samples, 42 individual bears were identified, 31 of which were recaptures from previous years.

Due to record flooding on the Mississippi River, the U.S. Army Corps of Engineers (USACE) opened the Morganza Flood Control Structure in May 2011, which flooded the study area inside the spillway levees with relief water from the

Mississippi River. Water levels reached depths of 2-5 m within the 150 km² of habitat impacted by the flooding and remained for several weeks. Our two smaller study areas outside the spillway were minimally affected. The impacts of this unprecedented flooding on the resident bear population in the floodway are unknown and could conceivably jeopardize recovery of the species. Therefore, cooperators extended the study to document the effects of the flooding event on bear population dynamics and distribution, and the longer-term impacts after water levels recede.

Intensive monitoring of radiocollared bears affected by the flooding began on May 25, 2011. We collected 184 VHF radiolocations on 13 female bears. Twenty-two flights were conducted weekly, ending on Oct. 27, 2011. Six of the 13 VHF radiocollared bears were in areas affected by flooding along the Mississippi River and associated tributaries (5) and within the Morganza Floodway (1). There was one male bear in the Floodway that was equipped with a GPS collar at the time of flooding. We downloaded 541 GPS locations from that collar.

Bear LDWF11 was first located on May 25, 2011 in an area in the southern portion of the Floodway just north of Hwy 190. Water was reported in the area at that time. This bear remained within the spillway until her last radiolocation on Oct. 27, 2011. LDWF11 was known to have had a cub prior to the flooding but was observed without the cub and in the company of an adult male af-

ter the water receded. We presume the cub died from the flooding. Bear D17 was located in the Lake Ophelia NWR on May 25, 2011. Although this is about 60 km north of the floodway, flooding was reported in the area from the Red River. She remained in the NWR until June 23, 2011 when her collar dropped off. Bear T1 was located in Three Rivers WMA on May 25, 2011. Flooding was reported in the area from the Red River. Bear T1 remained in the WMA but generally moved to higher ground until July 22, 2011 when her collar dropped. Bear T52 was also on the Ophelia NWR where she remained during the entire monitoring period from May 25 to Oct. 27, 2011. Some flooding was reported in this area, but a number of non-flooded wooded areas were present as well. Bear T2 was located on the Dewey Willis WMA on May 25, 2011. Flooding was reported in the area from the Red River. She remained in the area until June 15, 2011 when her transmitter battery likely died. Finally Bear D5 was located on a ridge surrounded by flood waters on the Three Rivers WMA on May 25, 2011. Bear D5 left the ridge on June 23 after flood waters had receded.

Bear G6, a GPS-collared bear had established a home range consisting of the entire floodway after being collared on July 3, 2010. On May 21, 2011, G6 was in the northern portion of the floodway, near the spillway gates. On May 22, 2011, G6 moved 17.2 km southeast and established residence in a woodlot east of the Floodway. He remained in this area until his last location on June 5, 2011.

We recorded no mortalities of collared bears, but one uncollared female was struck by a train on a trestle within the floodway. She was lactating and we therefore presume the cub(s) were lost as well. We were aware of no other adult bear mortalities, though deer and hog mortalities were numerous. The two telemetered bears within the Morganza Floodway exhibited different responses to the flooding. LDWF11 remained in the flooded area during the entire time of monitoring, presumably utilizing trees and small patches of elevated ground to escape the water. G6, on the other hand, left the floodway soon after flooding began. Female bears have small home ranges and are reluctant to disperse compared with males. Also, LDWF11 had a cub when the flooding began. Those factors may have contributed to LDWF11 remaining in the inundated area.

M.S. candidate Kaitlin O’Connell successfully defended and published her thesis titled “Population Dynamics of the Louisiana Black Bear in the Upper Atchafalaya River Basin” in August 2013. She collected hair samples from 2010-2012 in a DNA mark-recapture study to augment data collected from 2007-2009 in the Upper Atchafalaya



River Basin to estimate abundance (N), growth rate (λ), and apparent survival rates (ϕ) to ultimately be used in a population viability analysis. In addition, she evaluated the effects of the opening of the Morganza Spillway in 2011 which flooded >50 percent of the Upper Atchafalaya River Basin study area. Average abundance from 2010 to 2012 was 62.1 (SE = 3.6) and averaged across all years of study (2007–2012) was 57.6 (SE = 2.2), excluding the year of the flooding event. Population growth rate indicated an increasing population, averaging $\lambda = 1.11$ across all six years of the study and mean apparent survival rate was 0.83 (SE = 0.01). Estimates of transition rates (ψ) from the flooded to non-flooded areas increased slightly during the flood year indicating that some bears left the floodway but most did not. Apparent survival did not change for flooded or non-flooded areas during the period of flooding. These results will ultimately be used as part of a population viability analysis to estimate the sustainability of the Louisiana black bear population. Kaitlin also presented a paper at the 19th International Association for Bear Research and Management Conference in Provo, UT in September.

A reduced monitoring program was initiated on the Upper Atchafalaya River Basin in 2013. Sample were collected for three weeks (95 sites per week) resulting in collection of 1,666 samples.

Coastal Study Area

M.S. candidate Jesse Troxler successfully defended and published his thesis titled “Population Demographics and Genetic Structure of Black Bears in Coastal Louisiana” in August 2013. Using non-invasive methods, he collected 3,698 hair samples during three summers and used DNA to identify 190 individuals. The abundance estimate was 77 for females (95% CI = 66–89) and was 61 for males (95% CI = 53–69). Population growth rate was negative from 2010–2011, positive from 2011–2012, and averaged 1.08. Apparent survival ranged from 0.83 to 0.89 depending on sex and year. Population density was 0.35 bears/km² (95% CI = 0.30–0.41). Principal Coordinate Analysis and assignment tests revealed two genetic clusters within the population. Migration rates were male-biased and higher than expected based on genetic structure. The population appears to be recovering from past fragmentation, but evidence for a bottleneck was inconclusive. These results will ultimately be used as part of a population viability analysis to estimate the sustainability of the Louisiana black bear population. Jesse also presented a paper at the 19th International Association for Bear Research and Management Conference in Provo, UT in September.

Immigration and Emigration Corridors

We equipped eight female and 23 male bears with GPS radio collars from April 2010 to April 2012 ranging from 1 to 11 years of age. Most of the bears were young, with 18 of the males and four of the females being ≤ 3 years of age. We obtained 5,400 fixes for females and 30,832 for males from October 2011 to October 2012. Analyses are underway to determine factors affecting bear movements on the landscape and the rate of interchange among subpopulations. Genetic assignment tests are also underway to estimate interchange rates.

BEAR MANAGEMENT

LDWF biologists met with USDA Natural Resource Conservation Service (NRCS), USFWS, and other partners to determine what restoration programs were available within bear range. LDWF Private Lands biologists worked to identify landowners willing to pursue habitat restoration within the Louisiana black bear corridor. The Private Lands biologists are in the process of connecting these landowners with the restoration program that will best suit their needs. LDWF interviewed and hired a new Large Carnivore Biologist to fill a vacancy in the program. The LDWF Large Carnivore Program Manager set up bi-monthly intra-agency meetings to begin work on a Louisiana Black Bear Management Plan. The LDWF Large Carnivore Program Manager attended the Eastern Black Bear Workshop which focused on population monitoring. The Large Carnivore Program Manager also attended the SEAFWA Large Carnivore Working Group meeting. Work continues on updating the BearTrak database. Work with U.S. Geological Survey is ongoing to create reports for this database and continue to correct discrepancies. The Large Carnivore Program Manager held two Louisiana Black Bear Task Force meetings. The Louisiana Black Bear Task Force was formed through the Large Carnivore Working Group to facilitate communication between the state and federal agencies responsible for managing the Louisiana black bear population. We coordinated and supervised the hair-snare project in Tensas and Pointe Coupee parishes during the months of May and June. Program staff performed den visits during the months of February and March. Program staff deployed cameras to survey bear use under the bridges on I-20 within bear range. Data collection from these cameras is on-going. The Large Carnivore Program Manager has worked with the Department of Transportation to upgrade the fencing along I-20 to funnel bears to existing bridge crossings. The LDWF Program Manager worked with Hunter Education to develop bear presentations and teacher workshops. A Louisiana black bear teacher workshop was presented through the Endangered Species Educa-

tion biologist under the Environmental Education Program. A new webpage on bears has been developed to be placed on the front page of the LDWF website. Paragon Productions and Kate Marshall Productions worked with LDWF biologists to obtain bear film to use on their program. BBC filmed with the Large Carnivore Program Manager for an Animal Planet documentary on the Atchafalaya Basin. Louisiana Public Broadcasting (LPB) filmed the Large Carnivore Program throughout the year to produce the bear segment of the “Alive” series. The LDWF Program Manager participated in Hunting and Fishing Day at Tensas River NWR and the Bayou Teche Bear and Birding Festival. LDWF continues to work with the USFWS Endangered Species office on recovery goals and project review. Program staff worked with Palmetto State Park to eliminate bear access to camper garbage. Plans are underway to request the garbage contractor to replace all existing dumpsters with bear-proof dumpsters. LDWF personnel responded to bear 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. Eight management captures of bears were undertaken to address nuisance behavior reported to LDWF. There were 18 bear mortalities documented in FY 2012–2013.



Bear Safety In Mind

The Bear Safety In Mind program is a cooperative program with St. Mary Parish government. The goal of the program is to inform and work with parish residents to minimize or avoid conflicts with bears.

Objectives

Primarily, the objectives of this project are two-fold:

1. To minimize human/bear conflicts by providing for personnel and equipment to implement bear-proofing systems to households in areas of the state that experience the highest amount of conflict.
2. In addition, industrial complexes adjacent to these areas will also receive technical assistance to bear-proof their facilities.

Accomplishments

- Maintain close communications with biologist to assist specific call areas by working closely with callers reporting the nuisance bear behavior to ensure all bear proofing efforts are being implemented.
- Daily monitoring of bear proof cans to assist homeowners and industrial complexes with questions, damages and procedures to further bear proof their property and facilities.
- Maintain close communications and work with Roddie Matherne, Division Manager; Robert Stesney, Operations Manager and Kuchonnie Lewis, District Manager of Progressive Waste Solutions to resolve damage/maintenance issues, customer concerns and proper can distribution of the bear proof cans.
- Coordinated with 4-H Junior Leaders of St. Mary Parish, Progressive Waste Solutions and LPB on Nov. 10, 2012 and completed the first of three Service Learning outreach activities consisting of a door to door campaign using a door knob bag containing black bear safety information, proper usage tips for the black bear garbage cans provided by Progressive Waste Solutions (the contracted waste removal company), along with LDWF informational brochures and general contact information to report nuisance bears.
- Worked with LPB in conjunction with their endangered species in Louisiana documentary - highlighted Kemper Williams Park as a bear free facility since December 2010.
- Venise Ortega and Carrie Salyers (LDWF) participated in the Keep Louisiana Beautiful Conference in New Iberia.
- Coordinating with 4-H Junior Leaders of St. Mary Parish, The Town of Berwick, and the

Homeowner's Association of Renwick Subdivision to implement for a fourth Service Learning outreach activity consisting of a door to door campaign using a door knob bag containing black bear safety information for residents not using bear proof garbage cans, specific garbage can ordinances, state laws making it illegal to feed black bears, and contact information for the LDWF & Black Bear Conflict Office.

- Continue to work on the Board of Directors with the Bayou Teche Black Bear Festival.
- Working with 4-H agents of St. Mary Parish and the Elementary Education Supervisor for St. Mary Parish Schools to provide educational binders containing black bear materials to all elementary and middle schools in St. Mary Parish - five out of 20 schools have been issued the educational material and are using the information.
- Participated with New Iberia 4-H. Mindy Hotard, 4-H agent, provided Bear Safety presentation to all Iberia Parish schools participating in the Ag Days event.
- Extra monitoring has been given to the Hunting Road area in Ricohoc since early April due to the purchase and distribution of a new reinforced style Bear Saver bear proof garbage cart by Progressive Waste Solutions.
- Provided various interviews and information to TV, radio and newspapers during nuisance bear activities in the Patterson area.
- Assisted Maria Davidson, Fred Kimmel and Michael Drewry in Patterson Town Hall Meeting in conjunction to nuisance bear activities.
- Received the Louisiana Wildlife Federation's Conservation Award in conjunction with the team work associated with the St. Mary Parish 4-H Club and Junior Leaders.

WILDLIFE DISEASE

The statewide Wildlife Disease Program was administered by the State Wildlife Veterinarian. An assistant state wildlife veterinarian began work for LDWF this year.

Chronic Wasting Disease (CWD) surveillance continued as 21 samples were submitted from all regions of the state to the Southeastern Cooperative Wildlife Disease Study laboratory. Due to cessation of federal funding for this program, only target animals such as neurological or emaciated deer, deer hit by cars, deer harvested adjacent to captive cervid facilities, and escaped exotic cervids were tested.

A severe statewide and nationwide outbreak of hemorrhagic disease caused by Epizootic Hemor-

rhagic Disease-6 was observed during the summer and fall. LDWF received nearly 200 reports of dead deer. Extrapolation suggests that thousands of deer died or were affected by this disease during 2012.

A study funded by the USFWS was continued on Catahoula Lake to determine the status of lead shot consumption by ducks and to evaluate and compare the current lead shot content of soil with historical levels.

Surveillance of feral swine for Brucellosis and Pseudorabies was continued this year, with nearly 1,000 animals tested. To date, sampling has revealed a 3.5 percent incidence of Swine Brucellosis and an 8.4 percent incidence of Pseudorabies. Surveillance efforts will continue. Additionally, LDWF cooperated with LSU and University of Louisiana at Monroe graduate students to investigate seasonal and regional variations in the reproduction of feral swine.

A study was initiated in response to a Leptospirosis-induced abortion storm in cattle in Northwest Louisiana in which aborting deer were also noted. Deer and feral swine were tested for serological titers to leptospirosis. Results showed deer with high titers to leptospirosis which could have caused the outbreak. Additionally, approximately 80 percent of the feral swine had significant leptospirosis titers with nearly 12 percent having very high titers indicating active infection. Surveillance for leptospirosis will be continued and expanded statewide.

A multi-year study of deer liver copper levels was continued this year. Copper is a micronutrient necessary for reproduction, health maintenance and phenotypic characteristics such as hair and antler growth. The results of these tests will be used along with regional harvest data to determine if micronutrient deficiencies play a part in regional reproductive, size and antler mass variations in Louisiana's white-tailed deer herd. A graduate student for the University of Louisiana at Monroe will compile and analyze this data for her Master's thesis.

A canine distemper outbreak in raccoons surfaced statewide with the majority of the cases reported in the Florida Parishes westward to the Atchafalaya basin. We will continue to monitor these cases.

Songbird salmonellosis related to contaminated bird feeders was reported statewide with most cases being from the Florida Parishes.

LAND DEVELOPMENT & MANAGEMENT

LAND ACQUISITION

Land acquired for the express purpose of establishing WMAs and refuges is the most effective means to protect, conserve, replenish and manage the natural resources and diverse wildlife habitat of the state. In 2013, LDWF acquired over 12,507.44 acres of land, more or less, to provide public recreational opportunities and to conserve the state's diverse wildlife resources indigenous to the respected areas.

LDWF acquired a 247-acre tract from The Nature Conservancy and established it, by resolution of the Wildlife and Fisheries Commission, as the Ben Lilly Conservation Area in Morehouse Parish. Next, LDWF acquired 7,570.44 acres in the form of two donations from the International Paper Company. By resolution of the Wildlife and Fisheries Commission, LDWF incorporated the first donation of 4,954 acres into the Russell Sage WMA in Ouachita Parish and used the second donation of 2,616.44-acres, to establish the Bussey Brake WMA in Morehouse Parish.

In addition, LDWF added 4,690 acres to the Maurepas Swamp WMA following a donation by the Coastal Rental Corporation and the Boyce

Family Trust to LDWF thereby increasing the Maurepas Swamp WMA's total acreage to over 120,000 acres. Currently, Maurepas Swamp is LDWF's largest WMA.

WILDLIFE MANAGEMENT AREAS

The Wildlife Division of the LDWF currently manages over 1.1 million acres in its Wildlife Management Area 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, conserve the state's diverse wildlife resources, 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

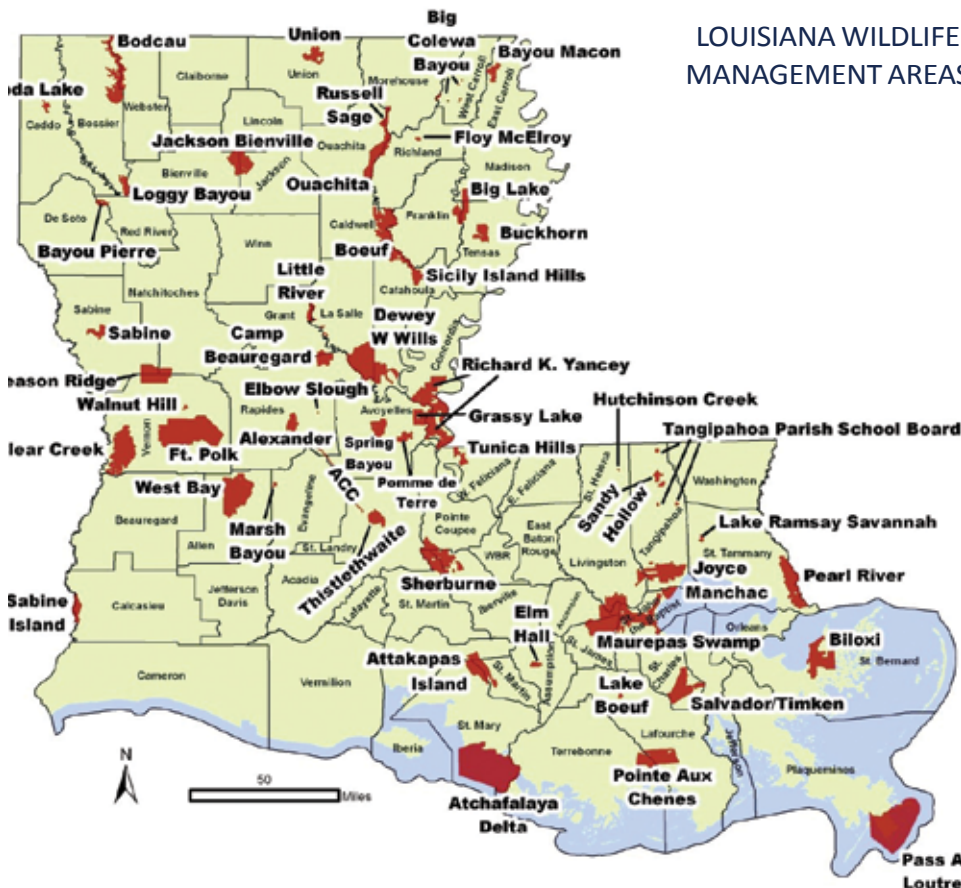
riding, and berry picking. Habitats range from upland pine-hardwood, to cypress tupelo, pine savanna, bottomland hardwood, brackish marsh, and the list goes on with many globally rare habitat types and plant communities as well. For administrative and management purposes, the WMAs are grouped by ecoregions - Gulf Coastal Plain (east and west) and Mississippi Alluvial Valley (north and south).

WEST GULF COAST PLAIN (WGCP) WMAs

(370,861 acres):

- Alexander State Forest
- Bayou Pierre
- Bodcau
- Camp Beauregard
- Clear Creek
- Elbow Slough
- Fort Polk
- Jackson-Bienville
- Loggy Bayou
- Marsh Bayou
- Peason Ridge
- Sabine
- Sabine Island
- Soda Lake
- Union
- Walnut Hill
- West Bay

LOUISIANA WILDLIFE MANAGEMENT AREAS



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

A total of 101,564 user days were estimated for WGCP WMAs during FY 2012-2013. 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 9,504 hunter efforts accounting for 1,171 deer harvested.

Guided youth-only lottery turkey hunts were conducted on Ft. Polk, Jackson-Bienville, Loggy Bayou and Union WMAs. In addition to the regular physically challenged hunts scheduled on several WMAs, a lottery physically challenged hunt was conducted on Sabine WMA. The Sabine physically challenged hunt is conducted in conjunction with the local organization known



Ft Polk/Peason Ridge WMA youth turkey hunt

as HELP (Hunters Enriching the Lives of People). Persons participating in the hunt are provided food and transportation to blinds and assisted with recovering/cleaning deer and any special needs. The hunt is intended to get people into the field that may not otherwise have an opportunity to hunt.

Except for Bayou Pierre, Elbow Slough, Marsh Bayou and Walnut Hill, which are owned by LDWF, at least a portion of the remaining WGCP WMAs are leased free of charge to LDWF for public use from the landowners (Forest Capital Partners LLC, Roy O. Martin, Plum Creek, U.S. Army, U.S. Forest Service, Forest Investments, Calcasieu School Board, Molpus, Weyerhaeuser and the State of Louisiana). 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.

WGCP 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. WGCP personnel handled a large number of resident alligator hunting applications, issuing public lake and private land licenses, as well as processed nuisance complaints. A total of 279 wood duck nesting boxes were maintained and monitored by WGCP WMA personnel.

An ATV trail project designed to develop and enhance a year-round ATV trail was completed in June of 2013 on Bayou Pierre WMA. This trail provides ATV access and opportunity on a WMA in which such access and opportunity did not exist.

Personnel also reviewed and monitored oil and gas exploration activities and interstate pipeline installations on several WGCP WMAs.

EAST GULF COAST PLAIN (EGCP) WMAs

(198,377 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 87,765 user days were estimated for EGCP WMAs during FY 2012-2013. An alligator season was available on Joyce, Manchac, Maurepas Swamp, and Pearl River WMAs with a harvest of 1,063 alligators by 15 commercial alligator trappers. Recreation alligator harvest opportunities were also made available to the public. To facilitate recreational alligator harvest, 60 additional people were selected by lottery and harvested an additional 140 alligators on these four areas. EGCP 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 1,347 hunter efforts with a total of 81 deer harvested.

On Sandy Hollow WMA, the USDA-NRCS Wildlife Habitat Incentive Program (prescribed burning) and cogongrass control projects were completed. Three miles of bird dog field trial courses were maintained, as well as six dove fields and 10 acres of food plots for upland birds. Alligator egg collections were monitored by EGCP personnel on Manchac, Pearl River and Maurepas Swamp WMAs. A total of 12,840 eggs were collected.

EGCP personnel maintained 15 wood duck boxes. Prior to Hurricane Isaac, 192 boxes were maintained but were destroyed. Plans are in place to replace these 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 CWD testing. EGCP personnel continued to work with the deer program manager to collect deer reproductive data to better understand deer breeding periods within the ecoregion.

An ATV trail project designed to restore and enhance an existing trail back to safe, usable condition, as well as enhancement to ATV parking areas, was completed on Tunica Hills WMA in June 2013. This project enhanced the well utilized and popular trail.

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

(128,736 acres):

- Bayou Macon
- Big Colewa Bayou
- Big Lake
- Boeuf
- Buckhorn
- Floy Ward McElroy
- Ouachita
- Russell Sage
- Sicily Island

The primary habitat type found on MAVN WMAs is the Mississippi River Alluvial Valley bottomland forest, with the exception of Sicily Island Hills 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 forest hardwood spe-

cies. Moist soil management units and greentree reservoirs are managed to provide habitat for waterfowl and other wetland birds.

MAVN biologists conducted a wide range of activities including research and surveys involving mourning doves, Canada geese, wood ducks, wild turkey, bald eagles, bobwhite quail, shorebirds, white-tailed deer, and other species. 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 numerous additional projects.

Recreational opportunities were provided to thousands of hunters, fishers, campers, sightseers and other public users. A total of 83,757 user days were estimated for MAVN WMAs during FY 2012-2013. Deer hunting was the most popular utilization of these WMAs with 15,193 hunters harvesting 758 deer during the either-sex gun, primitive weapon and archery hunts. Youth deer and dove hunters on Big Lake, Boeuf, Buckhorn, Ouachita, Russell Sage and Floy McElroy WMAs had a successful season. A deer hunt for women who participated in the Becoming an Outdoors Woman program was conducted for the first time on Floy McElroy WMA. Deer and waterfowl hunting opportunities were provided for wheelchair confined hunters on Big Colewa Bayou, Buckhorn and Ouachita WMAs. Turkey hunting was provided on Bayou Macon, Big Lake, Boeuf and Sicily Island Hills WMAs. Bayou Macon, Big Lake, Boeuf, Buckhorn, Ouachita and Russell Sage WMAs provided quality waterfowl hunting for 14,044 hunters, including some who traveled from out of state. The largest greentree impoundment on Russell Sage WMA was undergoing renovation and not available to duck hunt-

ers, thus reducing the potential number of hunting efforts. A total of 7,636 small game hunters enjoyed hunting on MAVN WMAs. Wham Brake was donated to LDWF in December 2012, and was adopted as part of Russell Sage WMA by the Louisiana Wildlife and Fisheries Commission. This donation resulted in the addition of 4,441 acres to the make the WMA a total of 21,514 acres.

MAVN WMA technicians performed a variety of development and maintenance functions such as boundary marking, road maintenance, water control structure operation, moist soil management, timber marking, shorebird management, beaver and other nuisance animal control, farm contract supervision, equipment maintenance, public user data collection, vegetation control, food plot planting, and reforestation. They also assisted biological staff in conducting managed hunts and research projects. A total of 293 wood duck nesting boxes were maintained and monitored by MAVN WMA personnel.

The "Wish I Could ATV Trail Ride," an annual one-day ATV trail riding event, was held on Boeuf WMA in June 2012. The event attracted 2,700 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 (257,999 acres):

- Acadiana Conservation Corridor
- Attakapas
- Dewey W. Wills
- Elm Hall

- Grassy Lake
- Little River
- Pomme de Terre
- Richard K. Yancey
- Sherburne
- Spring Bayou
- Thistlethwaite

Catahoula Lake is an additional area of responsibility, encompassing upwards of 30,000 acres. One USFWS Refuge (Atchafalaya NWR) and two USACE properties (Bayou des Ourses and Shatters Bayou) are also managed within the MAVS.

Habitat types range from mixed pine-hardwoods to backwater bottomland hardwoods interspersed with agricultural lands, and cypress-tupelo swamps to open-water areas.

MAVS 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 other state agencies, USFWS, USACE, Louisiana Department of Natural Resources, Louisiana Department of Environmental Quality, USDA, and local parish entities. MAVS 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 221,807 user days were estimated for MAVS WMAs during FY 2012-2013.

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 over 8,080 user-days recorded and over 602 deer harvested. An additional 1,034 deer were harvested during other either-sex, bucks-only, youth/handicapped, archery and muzzleloader hunts, where self-clearing permits were utilized. Turkey hunts were held on seven WMAs, where 34 turkeys were harvested by an estimated 1,141 users. This includes 26 youth hunters who participated in the Sher-



Russell Sage RTP project

burne, Spring Bayou, Grassy Lake, and Pomme de Terre WMAs youth lottery hunts. A member of NWF or MAVS staff member served as a guide for each youth hunter to ensure a quality hunt and teach youth safe turkey hunting techniques. Squirrel and rabbit hunting is also very popular on the ecoregion's bottomland hardwood WMAs, accounting for over 25,853 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 12,800 for this period. Dove fields are maintained, along with many acres of food plots. Feral hogs have populated many of the WMAs and damaged the resource. Hunting is used as a tool to help reduce feral hog populations. Hog hunting with dogs was allowed under permit.

Biologists and technicians maintain and monitor over 569 wood duck boxes, conduct pre-season wood duck banding, and collect samples for CWD, 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.

Youth lottery deer and duck hunts were also held in MAVS, with great success on these hunts. Eighteen youth waterfowl lottery hunters harvested 104 ducks, for an average of 5.8 ducks per youth hunter. One-hundred and two youth deer lottery hunters harvested 27 deer on 17 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 held in MAVS with much participation and success from this group of hunters.

Alligator applications were reviewed, and licenses and tags were issued to 69 WMA hunters. There were also six WMA alligator hunters who bid on tags on the WMAs, with all but one WMA hunter participating in the season. One hunter was not allowed to hunt, due to failure to follow contract guidelines. These hunters filled 320 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.

Routine maintenance activities on MAVS areas included road grading, culvert replacement, spot road repairs, drainage improvements, beaver control, boundary work, sign replacement, self-clearing station maintenance, vegetation control, equipment maintenance, and facility

upkeep. Efforts to improve the road system on Dewey Wills WMA continue. Spot repairs on all WMA roads were made as funding allowed.

WMA personnel conducted user interviews and operated check stations. Wildlife food plots were also planted on several MAVS WMAs. A handicapped accessible fishing pier located along Big Alabama Bayou on Sherburne WMA was completed.

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 forest/wildlife research activities.

Harvest preparations, including sale layout, inventory, regeneration counts, marking, Geographic Information Systems (GIS) map development, proposal preparations, and sale implementation, were completed on Big Lake, Dewey Wills, Grassy Lake, Lake Ramsay, Ouachita, Red River, Sandy Hollow, Sicily Island, and Tunica Hills WMAs. Harvests to improve wildlife habitat were initiated and/or conducted on Big Lake, Boeuf, Buckhorn, Dewey Wills, Grassy Lake, Red River, and Russell Sage WMAs.

A complete forest habitat inventory was conducted on Buckhorn, Loggy Bayou and Red River WMAs. Approximately 56,459 acres were inventoried this year under an inventory method that measures the current condition of both forest and wildlife variables.

Chemical treatments of invasive/non-native species, primarily Chinese tallowtree and cogon grass, were conducted on Alexander State Forest, Grassy Lake, Hutchinson Creek, Lake Ramsey, Pearl River, Sandy Hollow, and Sherburne WMAs. Beaver control activities continued with beavers removed from Big Lake, Boeuf, Buckhorn, Russell Sage, and Dewey Wills WMAs. Forest health flights were conducted and no significant forest loss was reported this year from beaver or insect activity.

Prescribed burning, both growing season and dormant season, were conducted on Lake Ramsey, Little River, Marsh Bayou, and Sandy Hollow WMAs.

Our reforestation program converted 15 acres of agricultural land on Red River WMA. This area was planted with various species of bottomland hardwood seedlings which will develop into forest land in the future. Seedlings were also supplemental planted on Grassy Lake WMA in order to increase species diversity within the WMA. Hardwood plantations were inventoried and evaluated on Boeuf, Elbow Slough, Ouachita, Red River, and

Sherburne WMAs. A plantation thinning study was developed and initiated on Ouachita WMA in order to investigate wildlife response and tree growth to various silvicultural treatments.

Statewide mast production was determined this year with the annual mast survey conducted on WMAs, refuges, state parks, and private landholdings. The mast survey provides an indication of the future health and abundance of forest wildlife species such as squirrels which depend on mast production.

Growth Monitoring Plots were reevaluated on Lake Ramsey, Little River, and Three Rivers WMAs. These permanent plots aid in monitoring habitat conditions and long-term effects of the forest management program on the habitat components represented on the WMAs.

An avian productivity and survival monitoring project continued on Sherburne and Pearl River WMAs. Results from this study aid in the understanding of avian use of various silvicultural treatments applied across WMAs.

Forestry Section personnel continued to implement the Louisiana Statewide Red-cockaded Woodpecker (RCW) Safe Harbor Program (SHP) to benefit the federally and state endangered RCW. LDWF has entered into a total of 15 Safe Harbor Management Agreements, enrolling 494,855 acres in the RCW SHP with 126 baseline RCW family groups and one above-baseline RCW family groups. LDWF personnel conducted annual site visits to 14 SHP properties to confirm compliance with the voluntary RCW management activities that each landowner agreed to implement on their property and to provide technical assistance regarding RCW management. LDWF hosted a meeting for all SHP participating landowners in Cravens, La. and conducted a field tour of three SHP properties. Forestry Section personnel continue to promote SHP via press releases, presentations at public forums, and the LDWF website.

Forestry Section personnel performed RCW demographic monitoring and management for 13 RCW family groups at Alexander State Forest WMA located in Woodworth. These activities include but are not limited to:

- annual activity status checks of over 200 RCW cavity trees.
- adult RCW capturing and color banding.
- RCW nest checks and nestling color banding.
- RCW fledgling checks to determine survivorship.
- RCW artificial cavity installation and maintenance.
- midstory control in 14 RCW cluster sites.



LEFT: RCW cavity insert installation at Alexander State Forest WMA. CENTER: Prescribed burning on a WMA. RIGHT: TSB biologist on private landowner site visit

- providing technical assistance to Louisiana Department of Agriculture and Forestry staff regarding timber management to benefit the RCW.

Forestry Section personnel performed RCW demographic monitoring and management for 39 RCW family groups located at Jackson-Bienville WMA and other lands owned by the Weyerhaeuser Company. These activities include but are not limited to:

- adult RCW capturing and color banding.
- RCW nest checks and nestling color banding.
- RCW fledgling checks to determine survivorship.
- RCW artificial cavity installation and maintenance

In addition, Forestry Section personnel performed RCW demographic monitoring for one RCW family group at Southeast Louisiana Hospital located in Mandeville and provided training and technical assistance to USFWS staff performing RCW demographic monitoring for 17 RCW family groups at Big Branch Marsh NWR in Lacombe.

The forestry section was involved in several additional research projects involving wildlife response to various forest management treatments. The information gathered from such research is used to adjust habitat management on WMAs and share results with other agencies and organizations managing forest habitat in the state.

Continuing education for the Forestry Section staff occurred through participation at various

symposiums, workshops, seminars, research meetings and conferences throughout the year.

TECHNICAL SERVICES PROGRAM

The Technical Services 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. Most private lands program biologists are responsible for three to five parishes, with those along the coast responsible for six to nine 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 Program, Conservation Reserve Program or Environmental Quality Incentives Program. LDWF technical services 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 technical services 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 2012-2013, Technical Services Program biologists made habitat recommendations impacting 603,422 acres by conducting 325 site visits and delivering 77 written habitat management plans. These same staff members conducted 81 deer browse surveys. They fielded 13,458 requests for information from the public. Under an agreement with USDA NRCS, Private Lands Program biologists conducted 317 inspections of Wetland Reserve Program properties to assess conditions and make recommendations for management. This project provided these biologists an opportunity to impact an additional 80,997 acres of wildlife habitat.

Technical Services Program biologists are actively engaged with other agencies and organizations to coordinate conservation delivery efforts in Louisiana. Program biologists chair the LA Prescribed Fire Council and Louisiana Conservation Delivery Committee. They are also active partners on the Texas/Louisiana Longleaf Pine Task Force, 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.

Technical Services Program biologists are also responsible for carrying out activities such as waterfowl and dove banding, collection of biological data for research, habitat evaluations, disease investigations, administration of the alligator program, delivery of the DMAP program, and public outreach.

EDUCATION

Conservation education is a vital part of the LDWF mission. The Education Program is a component of the Wildlife Division and focuses on three main areas: Hunter Education, Aquatic Education, and General Wildlife Education/Outdoor Skill Development .

Staffing for the Education Program consists of 13 educators who work in the field, three supervisors who have field responsibility in addition to their supervisory duties, one administrative specialist, one education manager, and one education program manager. Three 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 bowhunter education classes cover firearm safety and operation, hunter ethics, principles of wildlife management, and outdoor survival, including treestand 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 home-study course consists of an interactive online or CD based 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 home-study version and provides an opportunity for hands-on learning. Both the classroom course and the home-study 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 1,500 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 2012-2013, 151 new volunteer instructors were trained through 11 instructor courses. A volunteer instructor workshop was held at Camp Grant Walker in Pollock, La. with 123 instructors in attendance. Service and performance awards were presented to volunteer instructors. The time volunteer instructors give to delivery of hunter education classes is used as in-kind match for the hunter education federal grant. In FY 2012-2013, volunteer hunter education instructors contributed 24,180 hours of service time.

STUDENT CERTIFICATION

Total hunter education certifications declined from last fiscal year (17,377 in FY 2011-2012). The home-study version continues to increase in popularity as the number and proportion of students choosing this option increased in FY 2012-2013 (2,935 students for 17 percent in FY 2011-2012). Demand for bowhunter education continues to decline as this requirement is no longer mandatory to hunt with archery equipment on NWR in Louisiana. Certification details are as follows:

Hunter Education

Course Type	# Courses	# Students	Percentile
Classroom Course	398	12,778	81%
Home Study/Field Day	93	3,039	19%
Total	491	15, 817	

Bowhunter Education

Seven bowhunter education classes were offered, with 56 students certified.

HUNTING INCIDENTS

During FY 2012-2013, there were 18 reported hunting incidents involving injury or death. Three of the 18 resulted in fatalities. Five of the incidents involved falls from an elevated stand. The remainder involved firearms. Incidents were compiled and entered into the International Hunter Education Incident Database. Information on these incidents was presented to instructors at the 2013 Volunteer Instructor Workshop. Edu-

cation Program staff and volunteer instructors are placing additional emphasis on treestand safety in their hunter education classes and field days.

Primary causes for these incidents were as follows:

Hunting Incidents (FY 2012-2013)	
Type	# Victims
Victim Moved into Line of Fire	2
Failure to Properly Identify Target	2
Careless Handling of Firearm	5
Firearm Fell from an Insecure Rest	1
Horseplay While Hunting	1
Faulty Equipment	1
Failure to Use a Fall Restraint Device	5
Failure to Check Beyond Target	1
Total Incidents	18

SHOOTING RANGE/TRAINING FACILITIES

Two education centers and four public 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. Accommodations for public use include 25 shooting points on the rifle/handgun range and a shotgun range with four manual and one remote controlled clay target thrower. The range is open to the public three days a week and is staffed by one technician.

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 and receives a high degree of use. The range is staffed by one wildlife technician with assistance provided by the manager and student worker. Volunteer help to operate the range is provided by the Bayou State Muzzleloaders Association and other volunteers. An effort is being made to increase volunteer recruitment to assist with range duties. Volunteers are certified through the NRA Range Officers Safety Course.

Sherburne Shooting Range

Located in Pointe Coupee Parish at the Sherburne WMA, the Sherburne range consists of two shotgun ranges, one archery range, one handgun range, and one rifle range. It is operated by one technician and is open to the public seven days per week.

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. The facility is staffed by one manager and one technician.

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. (SLFS). SLFS 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 SLFS. Some of the SLFS volunteers also serve as hunter education instructors and offer hunter education field day courses at the range.

Volunteer hours accrued from the Woodworth and Pearl River ranges totaled 6,283. These hours are used as in-kind service time to provide match for the hunter education federal grant.

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. The first aquatic education volunteer instructor workshop was held in FY 2012-2013 to train volunteers to deliver aquatic education clinics and train students. During FY 2012-2013, volunteer aquatic education volunteers provided 10,789 hours of service which was used as in-kind match for the aquatic education federal grant.

FISHING CLINICS

Sixty-two aquatic education clinics were held across the state, with 7,198 people participating. Subjects covered in aquatic education clinics include outdoor ethics, fish identification, tackle selection, casting and fishing techniques. Participants also had an opportunity to go fishing. A week-long fishing day camp for youth aged 10-15 was held for the first time at the Woodworth Outdoor Education Center. Twenty youth participated and learned about fishing techniques, fish identification, fish cleaning, boating basics and aquatic ecology.

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" – 5,517 distributed
- "Let's Go Fishing" – 5,220 distributed
- "Finnie the Fingerling" – 2,772 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:

Wetland Education for Teachers (WETSHOP)

WETSHOP was held July 7-12, 2013 at the Grand Isle Marine Laboratory. WETSHOP is a week-long teacher workshop that focuses on the important role wetlands play in our coastal ecosystem. Teachers spent time learning about wetland plant communities, aquatic life, how fragile coastal ecosystems can be, and how to bring this message back into the classroom. Partial funding was made possible through a grant by the Barataria-Terrebonne Estuary Program, who partners with LDWF to host this workshop. Twenty-one teachers were trained and equipped to return to their respective jurisdictions and train additional teachers about bringing wetland education into the classroom.

Coastal Wetland Workshops

Coastal Wetlands Workshops were held to train teachers about wetlands ecology in coastal habitats. "Wonder of Wetlands" manuals and other resources were provided to help prepare teachers to deliver wetland education to their students. Five workshops were held in which 100 teachers were trained.

Hatchery Education

Educational programs were held at the Booker Fowler Hatchery to demonstrate techniques used to raise fish in a hatchery environment. Tours of the hatchery were conducted for school students and the general public. Education materials and special presentations were made avail-



able through the visitor’s center. There were approximately 1,000 students educated through the hatchery aquatic education program during FY 2012-2013.

Native Fish in the Classroom (NFC)

NFC is a multidisciplinary, classroom-based aquaculture stewardship project for middle school and high school students. The goal of the NFC 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 2012-2013 school year, 20 teachers and 1,550 students participated in the NFC project.

GENERAL WILDLIFE EDUCATION AND OUTDOOR SKILL DEVELOPMENT

Education Program staff are involved in a variety of activities beyond hunter and aquatic education. Staff provide information and make presentations on topics of interest to civic or-

ganizations, school groups and others. Outdoor skill development programs and efforts have increased in recent years. 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 hunters, fishers and shooters, the LDWF Education Program has expanded its efforts to recruit and teach skills to new outdoor enthusiasts.

NATIONAL HUNTING & 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, Woodworth Outdoor Education Center and Waddill Outdoor Education Center and Refuge.

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 event was conducted in FY 2012-2013 with 135 participants.

LOUISIANA WOMEN IN THE WILD (LWW)

LWW is a recruitment and retention program that strives to introduce women to the outdoors through hands-on learning. One workshop was

held to introduce the participants to the basics of hunting and another was held to teach fishing basics. Approximately 50 women participated in the two workshops. The hunting workshop was followed by a hunting trip where the workshop attendees were selected by lottery to participate in either a deer or duck hunting trip. The fishing workshop was followed by a fishing trip to Grand Isle for workshop attendees.

FAMILIES UNDERSTANDING NATURE (FUN) CAMP

Families Understanding Nature provides both fun and education to a parent and youth through a weekend of staff-lead outdoor activities. Family members are introduced to archery, rifle and shotgun shooting, kayaking, fishing and camping. The education staff participated in two FUN Camps during FY 2012-2013. One camp was Mother/Child and the other, Father/Child.

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. The curriculum covers archery history, safety, technique, equipment, mental concentration, core strengthening physical fitness, and self-improvement. The ALAS state tournament was held in March 2013 at the mega-shelter in Alexandria. Eighteen schools were represented and 535 archers participated.





COASTAL & NONGAME RESOURCES

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 fisheries and wildlife species, RWR is also considered an “outdoor laboratory,” with the property serving as a site for marsh-related research pursued by RWR staff, collaborators, 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 contributed over 500 professional and popular publications, as well as contributed papers to professional conferences and to a

Snow Geese



wide array of audiences. 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.

POST-HURRICANE CONSTRUCTION/REPAIRS

RWR personnel and administrators continue to work with FEMA to move post Hurricane Rita and Ike construction projects forward. In 2012-2013, construction was started on the four residences, the Lake 2 nature drive, and the Price Lake fishing piers; all projects anticipate completion in 2013-2014. Construction was completed on the \$2.88 million Capital Outlay Project to replace the East End Road and Joseph Harbor boat launch. Maintenance and construction staff worked to build a boat shed at White Lake Wetlands Conservation Area (WLWCA) and continued to clean ditches and maintain levees throughout the marsh on RWR.

Louisiana Department of Wildlife and Fisheries (LDWF) personnel have completed negotiations with FEMA and the Governor's Office of Homeland Security and Emergency Preparedness to reconstruct the laboratory and build a new alligator research grow-out facility. The lab and grow-out facility will be moved to the storm platform area for storm surge protection and efficiency. Design is anticipated for 2013-2014. Engineering and design began on the FEMA Project to replace the Vermilion Nine-Pipe Water Control Structure at a cost of \$1,853,131. Construction should begin in 2013-2014. Additional water control structures and levees that were damaged by the hurricanes are scheduled for replacement with FEMA funds.

MINERAL MANAGEMENT

Beginning in October 2011, Chevron began rig setup and exploration for an ultra deep gas venture (known as Lineham Creek) in the north-western corner of RWR. Biologists spent considerable time working with Chevron to minimize environmental impacts associated with access and well pad development. The well pad created a large foot print (660 feet by 660 feet) due to the size of the rig, with Unit Rig 201 being one of the largest land rigs in North America (200 feet tall, 1500 tons). Initially, Chevron was drill-



Lineham Creek well on Rockefeller.

ing to depths of approximately 30,000 feet, making it one of the deepest on-land oil/gas wells in the United States. However, as of June 30, 2013, the rig had made a failed attempt at the target depth (to 29,000 feet), but due to mounting costs, did not expect to reach the goal of 30,000 feet. It is anticipated that the well will produce oil/gas above 24,500 feet. RWR biologist W. Selman is currently monitoring the response of bird diversity and abundance to the presence of the rig. Along with this project, staff monitored the removal of pipelines and oilfield related structures on RWR.

MARSH, WILDLIFE AND FISHERIES MANAGEMENT

MARSH MANAGEMENT

RWR staff maintains over 200 miles of levees and 40 water control structures for the conservation of approximately 76,000 wetland acres on RWR and 100,000 private sector acres within the Mermentau River Basin. Objectives of 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 production of waterfowl food plants, 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 and there are plans to replace multiple water control structures that manage water levels throughout RWR. Further, staff has also worked on wetland

permit applications with the U.S. Army Corps of Engineers (USACE) for over 20 miles of levee restoration. Projects to restore hydrology continued as a result of damage sustained from Hurricane Rita in 2005 and Hurricane Ike in 2008, but these projects have experienced heavy delays due to FEMA and permitting issues. Maintenance personnel continued cleaning ditches and repairing levees and water control structures in Units 2, 3, 10 and 13, which directly benefits the management of 7,350 wetland acres. In addition to water control, staff performed vegetation control with herbicides via airboat to help improve habitat in Units 2, 8, 10 and 13. Aerial applications were also conducted to assist with vegetation control of 500 total acres.

Marsh fires during the right time of the year have been shown to decrease fuel loads of marsh vegetation, prevent lightning fires during the spring and summer, and also provide new stem growth for migratory waterfowl species. Generally, one-third of the refuge is burned on a yearly basis. During FY 2012-2013, approximately 12,630 acres were burned on RWR. To assist with prescribed burning efficiency and safety, RWR purchased a hand launcher device that shoots a glycol-injected, potassium permanganate ball that creates a flame after it is launched.

Two invasive species were the target of management activities during 2012-2013: giant salvinia and feral hogs. Giant salvinia became an issue on RWR and adjacent landowners in the spring of 2013. Due to the high rainfall event in January 2013, giant salvinia moved into the area from northern Mermentau Basin. By spring, most of the canals became impassable and habitat was in jeopardy. In an effort to halt the movement/growth of the giant salvinia, weevils were intro-



Giant salvinia infestation at East End Locks on Rockefeller Wildlife Refuge



*Close up of giant salvinia
(photo by Troy Evans, Great Smoky Mountains National Park, forestryimages.org)*



Marsh creation and habitat enhancement with beneficial use of dredge material.



Shoreline protection and stabilization.

duced; this effort was not effective. Meetings were held with local landowners and LSU extension director, Dr. Steve Linscombe, to discuss salinity introduction plans on RWR for control of giant salvinia. Following this meeting, higher levels of salinity were introduced via staff opening the East End Locks; the effort was a huge success and restored navigability of water ways and ponds without severely impacting the marsh or impacting freshwater sources for the rice/crawfish agricultural areas north of Grand Lake. Since 2011, feral hogs have been trapped on the eastern end of the refuge, primarily Unit 14, in order to prevent wetland and levee damage. During 2012-2013, approximately 40 hogs were removed from the Unit 14 area. An attempt to remove hogs through aerial efforts was unsuccessful due to the dense vegetation (esp. roseau cane). Efforts will continue in 2013-2014 to monitor the status of these two invasive species on RWR.

During January 2013, southwestern Louisiana received unprecedented rainfall amounts (8.5 inches of rain over two days at RWR). RWR staff aggressively acted to open all water control structures, as well as the East End Locks, to drain excess rainfall into the Gulf of Mexico. Following localized flooding in the Upper Mermentau Basin (esp. Lake Arthur), further measures were needed to alleviate flooding. RWR staff cut two sections of the Superior Levee near Deep Lake to add additional outlets to the Gulf, with all measures taken likely contributing to the minimizing of personal property loss due to flooding.

Marsh Creation and Habitat Enhancement with Beneficial Use of Dredge Material

LWDF entered into an agreement with USACE 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 LDWF in establishing 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 2000 (totaling 177.7 acres). Actual work began on the first site (4.7 acres) in 2007, with dredging completed on Feb. 24, 2010 in compliance with MOA requirements. In June 2009, a contract was negotiated with HDR Engineering for the second salt marsh site (66 acre site). Geotechnical work was completed in August 2009, construction began during FY 2010-2011, grass plantings were completed in March 2012, and an elevation survey was completed in May 2012. Grass plantings were very successful and vegetation has become well established within both the 4.7 and 66 acre sites. A new 107-acre marsh creation site has been designed by HDR Engineers. A contractor was selected in February 2013, work began in April 2013, and completion is estimated for February 2014.

Shoreline Protection and Stabilization

ORA Technologies, LLC initiated a project on RWR in June 2007 to evaluate stabilization of canal banks with specially designed structures that promote the creation of artificial oyster reefs. In 2009, a graduate student began evaluating slightly different designs and measuring oyster growth and material deposition. A version of this technology was placed along the RWR Gulf of Mexico Shoreline. The \$1.7 million Bio-Engineered Oyster Reef Demonstration Project LA08 is sponsored by LDNR. The objective is to evaluate an oyster break system's capacity to reduce and/or prevent shoreline erosion and wetland loss. The system is patented technology with interlocking Oystercrete units composed of nutrients and the proper texture to attract oyster larvae. Construction was completed in February 2011, with the barrier placed approximately 2.5 miles west of Joseph Harbor Bayou. Preliminary observations indicate that the breakwater sections are slowing coastline erosion and catching sediment behind the structures. Dr. Steve Hall and students continue to monitor the structures for oyster development.

Biologists continued cooperating with U.S. Fish and Wildlife Service (USFWS) on their South Grand Chenier Hydrologic Restoration Project (CWPPRA ME-20).



Fingerling Florida Largemouth Bass



Mottled Ducks



Whooping Crane

This included field trips, meetings, and review of each water control structure and operations in the past year.

WILDLIFE MANAGEMENT

Alligator Nuisance Harvest

An experimental nuisance alligator harvest was conducted on RWR from Sept. 5-8, 2012 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 interaction between alligators and humans. The average length of 2012 alligators caught was 7.53 feet compared to 7.39 feet in 2011. The average price per foot was \$23.74 per foot in 2012 compared to \$16.69 per foot in 2011 prices; 2012 prices remained much lower than the high of \$38.28 per foot in 2008.

Fisheries Management

RWR began a more 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 (FLMB; *Micropterus salmoides v. floridanus*) to supplement populations lost on the refuge due to hurricane impacts and extreme drought conditions; these efforts will also improve recreational opportunities for the species on RWR. During the fall of 2012, approximately 22,800 phase II FLMB were stocked in Superior Canal system on RWR. In the spring of 2013, the rearing ponds at RWR were stocked with 457,200 fry and later seining of these

ponds resulted in approximately 310,746 fingerlings (68.0 percent survival rate). By the end of May 2013, 269,706 FLMB fingerlings were stocked on RWR. The remaining fingerlings produced at RWR were stocked by LDWF Inland Fisheries division at Toledo Bend (8,786 fingerlings), Lacassine National Wildlife Refuge (NWR) (16,128), and Anacoco Lake (16,128). We hope to continue this cooperative effort to assist Inland Fisheries with their target stocking goals.

Waterfowl Program

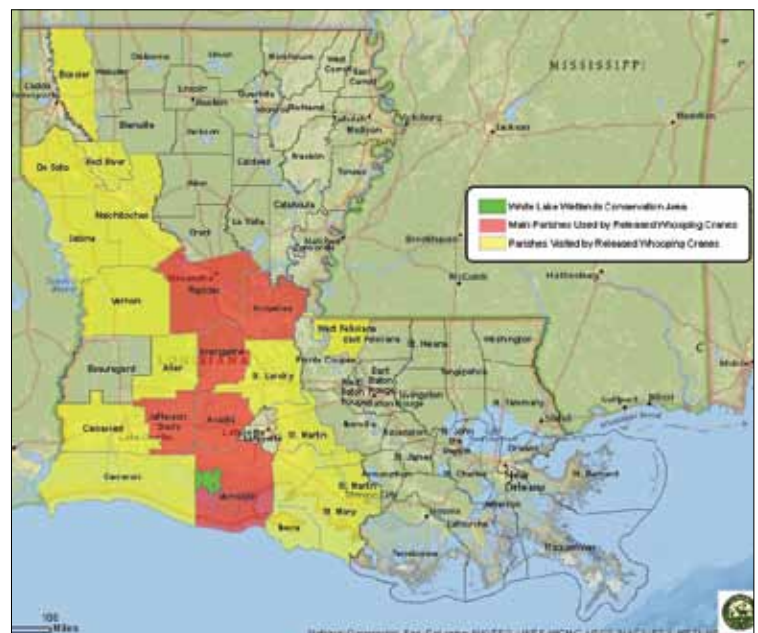
In 1994, RWR began a long-term mottled duck banding program to monitor annual survival rates and analyze distribution along the Gulf Coast between Texas and Louisiana. The banding effort is now a cooperative effort with Texas and Louisiana and involves many state and federal biologists, technicians and student workers. Some of the early analysis of data has shown high variability in survival rates with little mortality being attributed to hunting. CNR biologists completed the 19th year of the program by banding 332 mottled ducks statewide in 2012. Since 1994, CNR staff have banded 36,686 mottled ducks.

Winter waterfowl surveys are conducted via airplane over CNR areas in south Louisiana on a monthly basis from November through January of each year. Transects are flown in each management unit and the unmanaged marsh area, and thereafter, extrapolated to yield

an estimate of total ducks on the area. The mean survey estimate on RWR during 2012-2013 was approximately 20,000 ducks per survey. The mean survey estimate from the previous 10 years of the survey is approximately 70,000 ducks per survey; the 2012-2013 estimates were about 70 percent below the 10-year average.

Whooping Cranes

As of June 30, 2013, 25 of the 40 reintroduced whooping cranes (63 percent) survive on the southwestern Louisiana and mid-Texas landscapes from all cohorts released since February 2011. One of 10 (10 percent) survived from the first cohort, 12 of 16 (75 percent) from the second cohort, and 12 of 14 (86 percent) from the third cohort. Unfortunately, the lone female crane from the first cohort (L5-10) was found shot on a bank of the Red River between April 10-14; this left a single male as the lone survivor from the first cohort. A \$15,000 reward was posted for information leading to the suspect of



Parishes used by reintroduced whooping cranes.

the shooting, but the case remains open and no arrest has been made.

On Nov. 29, 2012, a third cohort of 14 new whooping cranes (six males, eight females) arrived from the Patuxent Wildlife Research Center in Laurel, Md. The birds were held in the top-netted portion of the release pen at WLWCA for several weeks before being released on Dec. 17, 2012. Following a few early mortalities of unknown causes, most of the third cohort cranes used coastal marsh habitats rather than agricultural habitats. One of the birds occupied an impounded marsh on RWR for an extended period, one bird used flooded riparian forest habitats not observed in previous cohorts, and three other cranes occupied private marshlands east of the town of Creole (Cameron Parish). Along with these different habitats used in Louisiana, seven cranes from the third cohort moved long distances to areas north of Dallas, TX. Coincidentally, the cranes were from two separate groups (five in one group, two in another) and arrived in similar locations; these birds remain in Texas as of June 30, 2013.

For the first time during the project, we also observed two interesting life history events this fiscal year: nest building and molting. Over the last fiscal year, a pair formed between the lone male from the first cohort (L3-10) and a female from the second cohort (L4-11). The pair built two nest platforms in a wet agricultural complex in Jefferson Davis Parish. We see this nesting attempt as another positive step for the Whooping Crane Project and a sign that the birds are “practicing” adult nesting behavior. However, due to the young age of these birds, no egg laying was observed at these nest platforms. We also observed seven of the second cohort cranes going through complete molt in the wetlands of WLWCA (n = 4) and in a large rice field in Jefferson Davis Parish (n = 3).

In 2011-2012, a large grant was obtained from Chevron specifically for education and outreach, with funding used for the development of lesson plans for middle and high school age children, as well as a number of teacher training workshops. Further, this funding has been used to create billboards, short radio spots, and TV advertisements to promote the importance of the reintroduction project. Chevron funds purchased six vinyl billboards (each ~12 x 40 feet in size) that were displayed along the I-10 and I-49 corridor, resulting in over 533,000 weekly views by the traveling public, beginning in summer of 2012. The LRN ad was run 3,450 times across the state in June and July of 2012. LAB radio advertising resulted in 10,488 radio spots on 66 stations and 1,802 television spots on 13 stations during

January-March 2013. There was a very positive response from teachers who attended the workshops, with 100 teachers relaying the message to over 1,700 students. Additional funds were received to continue this important education and outreach tool into 2013-2014.

In summation, we believe that this region is the best hope for reintroducing whooping cranes in North America due to:

- the vast amount of available and suitable habitat.
- the relatively small human population and low probability for large population growth in the future.
- stable agricultural/natural resource economy.
- whooping cranes utilizing almost all habitat types throughout 3.5 million acres in southwestern Louisiana.

WILDLIFE AND FISHERIES RESEARCH

A unique attribute of RWR is the emphasis on wildlife, fisheries and marsh management research. 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.

STAFF RESEARCH AT RWR

Chenier Herpetofauna

Other than anecdotal and specimen records, little data exist on the diversity and abundance of herpetofaunal species (i.e., reptiles and amphibians) that inhabit coastal chenier forests. Therefore, in the summer of 2012, Colt Reeves (B.S. student, McNeese State University) and staff biologist Will Selman developed a study on a remnant chenier woods property to document seasonal herpetofaunal diversity and abundance. Five drift fence arrays with pitfall and funnel traps were deployed at the site and actively monitored for seven consecutive days each month. The yearlong study documented a total of 908 individuals of 12 relatively widespread and common species. The five most common species captured at the site were the Gulf Coast toad (37 percent of total captures), leopard frog (21 percent), narrowmouth toad (14 percent), ground skink (12 percent), and western ribbon snake (10 percent). This data will allow us to compare the current community to historical records, as well as act as a “baseline” for future comparisons.

Diamondback Terrapin Distribution, Abundance and Population Status

LDWF staff determined that critical information regarding the abundance and population of diamondback terrapins (*Malaclemys terrapin*) was lacking and embarked on a study to address this need. During the spring 2013, staff sampled at eight sites in Iberia, Vermilion and Cameron parishes. Terrapins (n = 147) were captured at six of the eight sites, including several new locations including two sites on Marsh Island Wildlife Refuge and the southeast Sabine Lake marsh. Over the three-year study (2011-2013), 490 terrapins were captured at 13 of 16 sample sites, with terrapin site abundance varying considerably. High terrapin abundance was always associated with large expanses of unmanaged, brackish and salt marshes, while abundance was typically negatively associated with smaller marsh sizes, channels or bayous that are no longer connected to the Gulf of Mexico, and the presence of crab traps. All sites with terrapin captures represent either a new locality for terrapins or the first record for that locality in over 40 years.

Diversity and Abundance of Birds in Altered Wetlands and Effects of Mineral Exploration

The loss of wetlands is one of the most pressing environmental issues across coastal Louisiana. However, many altered wetlands still provide some value to wildlife species. RWR staff designed a field study to document the avian diversity and abundance in altered wetlands (i.e., pump-off wetlands, a.k.a., goose pastures); this project also secondarily documents the effects of the Chevron Lineham Creek well on avian diversity and abundance. Through 91 weekly sampling periods starting in July 2011, a total of 17,128 individuals of 65 species have been observed on line transects. Dominant species include red-winged blackbirds (41 percent), boat-tailed grackles (13 percent), and eastern meadowlarks (13 percent). In addition, 10 Louisiana bird species of concern have been documented during the study.

Movements of Black-Bellied Whistling Ducks Captured in Louisiana

Black-bellied whistling ducks (BBWDs) have recently expanded their range to include southern Louisiana. A recent species account shows BBWDs breeding in south Louisiana, but does not report wintering BBWDs in south Louisiana. However, numerous large flocks of BBWDs are seen in late winter in coastal Louisiana, and BBWDs have been seen regularly in Gulf Coast habitats and associated agricultural areas during summer. The extent and chronology of migration

occurring in BBWDs present in southern Louisiana is unknown. Sport hunters in Louisiana harvest BBWDs as a part of an aggregate daily bag limit during the regular duck season; hunter harvest in Louisiana appears to have increased dramatically since 2000, but data for accurate estimates of hunter harvest are currently limited.

We initiated pilot work in spring of 2013 to evaluate potential research techniques and assess movements of BBWDs in the area. To do this, we placed transmitters on eight female BBWDs at capture sites in south Louisiana in April and May of 2013. In addition, we outfitted approximately 180 individuals with aluminum leg bands and established successful banding sites at three locations in southwestern Louisiana. The banding effort will compliment an ongoing effort being carried out by LDWF Waterfowl Section staff in other portions of Louisiana.

Rabbit Island Colonial Waterbird Nesting, Diversity and Abundance

Rabbit Island is a relatively small island (220 acres) located in West Cove of Calcasieu Lake. In spite of its diminutive size, the island is the most important colonial waterbird nesting island in southwestern Louisiana, supporting the only colony of brown pelicans in the region. In February 2013, staff biologists began a research project to document the bird species diversity and abundance on the island throughout the yearly cycle, as well as the number of nesting species present on the island. Bi-weekly and monthly sampling was completed via shoreline survey, line transects and perimeter point counts; the latter was done in place of line transects when colonial waterbirds were noted nesting on or near the transects. Through 13 sampling periods, 24,184 and 34,822 bird observations of 55 species (17 Louisiana species of concern) were made on shoreline and transect/point count surveys, respectively. Thirteen species (six Louisiana species of concern) were also confirmed nesting on the island, including the first records of American oystercatchers and reddish egrets for southwestern Louisiana.



Speckled
Kingsnake



Diamondback
Terrapin



Black-bellied
Whistling Duck



Rabbit Island

COLLABORATIVE RESEARCH AT RWR

During FY 2012-2013, RWR biologists collaborated on a number of marsh management, wildlife and fisheries research projects on the refuge, across the region, throughout the state, and beyond (ex., bald eagles migrating to Canada). These projects include:

- Conservation genetics of the ringed sawback turtle (*Graptemys oculifera*). W. Selman with D. Gaillard, The University of Southern Mississippi
- Evidence for intercontinental transport of infectious agents by blue-winged teal (*Anas discors*). B. Davis and P. Link with A. Ramey, U.S. Geological Survey Alaska Science Center.
- History, nesting population, migration, home range, and habitats used by Louisiana Bald Eagles. T. Hess with A. Afton and N. Smith, LSU
- Hybridization and paternity in Mottled Ducks. W. Selman and B. Davis with R. Ford and S. Taylor, LSU
- Life history and ecology of coastal alligator gar. B. Davis with A. Ferrara, Nicholl's State University.
- Population status of diamondback terrapins in Louisiana and the interaction of crab fisheries on population viability. W. Selman with J. Weibe and B. Stultz, LDWF
- Shell pigment variability of diamondback terrapins in Louisiana. W. Selman with B. Reinke, Dartmouth College
- Surveys of the aquatic turtle fauna in southwestern Louisiana, with emphasis on three Louisiana species of conservation concern. W. Selman with E. Lyons, C. Huntzinger, I. Louque (McNeese State University), P. Lindeman (Edinboro State University), and S. Shively (U.S. Forest Service).

PUBLICATIONS BY RWR STAFF BIOLOGISTS

Selman, W. and B. Baccigalopi. 2012. Effectively sampling Louisiana diamondback terrapin (*Malaclemys terrapin*) populations, with description of a new capture technique. *Herpetological Review* 43:583-588.



LEFT: Juvenile Alligator Snapping Turtle. CENTER: R. Ford, LSU graduate student, with captured mottled duck. RIGHT: Tricolored Heron.

Selman, W., B. Stultz, J. Weibe, A. White, and M. Camacho. 2013. Coastal erosion and terrapin nest mortality. *Herpetological Review* 44:306-307.

Walter, S.T., M.R. Carloss, T.J. Hess, G. Athrey, and P.L. Leberg. 2013. Brown Pelican (*Pelecanus occidentalis*) colony initiation attempts: Translocations and decoys. *Waterbirds* 36:53-62.

Zimorski, S., T. Perkins, and W. Selman. 2013. Chelonian species in the diet of reintroduced Whooping Cranes (*Grus americana*) in Louisiana. *The Wilson Journal of Ornithology* 125:420-423.

TECHNICAL ASSISTANCE, OUTREACH AND EDUCATION

Refuge personnel continued public outreach activities, hosting several events to educate elementary, high school and college students in wildlife, marsh ecology and coastal erosion. RWR staff also participated in guided tours for a number of organizations and groups. One of the largest groups the refuge hosts each summer is the 4-H Marsh Maneuvers Camp. In 2012, 64 high school students from 15 parishes throughout Louisiana participated in the week-long camps in July. These camps are designed to educate high school students in the importance of coastal marsh erosion, restoration, conservation and ecology. Examples of other technical assistance provided by RWR staff include:

- Assisted the Natural Heritage Program during annual winter plover surveys, and with construction of prairie research enclosure pens at the Gray Ranch.
- Assisted private landowners in assessing marsh conditions and management for waterfowl.
- Conducted peer-review and editorial duties for scientific journals; reviewed graduate student theses.
- Judged science fair projects.
- Participated in guided tours to the whooping crane pen site and Nunez Woods Bird Sanctuary.
- 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.

RECREATIONAL USE

Marsh management units and, more specifically, water control structures continue to be very popular with sport fishermen. However, Hurricane Ike in 2008 damaged levees and water control structures, thus causing problems for managers and fewer recreational opportunities. Due to reconstruction work on the roads and boat ramps, the East End Locks road was closed

on Dec. 19, 2011 and the Joseph Harbor boat launch was closed on April 18, 2012. These closures severely limited recreational access on the refuge. After construction was completed of Joseph Harbor boat launch, the ramp opened in October 2012 to allow recreational access once again in the Joseph Harbor area of the refuge. In April 2013, Price Lake Road was closed due to the construction of the fishing piers. Price Lake Road is scheduled to be open 2013-2014 following completion of the fishing piers. In spite of all the construction present on the refuge and limited refuge access, 61,365 vehicles (~143,752 personal use days) were counted entering the refuge during this fiscal year.



Recreational fishermen cast-netting for shrimp at the East End Locks, Rockefeller Wildlife Refuge

WHITE LAKE WETLANDS CONSERVATION AREA

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 the 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 37,613 acres of property leased out in nine separate tracts. The property is leased to six separate tenants for the purpose of farming, raising cattle, crawfish farming and hunting. There is a rice base totaling 4,708.2 acres on this property. There were approximately 770 acres of rice planted in 2013. There was also 640 acres of millet planted. In addition to the reduced crop harvest, there were no crawfish harvested on the property in 2013.

There are over 100 miles of levees, canals and roads on WLWCA agricultural lands that are maintained by our agricultural tenants. They also own and operate the pumping systems that are needed to manage water levels on this impounded agricultural land. All of the farmland on WLWCA was at one time fresh-water marsh that was impounded in the late 1940s when agricultural activities first began on the property.

TRAPPING

There were a total of 372 alligator tags issued for the 2012 Alligator Trapping Season. The average size of the alligators trapped was 6.57 feet, with an average live length value of \$20.59 per foot.

There was a contract negotiated for the collection of alligator eggs from the WLWCA property in 2011 for a two-year period. In 2012, WLWCA received a payment of \$15.10 per egg. A total of 4,603 eggs were collected.

Fur trapping did not occur on WLWCA this year due to the continued low numbers of fur-bearers on the property. There has been no fur trapping on this property for over 30 years because of the low numbers of fur-bearers.

Other Surface Leases

There were three oil and gas valve site leases, and a single oil and gas surface use agreement on the property in FY 2012-2013.

LOTTERY ACTIVITIES

FISHING LOTTERY

2012 - Sixty-four fishing permits were issued at a cost of \$40 per permit. Permittees and their guest 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, 2012.

2013 - Seventy-nine fishing permits were issued at a cost of \$40 per permit. Permittees and their guest 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, 2013.

WATERFOWL LOTTERY

Waterfowl Hunting (2012-2013 Season)		
	Total Hunts	Participants
Teal Lottery Hunts	9	95
Marsh Lottery Hunts	11	129
Youth Hunts	2	16
Rice Field Lottery Hunts	42	293
Group Hunts	10	110

Waterfowl Hunting Results (2012-2013 season)		
	Marsh	Rice Field
Total Ducks Harvested	1720	573
Average Kill/Hunter (ducks)	5.05	1.96
Total Geese Harvested	101	83
Average Kill/Hunter (geese)	0.3	0.28

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, 2013. 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. During this period there was one day-trip scheduled and hosted by WLWCA for a nature/birding group. In addition, WLWCA hosted a group of 70 attendees for the International Crane Foundation. This large group accounted for four day-trips and two overnight trips. A total of 85 nature photographers, bird watchers and ICF guests visited the property in conjunction with our non-consumptive trip activities.

BIRDING TRAIL

The WLWCA Birding and Nature Trail, with accompanying kiosk, was completed in April. A Grand Opening of the trail was held on April 12,

2012. The trail is on approximately 30 acres of property located on the northern boundary of the property where LA-91 ends. Birding paths, a parking area, access bridges, a birding tower and a picnic pavilion are open to the public. There have been approximately 186 logged names in our Visitor's Guest Book in FY 2012-2013.

EDUCATION, OUTREACH AND RESEARCH

MARSH MANEUVERS

During December 2012, 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 simulated waterfowl hunt 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 LNHP has been conducting research on the different plant species located on this prairie. To date, approximately 95 different species have been identified.

WHOOPING CRANE RE-INTRODUCTION PROJECT

WLWCA assisted the Whooping Crane Reintroduction Project 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 instituted a wood duck banding program to compliment the LDWF statewide banding program. In addition to banding birds, staff monitored nest boxes and collected data for potential survivability and recruitment studies.



White Lake Birding Trail



White Lake Wood Duck Project



FERAL HOG POPULATION CONTROL

Feral hogs were first observed on WLWCA in January 2013. They were found to be in multiple groups on the Florence Canal levee system at the southern end of the property. These areas were monitored to determine bait and trap site locations. Corral traps were placed in two high-use locations. These 24-foot diameter traps were baited and monitored with cameras to determine the size of the groups. Once the entire group of hogs routinely entered the trap, a guilotine gate with a trip stick was set. A total of 14 feral hogs were caught.

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 trenasses, 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



Feral Hog Population Control

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 eight 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.

Many of the agricultural tracts border the Gulf Intracoastal Waterway. Years of erosion on the Gulf Intracoastal Waterway levees/spoil banks have washed away much of the protection from high water and wake in the channel. A shoreline protection project was completed in March 2013, in which 1.36 miles of rock breakwaters were placed on the shoreline by Bertucci Contracting Company for \$1.9 million.

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. 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.

BP retained the mineral rights to the remaining WLWCA acreage that is not covered under the mineral properties sold to the above-mentioned operator. BP granted a mineral lease in 2011 to Magnum Producing, L.P. on a portion of this acreage. LDWF/WLWCA negotiated a surface lease with Magnum Producing, L.P. to facilitate the drilling of an exploratory well, which was located on the WLWCA property in Section 23, Township 13 South, Range 1 West, Vermilion Parish, La. The well was successful and is currently producing natural gas and oil. In conjunction with this well, Magnum Producing purchased an existing well bore from Texas Petroleum in March 2012. This well bore is located approximately 400 feet west of Magnum Producing L.P.'s existing well and was purchased for the sole purpose of establishing this well bore as a salt water disposal well. Magnum Producing is currently pursuing the necessary approval and permits from the Office of Conservation for this salt water well. Once Magnum Producing is granted permission from the Office of Conservation a Surface Lease, Road Servitude Agreement and Pipeline ROW will be negotiated with WLWCA.



LEFT: Placing rock on the Gulf Intracoastal Waterway (GIWW). **RIGHT:** Rock placement on GIWW completed.

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.

2012-2013 FINANCIAL REPORT

Totals	
Beginning Fund Balance 2012-2013	\$2,254,199
Total Revenue	\$1,318,852
Total Expenditures	-\$1,993,319
Ending Fund Balance 2012-2013	\$1,579,732

Revenue	
Group Hunt Trip Fees	\$84,972
Group Hunt Charitable Contributions	\$216,100
Agricultural Leases	\$74,040
Alligator Egg Collection	\$89,105
Lottery Hunt Fees	\$62,010
Alligator Trapping Income	\$20,114
Interest Income	\$4,469
Mineral Bonuses	-
Surface Leases	\$757,327
Surplus Property	\$1,160
FEMA Reimbursements	-
Oil and Gas Royalty	-
Non-Consumptive Trips	\$5,970
Fishing Lottery	\$3,585
Total	\$1,318,852

Expenditures	
Salaries	\$352,110
Wages	\$38,812
Related Benefits	\$158,375
Travel	\$330
Operating Services	\$168,293
Supplies	\$157,481
Professional Services	\$23,085
Other Charges	\$1,000,000
Acquisitions	\$47,145
Major Repairs	\$10,209
Interagency Transfers (insurance)	\$37,479
Total	\$1,993,319

FURBEARER MANAGEMENT

MONITORING FUR HARVEST

The 2012-2013 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 2,140 trapping licenses were sold during the 2012-2013 trapping season. Of these, 2,049 were adult residential

licenses, 20 were adult non-residential trapping licenses, and 71 were youth residential licenses. These figures show an increase in trapping licenses sold when compared to the previous season (2,054).

A total of 418,490 animals were harvested (all species), which was an increase of 49,277 from the previous season's total of 369,213. The total value of the 2012-2013 fur harvest to the state's trappers was estimated at \$2,351,885.13. This total value was an increase of \$285,826.29 from the previous season.

The nutria harvest (388,160) increased by 33,806 from the previous season's total of 354,354. The average nutria pelt price paid to trappers during this past season was \$2.10. An additional \$5 was paid for all nutria taken during the Coastwide Nutria Control Program by registered participants.

COAST-WIDE NUTRIA CONTROL PROGRAM (CNCP)

CNCP is funded by the Coastal Wetlands Planning and Protection Restoration Act (CWPPRA). The objective is to decrease the damage to coastal vegetation that is caused by nutria by increasing the incentive for harvest. During the 2012-2013 season, a total of 388,160 nutria tails, worth \$1,940,800 in incentive payments, were collected from 252 participants. Sixty-six participants (26 percent) turned in less than 200 tails, 53 participants (21 percent) turned in 200-499 tails, 28 participants (11 percent) turned in 500-799 tails, and 105 participants (42 percent) turned in 800 or more tails.

TOTAL NUMBER OF NUTRIA HARVESTED BY METHOD OF TAKE IN 2012-2013

There were 19 parishes represented in the program with harvests ranging from 59 to 138,305 nutria per parish. Terrebonne Parish reported the highest number of tails with 138,305 followed by St. Mary and Lafourche parishes with 64,386 and 47,723, respectively.

February was the most active month for harvesting nutria (114,561 tails) while November was the least active month (11,429 tails). (See CNCP 2012 - 2013 Report, CWPPRA Project LA-03b.)

VEGETATIVE DAMAGE CAUSED BY NUTRIA

As a monitoring requirement of CNCP, a coast-wide aerial survey was conducted in April 2013 covering the coastal parishes of Louisiana. The total number of sites visited in 2013 was 14, 11 of which were classified as nutria damage in 2012. During the 2013 survey, nine sites were classified as nutria damage, two were considered recovered, and three new sites were identified.

The 2013 survey identified 14 sites (nutria) with a total of 1,233 acres impacted by nutria feeding activity along transects (4,624 extrapolated).

This is approximately a 9 percent increase from the 1,129 damaged acres reported in 2012. CNCP continues to be a successful means of controlling the nutria population with over 300,000 animals harvested annually. Consequently, the number of nutria-impacted acres in Louisiana's coastal marsh has also decreased significantly over the 11 years of the program.



FUR ADVISORY COUNCIL

The Fur Advisory Council has two major goals that they have focused on this year. The first goal is educating the public concerning the role of wildlife utilization in conservation. The second goal addresses public opinion of the fur market and market enhancement for Louisiana fur products.

The Fur Advisory Council has continued its state-wide education program. The council focused the educational message on the utilization of trapping for habitat management. The program was carried to schools and public libraries throughout the state of Louisiana during FY 2012-2013. The educational module paired with

the educational CDs continued to be a great success. Requests for sample skins and programs have been steady. The Fur Advisory Council presented at educational events such as National Hunting and Fishing Day and Ocean Commotion. The council has also worked with Boy Scouts and 4-H groups within Louisiana to teach the benefits as well as the techniques of trapping. The website carried the educational story to a much broader audience of teachers and students worldwide. The success of our education program will likely determine the future of markets, which supports a valuable habitat management tool for the state of Louisiana.

The international fur market continues to improve. Mainland China still holds the brightest future for new and expanded markets, and Chinese fur buyers purchased from Louisiana this year. The Chinese economy is growing quickly, and fur prices have increased world-wide. The Fur Advisory Council attended fur shows in mainland China and Hong Kong during FY 2012-2013. The council has continued to pursue a promising market in Turkey. The fur markets in Asia and Eastern Europe remain stable, and Louisiana dealers are rising to the challenge to expand the fur harvest locally.

MINERALS MANAGEMENT

The Mineral Program is responsible for ensuring that mineral activities on all LDWF properties are compatible with the environment, and that wildlife management area (WMA)/refuge goals and objectives are met. Mineral Program staff reviewed and evaluated 68 well locations, pipeline projects and other mineral exploration related permits on LDWF properties. The program also issued nine rights-of-way, surface leases, surface/subsurface leases, and 14 mineral leases were allowed on LDWF properties during FY 2012-2013. All of these projects are reviewed and coordinated with field personnel to ensure that they are compatible with LDWF management area programs.

In FY 2012-2013 the Mineral Program continued to generate significant revenues for LDWF, which includes mineral royalties, rights-of-way, surface leases and seismic fees. In addition, the Mineral Program staff issued 46 airboat/marsh buggy permits for various activities on LDWF properties. The Mineral Program also coordinated with the 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 Coastal Management Division within Louisiana Department of Natural Resources (LDNR) in the implementation of the efforts of the streamlining of Coastal Use Permits. In addition to the above

mentioned duties, the Mineral Program has continued the duties associated with LDWF's Dredge Fill Program. Approximately 75 to 100 dredge licenses are issued annually generating approximately \$1 million in annual revenue.

The Mineral Program also applied for and received seven USACE permits for projects on LDWF properties.

During FY 2012-2013 several programs were consolidated into the Mineral Program. The programs that were added are the Seismic Program, and the Habitat Program which includes Scenic Streams and Environmental Investigations.

HABITAT

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 (NGOs) 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. In FY 2012-2013 the Habitat Section was comprised of the five following programs: Louisiana's Wildlife Action Plan and State Wildlife Grants; Statewide Environmental Investigations; Louisiana Natural and Scenic Rivers Program; Permits Coordination; and Seismic Section.

conservation nationwide, with the stated goal of preventing species from being federally listed as threatened or endangered.

Congress stipulated that each state fish and wildlife agency that wished to participate in the SWG program develop a Comprehensive Wildlife Conservation Strategy by October 2005. In response, LDWF developed a comprehensive planning document to establish conservation needs and guide the use of SWG grant funds for the next 10 years. The document, known as the state's Wildlife Action Plan (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 is currently underway. A total of 43 WAP revision meetings were held before the end of the fiscal year, and significant progress was made on the revision, including revising the Species of Concern, Research Needs and Conservation Strategies, and more comprehensively addressing the issue of invasive species.

The SWG program is funded by annual Congressional appropriations. The USFWS apportions these funds to state fish and wildlife agencies based on the land area and population of each state. Since the inception of the SWG program, the state of Louisiana has received \$11,349,481 in federal SWG funding, with an apportionment of \$688,864 in FY 2012-2013. Louisiana has

funded 113 projects through the SWG program to date. Funded SWG projects have included biological inventories, research projects, habitat management, and the development and maintenance of databases. A wide range of species have benefited from SWG funding in Louisiana, including the Louisiana black bear, whooping crane, swallow-tailed kite, alligator snapping turtle, freshwater mussels, and neo-tropical migrant songbirds.

SWG proposals are accepted by LDWF on an annual basis, and include projects developed by department personnel, NGOs and universities. SWG proposals are reviewed by LDWF's SWG Committee, consisting of 17 biologists representing the Coastal and Nongame Resources Division, Inland Fisheries, Marine Fisheries, and Wildlife Division.

During FY 2012-2013, 12 new project proposals were received for funding consideration. Ten proposals received approval by the SWG Committee by the end of FY 2012-2013 (*Table 1*), and had been submitted to USFWS for approval, along with all required documentation. After grant closings on June 30, 2013, there remained 45 ongoing SWG-funded projects, including the seven new projects approved prior to June 30.

During FY 2012-2013, 11 SWG grants were closed (*Table 2*). Copies of final reports for all closed SWG grants are available to interested parties upon request. Thirty grant amendments were submitted to USFWS during FY 2012-2013.

LOUISIANA'S WILDLIFE ACTION PLAN AND STATE WILDLIFE GRANTS

In November 2001, Congress created the State Wildlife Grants (SWG) program. According to the federal legislation that established 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. In fact, the SWG program has now become the primary funding source for non-game

TABLE 1.

New Louisiana State Wildlife Grants Opened During FY 2012-2013	
T-286	Promotion of Prescribed Burning as a Management Tool on Selected Habitat Types within the Louisiana West Gulf Coastal Plain
T-287	Rare Species Detection Using Environmental DNA
T-288	Alligator Snapping Turtle Propagation
T-305	Status of the Alligator Snapping Turtle in Central Louisiana based on Trapping Data
T-307	A Survey of Crayfishes, Aquatic Insects, and Benthic Fishes of Concern Inhabiting the Sabine, Red, and Calcasieu River Systems in Louisiana
T-319	Distribution, Abundance and Use of Artificial Roosts by Critically Imperiled Bat Species in Louisiana
T-320	Coastal Prairie Research and Stewardship
TBD	Bear Conflict Management Program
TBD	Reintroduction of Whooping Cranes to Southwest Louisiana – Phase 2
TBD	Comparative Survey of Native Bee and Butterfly Communities in Tier 1 Conservation Habitats of the EGCP

TABLE 2.

Louisiana State Wildlife Grants Closed During Fiscal Year 2012-2013	
T-67-1	Louisiana Breeding Bird Survey Stipends
T-67-2	Louisiana Breeding Bird Surveys
T-69	Population Status of the Eastern Spotted Skunk
T-27-3	Black Bear Conflict Management Program
T-81	Red-Cockaded Woodpecker Demographic Monitoring
T-85	Louisiana Herpetofaunal Surveys
T-89	Impact of Low-head Dams on Darter Genetics
T-92	Abundance, Age Distribution, and Host Fish of the Inflated Heelsplitter
T-102	Bat Surveys in Louisiana with Emphasis on Three Rare Species
T-106	Status of the Alligator Snapping Turtle in SE Louisiana
T-110	Development of Standardized Methodology for Time-Lapse Photography to Monitor Colonial Waterbird Productivity

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 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 LDNR and USACE. Staff members received, reviewed and provided comments to 1,817 state and federal permit applications during FY 2012-2013. It was determined that compensatory mitigation was required on approximately 415 of the 1,817 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. *Figure 1* shows the dramatic increase in the number of permits being applied for and is a good indication of the increased demand on staff in the last three years.

Staff continued to receive a significant number of Fort Worth and Vicksburg District 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 in the Haynesville Shale of northwest Louisiana, but we also received a limited number of requests for the withdrawal of surface water to develop the Tuscaloosa Marine Shale found in the Florida Parishes of Louisiana. 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. As a direct result of this surface water need, LDWF worked with LDNR and the Louisiana Department of Environmental Quality (LDEQ) to provide USACE regulators with a single comprehensive and technically sound guidance document for each Section 10 permit application.

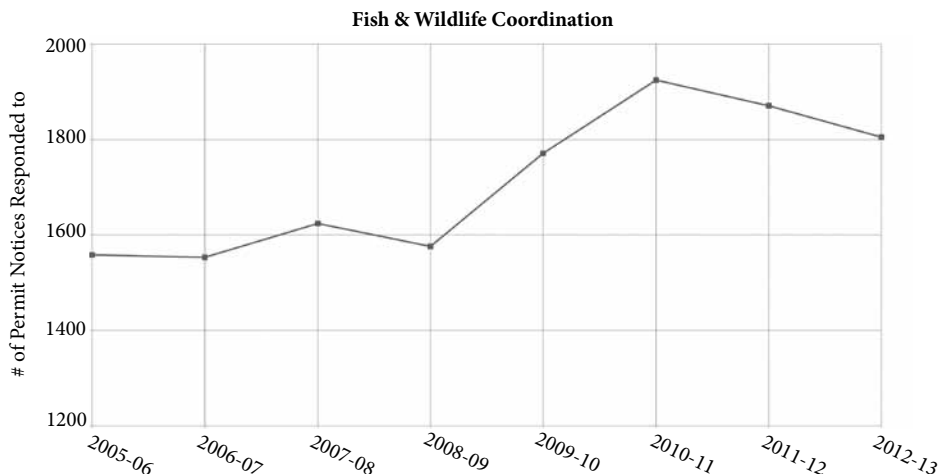
In addition to permit review, staff participated in permit site inspections and habitat evaluations, provided technical assistance to the public on wetland issues, and worked with private developers and consultants involved in the regulatory process. During FY 2012-2013, staff conducted 124 on-site field inspections and participated in 160 meetings with applicants, agents and regulatory agency personnel.

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 2012-2013, staff evaluated, inspected and provided technical comments and recommendations on approximately 40 proposed wetlands mitigation banks. A total of 10 wetland mitigation banks were approved and authorized in Louisiana during FY 2012-2013, totaling over 4,246 acres statewide. Staff also attended all Interagency Review Team meetings and as many of the site investigations as was possible.

Staff continued to provide technical assistance to USACE related to post-hurricane (i.e., Katrina, Rita, Gustav and Ike) levee refurbishment, planning of improved hurricane protection systems, and identification of suitable compensatory mitigation to offset implementation of such systems.

Statewide Environmental Investigations also assisted in protecting all lessees of private oyster

FIGURE 1. Graph of permit notices reviewed.



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 location unnecessarily impacts an oyster reef. There were 88 water bottom assessments reviewed and approved by agency staff during FY 2012-2013.

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 (USDA); Federal Highway Administration; Federal Aviation Administration; Farmers Home Administration; U.S. Coast Guard; Department of Energy; Federal Energy Regulatory Commission; Department of Defense; Housing and Urban Development; Louisiana Department of Transportation and Development; LDNR; LDEQ; the Louisiana Department of Culture, Recreation and Tourism; and the Louisiana Division of Administration, Office of Community Development.

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. The commission completed the initial plan in March 2012. Much of the focus of this initial plan was on ground water resources. As the commission continues its work, our role will be to ensure that the conservation of fish, wildlife and their supporting habitats are an important consideration when making water management decisions.

We participated in a panel discussion on "Water Laws and State Issues" at the annual Louisiana Oil and Gas Association meeting with the intent to improve coordination and understanding between public and private sectors. This is particularly important as we try to balance conservation of fish and wildlife and the development of our state's oil and gas resources.

LANDSCAPE CONSERVATION COOPERATIVES

We have continued to commit time and resources to participating in the Gulf Coast Prairie Landscape Conservation Cooperative (Gulf Coast Prairie LCC). The LCC, comprised of state

and federal agencies, universities and NGOs, 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 LCC landscape (Figure 2). LDWF participates as both a Steering Committee member and Science Team member. This past year the Science Team developed a list of focal species which will serve as important indicators of functioning landscapes and is needed to implement Strategic Habitat Conservation. The Science Team also prioritized which habitats in the LCC should serve as priority habitats for near-term conservation efforts.



FIGURE 2. Gulf Coast Prairie Landscape Conservation Cooperative map.

TECHNICAL ASSISTANCE PROVIDED

As a new performance indicator, we began tracking 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 NGOs for conservation recommendations, guidance, biological data or project reviews. During FY 2012-2013 we replied to a total of 1,292 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 en-

forcement 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.

Staff completed a survey by boat of the entire 135 mile length of Bayou Teche, researched the history of the bayou and conducted three public hearings as directed by House Concurrent Resolution 49 of the 2012 Regular Session of the Legislature which nominated Bayou Teche for inclusion into the Historic and Scenic Rivers Program. In light of significant opposition to the designation expressed by the public in Iberia and St. Mary parishes, House Concurrent Resolution 68 was passed in the 2013 Session of the Legislature. House Concurrent Resolution 68 directed LDWF to take another year focusing on that part of Bayou Teche that flows through St Martin and St. Landry parishes (i.e., excluding that portion of Bayou Teche that flows through Iberia and St. Mary parishes) for possible inclusion as a designated Historic and Scenic River. LDWF has initiated this follow up study and will complete its work prior to the convening of the 2014 Legislative Session.

The Scenic Rivers Program's website underwent very extensive renovation. A vast amount of historical information and documents have been made available online. Scenic River Permit applications began being processed and transmitted digitally and the stage was set for making applications for proposed activities on Scenic Rivers available online for review and comment by all interested parties. An interactive map allows users to see where activities have been permitted in the past along with information about the applicant and nature of the activity. Recommended Best Management Practices for various activities were made available as well, and the website continues to be updated and modernized. Staff has continued work on the SWG project to accurately map our Scenic Rivers and use those maps to generate reports for each Scenic Stream that alert us to the presence of elements and species of concern tracked by our Natural Heritage Program to assist us in providing appropriate protection to the resources when we are able.

Staff also began producing a quarterly newsletter that is being distributed via email to interested parties and made available on the website. The newsletter includes information on Scenic River Program activities for the quarter, stories



Louisiana Department of Wildlife & Fisheries, 2000 Quail Drive, Baton Rouge, LA 70808
www.wdf.louisiana.gov/scenic-rivers

Stream Spotlight:
Amite River

By Kyle F. Balkum and Chris Davis

The East Fork and West Fork of the Amite River originate in southern Mississippi. The two streams flow in a southerly direction and eventually join together in Louisiana approximately 0.5 miles below the state line. From this point the Amite River meanders for more than 115 miles through East Feliciana, St. Helena, East Baton Rouge, Livingston and Ascension parishes before emptying into Lake Maurepas. The Amite River drains an area of approximately 2,200 square miles.

The Amite River from the state line to La. Hwy. 37 has been a Louisiana designated Natural and Scenic River since the System's inception in 1970. This river segment is approximately 27 miles in length.

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This April, Chris Davis and I surveyed the Amite River in a 15' canoe. We launched into the East Fork of the Amite River near the state line and paddled over 14 miles before disembarking downstream of the La. Hwy. 10 bridge. Because it was often very shallow, especially in the upper reaches, a canoe was ideal for this stretch of river.



East Fork of Amite River (Credit: Chris Davis)



Amite River segment designated Natural and Scenic

The Amite River meanders through upland hardwood forests, bottomland hardwood forests, mixed pine hardwood forests and managed pine forests. Paddling the Amite River, especially the upper reaches, you experience a sense of seclusion and peace. You can enjoy the true wilderness quality and scenic beauty of a place seldom traveled.

TOP LEFT: Map of scenic rivers.
BOTTOM LEFT: Public Notices published on the Scenic Rivers website.
ABOVE: Scenic Rivers Review Newsletter.

	FISHING	BOATING	HUNTING	WILDLIFE	ENFORCEMENT	WMA
Permit Application	Applicant	Streams	Parish	Public Comment Deadline		
SRP #898	Alutris, LLC	Tangipahoa River	Tangipahoa Parish	January 1, 2014		
SRP #889	J & C Marine, LLC	Amite River	St. Helena Parish	TBD - Open for Comment		
SRP #888	Marcel Gelpi	Sogue Chitto River	Westington Parish	December 7, 2013 (still open for comment)		
SRP #887	Joseph Lacoste, Jr.	Tangipahoa River	Tangipahoa Parish	January 1, 2014		
SRP #886	Angeline Gauthier Company	Bayou D'Arbonne	Union Parish	December 26, 2013		
SRP #885	Cadex Energy, Inc.	Bayou Des Allemands	Lafourche Parish	Closed		
SRP #884	BDOP Endavors, LLC	Amite River	East Feliciana Parish	TBD - Open for Comment		
SRP #883	Hibonco/Columbo Gulf Transmission, LLC	Bayou Des Allemands	Lafourche	Closed		

and photos from float trips the staff makes on various Scenic Streams and other newsworthy activities and upcoming events. Persons interested in receiving the newsletter can email a request to kcascio@wlf.la.gov, and they will be placed on our mailing list.

Proposed changes to the Scenic Rivers Rules and Regulations were finalized and prepared for presentation to the Wildlife and Fisheries Commission. Proposed changes included regulation of motorized vehicles in the streambeds of Scenic Rivers, regulation of houseboats and floating camps moored on Scenic Rivers, clarification of the "100-foot rule" with respect to the need for permits, modernizing of the permit application submittal process, and "housekeeping" that has been needed for some years now. LDWF expects to have these proposed changes finalized in late 2013 or early 2014.

In FY 2012-2013, LDWF completed the development of a Scenic River Management Plan for Bayou Manchac (located in East Baton Rouge, Iberville and Ascension parishes). Particular effort was put into coordinating with various

NGOs in its development to ensure that the plan was one that can be used as a template in the development of future management plans. Public hearings were conducted for the Bayou Liberty Management Plan; the information needed to complete that plan was accumulated and its development was initiated in FY 2012-2013. Each management plan is developed in consultation with the Division of Administration, Department of Culture, Recreation and Tourism, Louisiana Department of Agriculture and Forestry, LDEQ, local government agencies and NGOs. 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.

Staff has continued to work with the Webster Parish Police Jury and the State Lands Office to

remove a number of out-of-service bridges and other man-made obstructions on Bayou Dorcheat, thus restoring navigability and natural flow to the stream. In addition, staff worked on the wood duck box/mile marker project with legislators, Webster Parish officials, the State Lands Office, local businesses and the Bayou Chapter of the Ozark Society, and the final wood duck box was installed in a media event on Bayou Dorcheat in Dixie Inn, La. The wood duck boxes are complete with engraved mile markers and were placed along Bayou Dorcheat to aid boaters in navigation and enhance wildlife habitat along the bayou. Webster Parish's 911 service also incorporated the locations of these mile markers into their system to aid in locating individuals in need of assistance.

Several enforcement actions were initiated in FY 2012-2013. These included cases of illegal mining activities, littering, illegal point source discharges, operating on scenic rivers without permits, and illegal commercial cutting of trees. One case of illegal mining in East Baton Rouge Parish, made in 2009, remains in litigation. 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.

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.

Scenic Rivers staff gave seven presentations on the Scenic Rivers Program to local civic and governmental organizations and continued to participate on a parish government board formed to restore and promote Bayou Dorcheat in Webster Parish. The coordinator continued work with a similar, newly formed group in Morehouse Parish with an interest in increasing recreational usability and access of Bayou Bartholomew. Additionally, staff has continued participation in the Concordia Parish Drainage Committee. Staff has also continued work with several NGOs including The Louisiana Wildlife Federation, Tangi-Clean, The Manchac Group, The Sierra Club and others. Staff participated in an effort to help restore whooping crane habitat and participated in outreach efforts aimed at coastal prairie habitat restoration.

A total of 36 Scenic River Permits were issued during FY 2012-2013. The coordinator and staff conducted 140 site visits and field investigations statewide, surveyed approximately 176 stream miles and attended 13 meetings 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 2012-2013 several enhancements were made to improve the tracking ability, accuracy and usefulness of the permits database.

During FY 2012-2013, the Permits Coordinator received processed, tracked and disseminated responses to 1,805 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 subsurface 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 uplands.

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 species. 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 2012-2013 are:

- Monitored 21 seismic projects throughout the state.
- Closely interact with seismic companies to ensure compliance with the rules and regulations of the Seismic Section.
- Ensure protection of threatened and endangered species and other areas of concern.

LOUISIANA NATURAL HERITAGE PROGRAM

The Louisiana Natural Heritage Program (LNHP) is responsible for the conservation of Louisiana's rare, threatened and endangered species, all nongame birds, and habitats. LNHP staff conducts research on nongame birds, rare species and habitats of conservation concern, and works with landowners that have rare species and habitats to promote the future survival of those elements. 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.

DATA SECTION

LNHP gathers occurrence information for rare, threatened and endangered wildlife species. Heritage data are integral in determining the status and state rankings for species of conservation concern, which drives the direction of non-game species research and conservation for the state of Louisiana. The information is stored in easily accessed GIS computer database files known as Biotics, which was developed by the Natural Heritage Network's parent organization, NatureServe. During FY 2012-2013, a total of 924 element occurrence records were added and/

or updated in Biotics along with the associated information including location, species population status and habitat condition. Piping plover records were updated with 2012 survey data and Bachman's sparrow data collected in the spring of 2012 were added and/or updated in the database. In addition to adding and updating the Bachman's sparrow records, the geospatial representation of these element occurrences was reconsidered and underwent changes in Biotics. The red-cockaded woodpecker was another focal dataset with new records added and existing records updated. Like the Bachman's sparrow records, the geospatial representation of the

red-cockaded woodpecker element occurrences was reconsidered, and these records underwent several changes in Biotics.

In addition to adding new element occurrences and updating existing records, the State Wildlife Action Plan Committee members revisited the state rank for natural communities and species of conservation concern in Louisiana. Approximately 200 communities and species were revised with new state ranks. During FY 2012-2013, 140 state ranks were updated in Biotics Tracker for each element record. An updated list of state ranks can be found on the LDWF website at <http://www.wlf.louisiana.gov/wildlife/louisiana-natural-heritage-program>.

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 rare, threatened and endangered species 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 species of conservation concern and natural communities within 1 mile of the project area. A comment letter is submitted to the requesting organization identifying potential impacts to LNHP tracked species, communities and critical habitats. The letter also indicates the presence of scenic rivers, state or federal parks, wildlife refuges and WMAs occurring within 400 meters of the project area.

LNHP receives Coastal Use Permits submitted to LDWF by 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 LNHP tracked species. These flagged Coastal Use Permits are forwarded to LNHP biologists for review. As with private consultant reviews, comments regarding potential impacts to rare, threatened and endangered species, critical habitats, natural communities and species of concern are generated. 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 USACE 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 2012-2013, LNHP staff conducted 1,418 project reviews which included 484 private consultant project reviews, 831 new or modified Coastal Use Permits, and 104 internal project reviews.

The LNHP Database Section processed a total of 21 digital data requests for private consultants, 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 species of conservation concern 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 LNHP tracked species, communities and critical habitats, 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 11 large-scale seismic and micro-seismic projects occurring throughout the state. These projects were reviewed by LNHP and comments were submitted to the Seismic Section indicating potential impacts of these projects to LNHP tracked species and natural communities.

PROJECTS

- Worked on updating content information on the website.
- Continued working on the SWG Scenic Rivers project (T-84).
- Worked on the Section 6 Online Review Tool Project:
 - Finalized contract between LDWF and NatureServe for the Online Project Review Website.

- Received final approval of NatureServe's sole source letter; NatureServe approved as contractor for the project.
- Received and submitted NatureServe's first Online Review Project Invoice and Progress Report.
- Demo of the Virginia Natural Heritage Program Online Project Review Website.
- Numerous conference calls and GoTo Meetings with NatureServe regarding the Project Review Tool.
- Worked on ArcView Layers for Review Tool.
- Provided LNHP data to the Gulf Coast Prairie LCC.
- Provided LNHP data for NatureServe's LandScope project.
- Partnered with the USDA Natural Resources Conservation Service (NRCS) and USFWS and worked cooperatively on creating/ updating WRP maps for candidates, and threatened and endangered species. These maps will be used for ranking.
- Worked on the Longleaf Sandhills Grant:
 - Updated Sandy Hollow points and maps.
 - Vegetation surveys.
 - Gopher Tortoise surveys.

BOTANY/ECOLOGY SECTION

The main responsibilities of the Botany/Ecology Section include:

- Determining which plant species and natural communities (habitats) are rare in Louisiana.
- Collecting, organizing and distributing information on rare plants and natural communities.
- Conducting botanical inventories and ecological assessments on all types of land ownership.
- Interacting with landowners and managers to promote conservation of native plants and natural communities.
- Coordinating the Natural Areas Registry Program.
- Providing plant identification services to LDWF staff, natural resources professionals with other organizations, and the public.

LOUISIANA BEACH ASSESSMENT

An assessment of beach/sand dune habitat on Louisiana's coast is underway. The objectives are to assess habitat quality for nesting sea turtles and shore birds and to identify threats that can be addressed through management. Thus far, nearly 65 miles of beach have been surveyed on both the Chenier and Deltaic Plains.



LEFT: LNHP staff evaluating beach/dune habitat on Trinity Island, Terrebonne Parish. The conspicuous white-flowered plant is railroad vine (*Ipomoea imperati*).

RIGHT: Abbeville red iris (*Iris nelsonii*). This plant is endemic to Louisiana, confined to a small area near Abbeville.

ABBEVILLE RED IRIS

LNHP biologists raised awareness of the Abbeville red iris, Louisiana's only endemic species, by collaborating with Office of State Parks to create a live exhibit of Abbeville red iris at Palmetto Island State Park. The graphic panel displays installed at the park in March 2013 were provided by LNHP. In addition to creating this exhibit, LNHP worked with staff at Palmetto Island State Park to highlight the Abbeville red iris at the Stir the Pot Festival on April 9, 2013.

TECHNICAL ASSISTANCE

Botany/Ecology staff members routinely perform plant identifications for other LDWF biologists. Plant identification services contribute to efforts to conserve wildlife including waterfowl, upland birds and white-tailed deer. LNHP's botanist regularly assists the LDWF Forestry Section with herbaceous plant identification in growth monitoring plots on WMAs. Botany/Ecology staff members have also contributed to efforts

such as bird carcass sweeps for the Natural Resource Damage Assessment (NRDA) process and mottled duck banding on coastal refuges/WMAs.

NOTEWORTHY BOTANICAL DISCOVERIES IN 2012-2013

The Louisiana flora includes about 2,400 native species and 800 naturalized exotics. Occasionally, plants that have not previously been recorded in Louisiana, or that have not been documented in a very long time, are discovered. Botanical exploration along the Red River above Shreveport resulted in the discovery of two new state records: wooly prairie-clover (*Dalea lanata*) and phlox heliotrope (*Heliotropium convolvulaceum*). These species are considered native in Louisiana. New Zealand spinach (*Tetragonia tetragonioides*), an exotic, was discovered new to Louisiana on a beach on Grand Terre Island. Two historical plants were re-discovered in Louisiana: Wright's dwarf-dandelion (*Krigia wrightii*) and bay bean

(*Canavalia rosea*). Wright's dwarf-dandelion had not been documented in Louisiana in 70 years, while bay bean had not been found in Louisiana in over 100 years. Both of these species are regarded as native to the state.

DIGITAL LOUISIANA FLORA PROJECT

LNHP, in partnership with the U.S. Geological Survey National Wetlands Center, initiated a project to construct an online database of plants for the state of Louisiana. This online resource, which will be served on the National Wetlands Research Center website, will allow users to identify plants, and will educate the public on the plant and habitat diversity of Louisiana. Features will include searchable data fields, high-quality plant photographs, identification characteristics, and ecological information. Initial funding is being provided by Louisiana Environmental Education Commission.



LEFT: Phlox heliotrope (*Heliotropium convolvulaceum*) growing on a sand bar on the Red River upstream from Shreveport. This species was discovered new to Louisiana in August 2012.

RIGHT: Prairies are fire dependent habitats. Without fire, prairie sites become brushy, and if fire-suppressed for too long, that brush gets beyond the control of fire. When this occurs, herbicides are needed to kill/control brush. This photo shows contractors applying herbicides to encroaching shrubs on a prairie remnant on private land in Cameron Parish. After the chemical treatment, LNHP will implement a prescribed burn. The result will be improved grassland habitat for wildlife.

COASTAL PRAIRIE RESEARCH AND RESTORATION

Coastal prairie historically occupied over 2 million acres situated between the pine flatwoods and marsh in southwestern Louisiana. Less than 1 percent of this prairie remains today, and, as a result of this habitat loss, many grassland wildlife species are imperiled, causing some to be extirpated from the state. Several unplowed prairie remnants have recently been discovered by LNHP staff on private lands in the Lake Charles area. The purpose of this project, which is funded by a SWG, is to conduct prairie restoration research and to apply stewardship to improve grassland habitat quality on private lands. The principal investigator for this project is the LNHP Botanist, but the work has involved collaboration with other parts of LDWF and other agencies such as USDA-NRCS. The research component will determine the recovery potential of an unplowed but heavily grazed prairie remnant on a private ranch. A field experiment involving cattle exclusion, chemical brush control and prescribed fire has been initiated. Chemical brush control on two prairie remnants is underway. It is hoped that the grant can fund chemical brush control and prescribed fire on at least 500 acres of unplowed prairie on private land.

ZOOLOGICAL: ENDANGERED SPECIES ACT SECTION 6, STATE WILDLIFE GRANTS, AND REPTILE & AMPHIBIAN PROGRAM

LNHP administered federal aid grants for species of special concern through the Endangered Species Act Section 6 Program, Multi-state State Wildlife Grants, and participated in Louisiana's SWG Program. Section 6 projects included the following species: Louisiana pearlshell mussel, Louisiana pine snake, gopher tortoise, ringed map turtle, manatee, piping plover, sea turtles, and the ivory-billed woodpecker. Funds were also acquired through Section 6 to create an online website for environmental reviews for rare, threatened and endangered species, as well as a grant to coordinate the state's endangered species projects. Section 6 Cooperative Agreements were renewed between LDWF and USFWS and the National Oceanic and Atmospheric Administration (NOAA).

Section 6 funds allowed staff to work on a multitude of rare, threatened and endangered species issues including:

- LNHP coordinated with USDA-NRCS for the Working Lands for Wildlife Program for gopher tortoise.

- Coordinated with USFWS to develop ranking maps for threatened and endangered species through the Wetland Reserves Program.
- SEAFWA committee to address At Risk species in the southeast.
- LNHP continued to partner with USFWS and USDA-NRCS on Endangered Species Act coordination.
- Prescribed burning of public and private properties.
- White-nose syndrome coordination and response plan.
- Conservation genetics of Louisiana pine snakes (*Pituophis ruthveni*).
- Louisiana pine snake detection using camera traps.
- Gopher tortoise habitat improvement and burrow occupancy rate.
- Partner with Weyerhaeuser for gopher tortoise status and potential habitat restoration on Ben's Creek property.
- Louisiana pearlshell mussel population trends and long-term monitoring protocol.
- Louisiana pearlshell mussel coordination with federal and parish partners.
- Relocation of exposed pearlshell beds during drought on private lands.
- Joint project with Texas Parks and Wildlife Department for Louisiana pine snake research and monitoring.
- Ringed map turtle trapping was conducted on the Pearl River to determine the status of the population.
- The manatee sighting database was maintained and staff responded to stressed/dead manatees when reported.
- Investigated ivory-billed woodpecker sighting in Pearl River area.
- Surveys of the quality of Louisiana's beaches as habitat for shorebirds and sea turtles.

GOPHER TORTOISE SURVEYS

LNHP is partnering with other states in the tortoise's range on the Gopher Tortoise Range-Wide Conservation Strategy to prioritize threats to the species and implement action items. LNHP staff coordinated and completed gopher tortoise burrow scope surveys at Sandy Hollow WMA, Lee Memorial Forest, Ben's Creek, and pipeline/powerline rights-of-way in Washington, St. Tammany and Tangipahoa parishes. All data are currently being analyzed and, by Spring 2014, will provide an accurate population estimate and distribution for gopher tortoises in the state. Nest surveys and recruitment monitoring will begin in Spring 2014.

LNHP staff have been focusing on improving habitat on approximately 600 acres of private lands



Waif gopher tortoise burrow at Sandy Hollow WMA.

and 3,700 acres on Sandy Hollow WMA through burning, herbicide and/or mechanical treatment with the Multi-state Sandhills/Upland Longleaf Restoration grant. LNHP tortoise biologist will continue to build a partnership with private landowners to survey new properties and assist with habitat restoration efforts to increase the amount of quality habitat for tortoises.

"Waif" tortoises (tortoises from unknown areas picked up by citizens and brought to LNHP) are becoming an increasing issue. Four "waif" tortoises were assessed this year, three tortoises tested negative for the upper respiratory tract disease and therefore, were released at Sandy Hollow WMA in a release pen. LNHP is working with other states in the gopher tortoise's range as part of a "waif" tortoise working group to develop a program to address these issues.

ONGOING STATE WILDLIFE GRANT PROJECTS

Zoological projects funded through SWG included:

- Monitoring Avian Productivity and Survivorship Program
- Winter Bird Atlas
- Breeding Bird Surveys
- Calcasieu Painted Crawfish Surveys
- Winter Plover Surveys
- Secretive Marsh Bird Callback Surveys
- Christmas Bird Counts
- Aerial Surveys for Waterbird Nesting Colonies
- Aerial Surveys for Pre-Migration Roosts of Swallow-Tailed Kite
- Rare, Threatened and Endangered Species and Natural Communities on LDWF WMAs and Refuges



LEFT: Caspian terns. CENTER: Young clapper rails. RIGHT: Common gallinule with young.

- Multistate Sandhills/Upland Longleaf Restoration Project

Habitat related projects included:

- Natural Areas Registry
- S1,S2 Habitat Assessments
- Coastal Prairie Stewardship
- Ringgold Calcareous Prairie Restoration
- Natural Community Assessments
- Upland Longleaf and Longleaf Sandhills Management
- Marsh Island Chenier Restoration

ALLIGATOR SNAPPING TURTLE

The alligator snapping turtle (*Macrochelys temminckii*) has experienced significant population declines throughout its range due to harvest pressure and is a species of conservation concern (S3) in the state of Louisiana. A determination of whether or not to list the alligator snapping turtle as Threatened under the Endangered Species Act is scheduled for 2017 by the USFWS. Commercial harvest of this species has been banned since 2004 in Louisiana, although recreational take is still allowed within the state. It appears that the greatest impediment to alligator snapping turtle populations in the state is the lack of juvenile recruitment. This is in large part due to predation of nests and hatchlings primarily by fire ants and raccoons. LNHP and inland fisheries are headstarting hatchling alligator snapping turtles for three years in captivity in order to maximize juvenile survival. Turtles will be released into the wild in areas that indicate that the turtle population is low. These release sites will be determined by gathering data from LDWF state-wide trapping surveys. This project will accomplish the following goals:

- supplement depleted alligator snapping turtle populations in Louisiana with head-started turtles.
- reduce juvenile mortality in headstarted turtles.

- obtain statewide population data to determine status of this species.
- provide data for listing review of alligator snapping turtles as an endangered species by USFWS.

DEEPWATER HORIZON OIL SPILL

LNHP assisted significantly in the ongoing *Deepwater Horizon* oil spill response and NRDA. Staff was and continues to be involved in field surveys, conference calls, meetings and document drafting concerning NRDA.

COMMITTEES

Staff participated in many committees during FY 2012-2013, including:

- Louisiana Forestry Association Endangered Species Committee
- Wildlife Diversity Program Managers Group
- Louisiana Wildlife Federation
- Louisiana Association of Professional Biologists
- Gopher Tortoise Council
- East Gulf Coastal Plain Joint Venture Board

- East Gulf Coastal Plain Joint Venture Prescribed Fire Team
- Nonbreeding Piping Plover Working Group
- Gulf Coast Joint Venture Landbird Working Group
- Reddish Egret Working Group
- Swallow-Tailed Kite Conservation Alliance
- Mississippi Flyway Council Nongame Bird Technical Section
- Barataria-Terrebonne Bird Science Technical Group
- Southeast Partners in Amphibian and Reptile Conservation
- SEAFWA Wildlife Diversity Committee
- LDWF Website Committee
- Louisiana Native Plant Society.
- Gopher Tortoise Bank Review Team
- Louisiana Pine Snake Group
- Natural Areas Association.
- Southeast Partners in Flight Executive Committee
- State Wildlife Action Plan Committees (13 total)
- Gulf Coast Prairies LCC prairie team



LEFT: Alligator snapping turtle pond at LDWF Monroe Hatchery. Turtles in this pond are 2 years old. RIGHT: Indoor raceways at Monroe Hatchery. Raceways have a sand substrate, with aquatic vegetation for cover.

- Gulf Coastal Plain and Ozarks LCC- Adaptation Science Management Team
- Gopher Tortoise Range-wide Conservation Strategy
- Gopher Tortoise Minimum Viable Population
- "Waif" Gopher Tortoise Working Group
- TX-LA Longleaf Taskforce
- Louisiana Pearlshell Mussel Conservation Committee
- Mississippi Gopher Frog Recovery Team
- White-nose Syndrome committee: Southeastern Partners
- Corynorhinus and Myotis Conservation Strategy Development Team
- Louisiana Reptile and Amphibian Taskforce
- Louisiana/Mississippi Conservation Delivery Network
- Louisiana Amphibian Monitoring Program
- Gopher Tortoise Bank Review Team
- Louisiana Pine Snake Working Group
- Louisiana Young Ag Producer Mentor Program

PRESENTATIONS AND PUBLIC EVENTS

Public events that staff participated in included:

- Neotropical Migratory Bird Tour
- Louisiana Wildlife and Fisheries Foundation Auction Bird Tours
- Grand Isle Migratory Bird Festival
- Audubon Endangered Species Day
- National Hunting and Fishing Day
- Yellow Rails and Rice Festival
- Various library, high school and elementary talks.
- Louisiana Public Broadcasting television series on Threatened and Endangered Species
- Palmetto Island State Park Stir the Pot Festival
- Annual Gopher Tortoise Council Meeting
- Annual Gopher Tortoise Spring and Fall Business Meetings
- LPB "Life on the Edge" documentary series
- Roy O Martin presentation
- Houma Courier newspaper interview regarding snakes
- Presentation to LA and TX educators on LA coastal issues
- Houma Courier newspaper interview regarding manatees
- Louisiana Conservationist article on Louisiana pine snakes
- Southeast Partners in Amphibian and Reptile Conservation Annual Meeting

PROFESSIONAL DEVELOPMENT COURSES, OUTREACH AND WORKSHOPS

Staff attended or hosted:

- Becoming an Outdoor Woman
- Birds of Elmer's Island Refuge checklist
- Grand Isle Wetshop
- Sea Turtle Monitoring Workshop
- Longleaf sandhills monitoring protocol training
- Longleaf 201-Herbicides
- Gopher Tortoise Monitoring Workshop
- NatureServe: Biotics 5 Webinar
- Climate Change Webinar
- Demo of Virginia's Online Review Tool
- Gopher Tortoise Minimum Viable Population Workshop
- Longleaf Pine Management on Private Lands workshop

AMPHIBIAN AND REPTILE PROGRAM ACTIVITIES

AMPHIBIAN AND REPTILE SURVEYS

Nearly all field work involved replication surveys as part of SWG T-085 (Amphibian and Reptile Re-surveys for Louisiana). Five sites in southern Louisiana were surveyed four times each this fiscal year to evaluate trends in amphibian and reptile populations at each (compared with previous surveys), and to determine temporal and spatial use by each species. Surveys detected 695 individuals of 34 species. These surveys completed the grant, which was started in October 2010. The results were compared with surveys conducted in 2001-2002. During 245 surveys 72 of a potential 115 species were encountered, including five Species of Conservation Concern. The number of species observed at each site ranged from 16 to 31, and species number was correlated with the number of hours allotted to each site. The number of animals observed per hour declined from 10.5 in 2001-2002 to 7.1 in 2010-2013 (2541 vs. 3052 animals). There was a four-fold decrease in salamander counts, and a roughly 40 percent decrease in anuran and lizard counts. Counts for turtles and snakes were unchanged. Counts for individual species were highly skewed: the most common 10 percent of species comprised 79 percent of the animals that were observed, and 12 species were encountered only once. The numbers of observed vs. predicted species per site ranged from 27 to 58 percent. Trends for some species were driven by single events such as mass metamorphosis and river level fluctuations. Five of the surveys sites were on Lake Ramsey, Pearl River, Sandy Hollow, Thistlethwaite and Waddill WMAs.

The results of 18 years (about 165 hours) of surveys at the Waddill Refuge were statistically analyzed in three six-year blocks (1995-2000, 2001-2006, 2007-2012). There was a general decrease in sightings, the steepest being a five-fold decrease in salamander counts, which also decreased from seven to two species being observed. Anuran counts decreased to about half during the last survey block if cricket frogs were excluded. Cricket frogs made a puzzling, explosive appearance at Waddill: counts for each survey block were three, 205 and 693, respectively. Decrease in lizard counts was based on a decrease in the most abundant species - the ground skink. Five-lined skinks decreased in numbers, but broad-headed skinks increased. The shift in lizard numbers is believed to be based on opening of the canopy from recent hurricanes. Snake numbers decreased due to a steep decline in the most common species, the cottonmouth (three-fold reduction). However, black racer counts increased. Overall, turtle numbers increased, especially those of softshell turtles in the Comite River.

SNAKE TRAPS

Sandy Hollow - traps were closed in August 2012 and were left closed during the remainder of the fiscal year due to work schedule conflicts.

COMMERCIAL LICENSES AND RESTRICTED SNAKES

289 licenses were purchased that involved commerce in native amphibians and reptiles. Of 64 Amphibian/Reptile Dealer Licenses sold by LDWF, 26 were purchased by chain pet stores. The number of permits issued to owners of venomous snakes and large constrictors increased from 71 to 77. The increase was due in part to the regulatory education provided by vendors at reptile shows.

TURTLES

Turtle surveys were funded for 2012-2013 by SWG T-106. Trapping was done by a professional trapper who was contracted to re-survey 13 sites that were also trapped in 1997 and 2007. Overall, turtles (11 species) were trapped at higher rates in 2007 than during the earlier and later surveys. Alligator snapping turtles showed an opposite trend, with a higher trap rate during the recent survey. The most abundant species, the red-eared slider, had a stable trap rate throughout the three survey periods. Trap rates by species and by survey site suggest that turtle populations fluctuate independently of each other, and independently of sites.

LOUISIANA AMPHIBIAN MONITORING PROGRAM

The 17th annual Louisiana Amphibian Monitoring Program meeting was hosted by LDWF at the Woodworth Education Center, and was chaired by LDWF.

PUBLICATIONS AND FORMAL REPORTS

J. Boundy. 2012. Review of: J. Mitchell and W. Gibbons. Salamanders of the Southeast. *Herpetological Review* 43:664-665.

J. Savage and J. Boundy. 2012. On the type species of the snake generic name *Anilius* Gray, 1845 (Serpentes: Typhlopidae). *Herpetological Review* 43:537-538.

J. Boundy. 2013. Louisiana Herpetofaunal Surveys: New baseline data, re-surveys and establishment of permanent monitoring sites. Final Report to U. S. Fish & Wildlife Service, Atlanta. 212 pp.

J. Boundy. 2013. Re-surveys for the Alligator Snapping Turtle in southeastern Louisiana, including trap data for other turtle species. Final Report to U. S. Fish & Wildlife Service, Atlanta. 35 pp.

DEEPWATER HORIZON OIL SPILL RESPONSE & NATURAL RESOURCE DAMAGE ASSESSMENT (NRDA)

Program Manager - Jon J. Wiebe
Biologist Manager - Matthew M. Weigel

RESPONSE ACTIVITIES

During the past year, LDWF staff has remained heavily involved in the continuing clean-up effort for the *Deepwater Horizon* oil spill. The Gulf Coast Incident Management Team (GCIMT) directs response to the *Deepwater Horizon* oil spill and manages ongoing clean-up operations. It is led by the U.S. Coast Guard, with input from BP and the State of Louisiana. LDWF worked in conjunction with Louisiana's trustee agencies (the Louisiana Coastal Protection and Restoration Authority (CPRA), Louisiana Department of Environmental Quality (LDEQ), Louisiana Oil Spill Coordinator's Office (LOSCO), and Louisiana Department of Natural Resources (LDNR)) to ensure that residual re-oiling and oiling threats on our coastline are delineated, cleaned and/or treated where appropriate in an effort to protect wildlife and valuable habitat.

Staff provided comments and recommendations on various plans, numerous Shoreline Treatment Recommendations, Statements of Work and Shoreline Treatment Recommendation variances and participated in Technical Advisory Groups, interagency field trips, and worked with GCIMT to resolve issues related to wildlife and habitat. LDWF staff reviewed and commented on all Shoreline Inspection Reports submitted by

Shoreline Cleanup Assessment Technique teams, requesting that U.S. Coast Guard reconsider removing areas from active response in need of continued patrol and maintenance or treatment. Where appropriate, LDWF staff called attention to the need for long-term monitoring of our shoreline.

When Shoreline Cleanup and Assessment Technique teams surveyed LDWF-managed properties or valuable habitat such as rookeries, our staff accompanied the survey teams in an attempt to ensure that surveys were thorough, accurate, and that best management practices were followed closely. As needed, to assist the state in its efforts to provide skilled representatives on every mission, LDWF broadened our involvement and began joining Shoreline Cleanup and Assessment Technique teams as official state representatives. We worked closely with LDWF land managers on our impacted WMAs, refuges and other managed properties in an effort to maintain LDWF goals and management objectives while clean-up operations remain active.

In sensitive habitat and on WMAs, refuges and other LDWF-managed property, our staff regularly monitored these activities and advised on treatment methods, no further treatment guidelines, and the need for follow-up treatment. We also provided guidance on avoiding impacts to wildlife and wildlife habitat.

During the 2013 nesting season, LDWF biologists regularly surveyed known rookeries, nesting colonies and beaches. With the information garnered from these surveys, LDWF continued to update GCIMT's GIS database, allowing the entire GCIMT to maintain awareness of active nesting habitat and appropriate no-activity buffers. Our staff spent considerable effort filling gaps and ensuring the database was accurate and up to date. When the Operations conflicted with buffers and wildlife, our staff worked closely with the GCIMT to attenuate impacts.

NRDA ACTIVITIES

Office of Wildlife staff members continue work collaboratively with state and federal natural resource trustees to evaluate the potential impacts of the *Deepwater Horizon* oil spill on Louisiana's natural wildlife (non-fisheries) resources. Within the Office of Wildlife, program staff from Coastal Operations, Natural Heritage, Waterfowl, Fur and Marsh Management, Veterinary Services and Rockefeller Refuge have participated in Technical Working Groups for avian and other wildlife resources. Program personnel continue to focus on assessment activities to evaluate potential injuries to natural resources from the *Deepwater Horizon* oil spill and have worked with state trustees on monitoring proposed early restoration projects that may be constructed prior to the completion of the full damage assessment.

LDWF RESEARCH ACTIVITIES

Program Manager - Jon J. Wiebe
 Biologist Manager - Matthew M. Weigel
 Biologist Supervisor - Steven Pearson
 Biologist Supervisor - Rob Dobbs

RESEARCH ACTIVITIES

Ecosystem research allows for a greater understanding of wildlife resources which can be valuable for assessing impacts to our natural resources in future spills or for other needs of the department. Office of Wildlife conducted two studies on diamondback terrapin population and nesting habitats.

POPULATION STATUS OF DIAMONDBACK TERRAPINS (*MALACLEMYS TERRAPIN*) IN LOUISIANA AND THE INTERACTION OF CRAB FISHERIES ON POPULATION VIABILITY

Steven Pearson^a, Will Selman^b, Beau Gregory^c, James Haynes^a, Sergio Merino^a, and Jon J. Wiebe^a

- LDWF, NRDA Group, Lafayette, LA 70508
- LDWF, Rockefeller Wildlife Refuge, Grand Chenier, LA 70643
- LDWF, LNHP, Lake Charles, LA 70601

Overview

LDWF Office of Fisheries is interested in the potential impact commercial blue crab (*Callinectes sapidus*) fisheries may have on diamondback terrapin (*Malaclemys terrapin*) populations within state waters, an impact that has been observed in other parts of the species' range. However, current knowledge of this species within Louisiana is quite limited (i.e., chance encounters and personal observations), with little information regarding population distribution, much less abundance. LDWF-NRDA program is currently implementing a step-wise work plan (2012-2014):

Objectives

- Determine diamondback terrapin distribution and abundance throughout coastal Louisiana.
- Develop bio-statistical modeling component to assist in ascertaining Louisiana terrapin stock status.

EVALUATION OF DIAMONDBACK TERRAPIN (*MALACLEMYS TERRAPIN*) NESTING HABITAT AND REPRODUCTIVE PRODUCTIVITY THROUGHOUT COASTAL LOUISIANA

Steven Pearson^a, Will Selman^b, Beau Gregory^c, James Haynes^a, Sergio Merino^a, and Jon J. Wiebe^a

- LDWF, NRDA Group, Lafayette, LA 70508
- LDWF, Rockefeller Wildlife Refuge, Grand Chenier, LA 70643
- LDWF, LNHP, Lake Charles, LA 70601

Overview

The work plan: "Population Status of Diamondback Terrapins (*Malaclemys terrapin*) in Louisiana and the Interaction of Crab Fisheries on Population Viability" documents terrapin abundance and distribution, a priority species research initiative as identified within the state's WAP, throughout coastal Louisiana. Several physiological and ecological factors may influence these select endpoints including reproductive productivity as well as threats/interactions which potentially limit reproductive productivity (i.e., nest depredation, coastal erosion). The LDWF-NRDA program has been implementing the following work plan (2012-2014):

Objectives

- Delineate terrapin nesting habitat throughout coastal Louisiana.
- Document/evaluate select metrics of terrapin reproductive productivity (i.e., fecundity, egg morphometrics, hatchability, hatching emergence, and nest depredation).
- Describe terrapin nest characteristics (i.e., GPS position, nest age, nest elevation, slope of nest and vegetative presence) throughout coastal Louisiana.

SERVICE PROGRAM

Our program continues to seek out opportunities to assist LDWF programs as well as other natural resource agencies. These efforts are principally geared to addressing ephemeral needs (i.e., availability of trained personnel and associated resources) for partner agencies. However our program provides additional services such as question formulation, work plan development/implementation, statistical analysis and biological interpretation. We continually try to provide our clients with a customizable range of options to address their current needs. Some examples are shown in *Table 3*.

TABLE 3.

Department Program	Years	Program Leads	Department Collaborators	Outside Program Collaborators	Projects
Coastal Operations	2012-2013	Dr. Steven Pearson Sergio Merino	Todd Baker Cassidy Lejeune Shane Granier Michael Greene	N/A	<ul style="list-style-type: none"> Vegetative Surveys Waterfowl Bag Checks Remote Sensing (Colonial) Waterbirds and Habitat)
Natural Heritage	2011-2013	Rob Dobbs Dr. Steven Pearson	Amity Bass Michael Seymour Jeff Boundy	Richard DeMay - BTNEP	<ul style="list-style-type: none"> Secretive Marshbird Surveys Shorebird Surveys Terrapin Surveys
Scenic Rivers	2013	Matt Weigel	Kyle Balkum Keith Cascio	Chuck Hester - LDEQ	<ul style="list-style-type: none"> Wildlife and Habitat Evaluations
Office of Fisheries	2014	Dr. Steven Pearson	Julia Lightner Mark Schexnayder Marty Bourgeois	Tim Osborn – NOS Rad Trascher - CCA	<ul style="list-style-type: none"> Derelict Trap Removal Terrapin and Fisheries Bycatch Evaluation
Federal Program	Years	Program Leads	Collaborators	Outside Programs	Projects
United States Geological Survey	2013-2017	Rob Dobbs	N/A	Scott Wilson Melissa Collins Kate Spear	Shorebird (Piping Plover), Macroinvertebrate and Habitat Evaluation on Isle Derneries (Whiskey, Trinity and Raccoon Islands)

COASTAL OPERATIONS PROGRAM

The Coastal Operations Program is comprised of three sections including the Coastal Operations Section, Oil Spill Section, and Marsh Management Section. The Coastal Operations Section is responsible for the stewardship of 11 coastal WMAs and refuges: Atchafalaya Delta WMA, Biloxi WMA, Isle Dernieres Refuge, Lake Boeuf WMA, Marsh Island Refuge, Pass-a-Loutre WMA, Pointe-aux-Chenes WMA, Salvador WMA, State Wildlife Refuge, St. Tammany Refuge and Timken WMA. The oil spill section is responsible for responding to oil spills throughout the state and conducting damage assessments. These damage assessments are used to seek restoration from the responsible parties to restore the damages that resulted from the spill. The marsh management section has broad responsibility within these WMAs and refuges including supervision of the marsh management units, restoration projects, and maintaining the continuous salinity monitoring stations. The marsh management sections report is combined with the Coastal Operations section in each WMA/refuge due to similar goals of the two sections.

This year the program underwent significant turn over in personnel and many positions were vacated and filled. At the same time, many pieces of equipment underwent much needed maintenance and upgrading to ensure many future years of reliable service. Equipment that was significantly overhauled included the tug boat *Brant* which had both engines overhauled and the entire pilot house upgraded along with several other significant repairs. The *Pintail* barge was also overhauled and outfitted with a new hydraulic power unit. Once back in service, the long reach amphibious excavator was repaired and put on land tracks and domiciled primarily on this barge. The 208 Link-Belt dragline, had many significant repairs such as replacing the cooling system, repairing the boom, and replacing most of the cable. The *Whooping Crane* barge where the dragline resides had a few repairs to the hydraulic power unit and the spud system. Finally the deck barge *N. Shoveler* had the entire deck replaced along with sheets of steel in the side wall found to be out of specification. Our fleet of large equipment is now in excellent shape and performing well.

This year's hurricane season produced one significant storm that impacted the coast. Hurricane Isaac was a slow moving category one hurricane that impacted Southeast Louisiana from St. Tammany Refuge to Pointe-aux-Chenes WMA. The storm first made landfall at the mouth of the Mississippi River then meandered

up through Terrebonne Bay near Houma before being downgraded to a tropical storm. The most significant impacts from this storm resulted from its prolonged storm surge and high salinity. Damages to infrastructure and buildings were observed at Pass-a-Loutre and Pointe-aux-Chenes WMAs. Significant impacts to habitat were realized at all WMAs and refuges east of Atchafalaya Delta WMA.

Between the turnover, equipment downtime and the hurricane it was somewhat of a rebuilding year in the coastal operations program. Despite the difficulties, staff has continued to complete a number of significant projects throughout the state. Our priority continues to be in providing excellent recreational opportunity and implementing a number of restoration projects to improve habitat conditions for a wide suite of wild-life species.

WATERFOWL

An estimated 5,838 duck hunters visited the WMAs during the 11 waterfowl bag checks and averaged 2.7 ducks per attempt. Hunters also harvested 5,145 coots, 125 gallinule, 55 mergansers, 45 rail, 35 snow geese and 10 speckled belly geese. The Limited Access Areas (LAAs) continued to be the most successful hunting locations on their respective WMAs, with the exception of Salvador WMA which was equal to the WMA average.

TEAL SEASON

An estimated 1,525 teal hunters visited four WMAs this year during the four days that waterfowl bag checks were performed. These hunters harvested an estimated 2,327 teal for a success of 1.5 teal per hunter effort

DEER

Self-clearing permits demonstrated that 3,345 hunter efforts were expended to harvest 191 deer (105 bucks and 86 doe). This equates to a success of one deer for every 17.5 efforts. Ninety-one percent of the effort and 89 percent of the harvest was on Atchafalaya Delta WMA

The highest reported success was on Pass-a-Loutre WMA at one deer for every 5.6 efforts.

HOGS

According to self-clearing permits and hunter interviews, 458 hunter efforts were successful in removing 197 hogs for a success of one hog per 2.3 efforts. Ninety-one percent of the effort and 98 percent of the harvest was on Pass-a-Loutre WMA.

COASTAL OPERATIONS SECTION

ATCHAFALAYA DELTA WMA

Area Biologists -

David LeBlanc & Cassidy Lejeune

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 1977 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 enjoys a diverse range of ecotypes from broad upland ridge habitat to mangrove brackish marshes.

WMA staff continue to work closely with USACE on dredging needs of the Atchafalaya River and beneficial use of dredged materials to create new marsh. This year the USACE dredged both the "bay" and "bar" channels of the river. Great Lakes Dredge and Dock Co. (USACE contractor) completed the "bar channel" during November. They disposed approximately 462,880 cubic yards of material on Bird Island East expanding its footprint to 130 acres. This project not only increased the size of the island but increased its elevation and restored the island's attractive colonial seabird nesting habitat.

Weeks Marine was contracted to dredge the "bay channel" and disposed material onto Avocet Island. Additional material was used to create a new island named "Bennett Island." Bennett Island was built with 1.2 million cubic yards of material and is 1.25 miles long. It was finalized with five tidal cuts to increase its attractiveness for a variety of wildlife species. Avocet Island received 920,481 cubic yards of material and was increased to 75 acres in size. This project is similar to Bird Island East and created ideal colonial seabird nesting habitat.

LDWF's staff and equipment dredged out the mouth of Breaux's Pass to facilitate public access. The first 1,000 feet of the mouth of the pass had shoaled to less than 3 feet of depth making navigation difficult and dangerous. LDWF dredged the pass to 8 feet deep by 60 feet wide. The final channel alignment was marked with PVC pipe.

St. Mary Parish is planning to construct a Coastal Impacts Assistance Program Project on the WMA. This project will dredge Deer Island Pass

and use the dredge material to create new marsh east of "Mile Island." LDWF is working with St. Mary Parish's contractor Shaw Group to plan and engineer the project.

Hurricane Isaac impacted the WMA with a weak storm surge that was equivalent to an extremely high tide. Salinity associated with the surge was as high as 11.8ppt and remained above 1ppt for nearly 48 hours. Impacts to the marsh were not significant and only minor flooding and fallen tree limbs were noted following the storm.

Staff continued to maintain facilities, campgrounds and the big island to a high standard this year. On Big Island many fire lanes were trimmed back and extended with assistance from LDWF's bulldozer. A new 30-foot seismic barge was purchased along with the installation of a new generator at the headquarters. Staff also built a new dock at our Berwick landing.

House Bill 376 was passed by the State Legislature and signed into law by Governor Jindal. This law establishes a new houseboat mooring program on the WMA. The new law mandates that 40 percent of the available locations will be bid out and sold to the highest bidder for five-year leases. The remaining 60 percent of the locations will have a set fee and be selected via random lottery every year. This year 53 houseboat mooring permits were issued on the WMA via the previously established protocol. The new program will be started in FY 2013-2014 once it receives final approval.

Staff continues to support a wide variety of research projects by providing lodging and assisting with logistics and information. Two such projects are:

- LSU Renewable Natural Resources students (F. Rohwer's grad. students) who continued to use the Atchafalaya Delta WMA to collect data as part of their dredge spoil island mottled duck/seabird nesting research project at the Main Delta.
- UT Austin graduate students continued with their monitoring of the three dimensional evolution of sand bars and channels at the Wax Delta.



LEFT: Duck hunter on the Main Delta. **RIGHT:** Completed boat dock at Berwick lease. (Atchafalaya Delta WMA)



Photos of dredging activities in the upper bay channel with disposal occurring at Bennett Island. (Atchafalaya Delta WMA)



LEFT: Group photo from first weekend youth hunt. **RIGHT:** Photo from Women in the Wild hunt. (Atchafalaya Delta WMA)

Recreational use of the WMA totaled approximately 29,240 visitors, and total rainfall for the year was 62 inches.

Hunting Statistics

Teal Season

During the four hunter check dates an estimated 700 hunters harvested 620 birds for a 0.9 teal per hunter effort.

Waterfowl Season

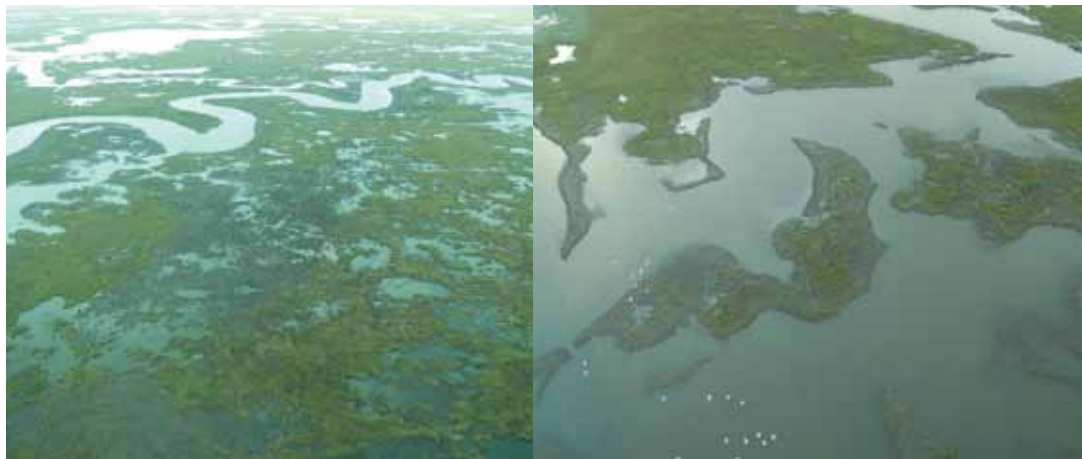
During the 11 waterfowl bag checks conducted, an estimated 2,670 hunters averaged 2.8 birds per hunter. Success in the WMA’s LAAs continue to outpace the WMA average. Hunter success within the LAAs was 3.9 ducks per hunter effort, while success outside the LAAs was 2.9 ducks per effort. The top three species harvested on the WMA were green-wing teal (34%), gadwall (16%), and pintail (11%). Also harvested were 570 coots, five gallinule, 15 mergansers, 35 snow geese, and 10 speckled belly geese.

Deer Season

Archery Season	
Efforts	2,980
Harvest	157 deer (83 bucks, 74 doe)
Success	1 deer/19 efforts
Youth Hunts	
Youth Participants	30
Efforts	58
Harvest	8 deer (1 buck, 7 doe)
Success	1 deer/14 efforts
Women in the Wild Hunts	
Women Participants	5
Efforts	10
Harvest	3 deer (2 bucks, 1 doe)
Success	1 deer/3 efforts
Total Season	
Efforts	3,048
Harvest	168 (86 bucks, 82 doe)
Success	1 deer/18.1 efforts

Hog Season

This year an estimated 35 hunter attempts were made for hog which yielded three hogs for a success of one hog per 11.7 hunting attempts.



Biloxi WMA following Isaac - notice missing and flattened vegetation.

Alligator Season

A total of 170 alligator tags were issued to Atchafalaya Delta commercial (140 tags) and lottery (30 tags) alligator hunters for the 2012 season. LDWF received \$9,631.16 for its 40 percent share of the commercial harvest and \$1,200 from the lottery drawn tags. All hunters filled their tags this year.

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 35,644-acre WMA located in St. Bernard Parish is dominated by brackish smoothchord grass 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.

Hurricane Isaac had significant impacts on the WMA. The most significant were along the shoreline of Lake Borgne where there was severe erosion. The center of the WMA was also hard hit

and stripped of vegetation in many areas. Most of the marsh was flattened by the strong surge and high winds. The area was mostly devoid of submerged aquatic vegetation except for the central and northern portions of the property.

ISLES DERNIERES REFUGE

Area Biologists -
Tyson Crouch & Cassidy Lejeune

This refuge is a series of barrier islands in Terrebonne Parish including Raccoon Island, Whiskey Island, Trinity Island, East Island and Wine Island. This refuge has been managed by LDWF since 1992, and ownership of the islands was transferred to the department in 2000. The refuge is saline marsh/dune habitat and home to the largest colonial waterbird colony in Louisiana (Raccoon Island).

Impacts from the *Deepwater Horizon* oil spill are still found on the refuge in the form of tarballs and tar mats. Shoreline Cleanup Assessment Technique teams visit the refuge from time to time to direct clean up when new sightings are reported.



Staff conducting bird surveys on Isle Dernieres Refuge.



LEFT: Group photo from CRCL/Nicholls/LDWF IDBIR planting project on Sept. 14, 2012. (Isle Dernieres Refuge) **RIGHT:**

The most significant event on the refuge this year was the completion of the of the TE-48 Raccoon Island marsh creation project. This was the second phase of the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) project that began with the construction of eight segmented breakwaters along the gulf-facing shoreline of Raccoon Island. This year Weeks Marine was contracted to dredge sediment from Ship Shoal (6 miles south of the refuge) and dispose of the material on the north side of the island. This project created approximately 53 acres of saline marsh habitat and roughly doubled the size of the island. A large portion of the project area was planted with smooth cordgrass and the northern containment dike was armored with a geo-textile fabric to prolong the integrity of the berm.

Several other restoration projects were also implemented this year including the following:

- The 2013 Restore the Earth Foundation “gulf-saver bag” project at Raccoon Island. Over 4,000 bags containing several barrier island plant species were installed on the east end of the island.
- The annual Coalition to Restore Coastal Louisiana/Nicholls/LDWF planting project. Approximately 2,000 smooth cordgrass plugs and 2,000 black mangrove seedlings were planted as part of the project.
 - ~ 500 mangroves and 100 smooth cordgrass plants were planted on the spit of Raccoon Island.
 - ~ 650 mangroves and 900 smooth cordgrass plants were planted on Raccoon Island.
 - ~ 850 mangroves and 1,000 smooth cordgrass plants were planted on Whiskey Island.
- NOAA/Barataria-Terrebonne National Estuary Program (BTNEP)/LDWF planting project at Raccoon Island for monitoring of the 2013 Gulf Saver Project. This planting effort was more of a “traditional” style project and occurred adjacent to the Gulf Saver Project. Survival/mortality for this project will be used for comparison purposes. Black mangroves, smooth cordgrass, bitter panicum, seaside paspalum, and other species were planted.
- Nicholls University and BTNEP successfully completed two planting projects on Isle Dernieres (Raccoon Island Spit and Wine Island). These projects were a follow up to the 2012 CRCL/Nicholls/LDWF planting project at Isle Dernieres. Plants such as black mangroves, smooth cordgrass, marsh hay cordgrass, bitter panicum, and railroad vine were planted as part of the projects.

The refuge fared surprisingly well after Hurricane Isaac. While the refuge did not escape unscathed, it did not receive similar punishment that it experienced after other recent storms such as Rita, Ike, Lilli, and others. Wine Island changed little after Isaac except perhaps a loss in elevation. Most all of the island is now tidal. Wine is now completely north of the rock ring that used to provide protection from wind driven waves, but this was not a result of the hurricane. Trinity and Whiskey islands experienced little damage with the exception of minimal erosion along the southern edge and at the eastern and western extremities. Raccoon Island experienced a loss of sediment behind the breakwaters, but that loss is expected to



TE-48 Raccoon Island back barrier marsh creation project which enlarged the island by 53 acres. (Isle Dernieres Refuge)

be recovered quickly. The spit of Raccoon Island lost elevation similarly to Wine Island.

There were several research projects on the refuge as well including the following:

- Nicholls and Arkansas State universities finished up their 2012 field season for their breeding waterbird research project involving black skimmers and tern species.
- Elise Gornish of Florida State University continued vegetation surveys on Trinity/East Islands of Isle Dernieres Barrier Islands Refuge as part of her National Science Foundation/North Gulf Institute barrier island monitoring project.

LDWF staff removed in excess of 140 nutria from Raccoon Island this year in an attempt to minimize herbivory to the various planting projects that were implemented on the island this 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.

Coastal Operations staff mowed the ridge and trimmed woody growth in preparation for hunting season twice this year.

Several airboat permits were issued to LOCAP to maintain their pipeline "right-of-way" and maintain signs.

An airboat permit was issued to Mustang Engineering this year for a pipeline survey.

Self-clearing permits revealed that 44 unsuccessful attempts were made to harvest deer this year.

MARSH ISLAND REFUGE

Area Biologists -
Tyson Crouch & Cassidy Lejeune

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 Committee.

The plans to consolidate and rebuild the headquarters and boat sheds damaged by hurricanes Rita and Ike are progressing. An architect, MBSB Group, has been hired to design the new facility which will combine the three buildings into one and replace the airboat shed. Final design and bid documents should be finalized next year. A "master plan" is also being created to renovate/replace the other buildings on the refuge including replacing the entire bulkhead around the island.

Staff completed minor repairs and clearing of the "big impoundment levee." This levee is nearly 12 miles long and has been eroded by hurricanes. Staff cleared the levee with bulldozers and tractors so that engineers and surveyors could design bid specifications and drawings for the repairs. Clearing the levee also allows for maintenance of the levee in its current condition and prevents further deterioration.

Several restoration projects are underway or in the planning stages for the refuge including the following:

- **Marsh Island Chenier Restoration Project:** This project is funded by Coastal Protection and Restoration Authority's Coastal Forest

Conservation Initiative and is designed to restore cheniere habitat through the planting of desired tree species such as live oak and hackberry.

- **LA-39 CWPPRA Coast-wide Vegetative Planting Project:** This project planted approximately 9,200 plants of smoothchord grass, black needle rush and California bulrush along the bayshore between Michel Pointe and Joe Aucoin Point to stabilize soils and slow erosion.
- **Iberia Parish Terrace Coastal Impacts Assistance Program Project:** Iberia Parish has hired a contractor to construct terraces in Lake Tom and Lake Sand with Coastal Impacts Assistance Program funding. This project will create new marsh along with stabilizing the northern banks of the lakes.
- **TV-21 East Marsh Island CWPPRA Project:** This was a CWPPRA project that was constructed last year that restored a large portion of marsh on the refuge. Staff is now monitoring the project and making maintenance recommendations to the CWPPRA agencies.
- Fenstermaker and Associates has been hired to survey and construct bid docu-



Photos of levee clearing project at Big Impoundment. **LEFT:** G. Broussard operating bulldozer. **RIGHT:** Recently cleared levee. (Marsh Island Refuge)



LEFT: Photo of fragmented marsh nourished as a result of Hilcorp's hydraulic dredge disposal. **RIGHT:** Hilcorp's drilling rig in Lake Hawkins being planted via aerial seeding. (Marsh Island Refuge)



LEFT: Staff spraying herbicide on Bayou Platte islands setting back succession. **RIGHT:** Contractor building Iberia Parish Terrace Project. (Marsh Island Refuge)



LEFT: Completed storm platform on the Big Impoundment to store equipment. **RIGHT:** Staff posting boundary. (Marsh Island Refuge)

ments and permit drawings for several levee maintenance and small restoration projects.

- A grant proposal was written for the National Fish and Wildlife Foundation/Shell Marine Habitat Program requesting \$150,000 in funding to elevate and limestone the Bayou Platte Bird Islands. A response to the request will be received next fiscal year.
- Staff conducted prescribed burns on approximately 1,600 acres of marsh this year.

Nutria and muskrats are continuing to have severe impacts on the refuges. Many areas are experiencing severe “eat-outs” and are devoid of vegetation. A nutria program was begun this year in which hunters were selected and put on three-year leases to harvest nutria from the refuge. They were only allowed to hunt for one month this year due to the delayed implementation of the project and 3,135 nutria were harvested. LDWF staff also harvested an additional 640.

Hillcorp Energy drilled a new well in the vicinity of Lake Hawkins. The company worked with LDWF and utilized a hydraulic dredge to dig access to the well location, and beneficially using the material to restore an adjacent area of fragmented marsh. This site was later seeded with smooth chordgrass via airplane.

Staff of the refuge posted and maintained boundary signs throughout the year and set back vegetation on the Bayou Platte bird islands to maintain ideal nesting habitat for a variety of colonial nesting seabirds.

Recreational use of the refuge by fishermen totaled approximately 20,425 visitors, and rainfall for the year was 46.9 inches.

PASS-A-LOUTRE WMA
Area Biologist - Todd Baker
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.

Oil from the *Deepwater Horizon* oil spill is still found throughout the WMA particularly in hotspots such as Middle Ground, Buttermilk Pond, South Pass Spit, Cowhorn Beach, Cow Horn Island, and East Bird Islands. Shoreline Cleanup Assessment Technique teams are still monitoring these sites and prescribing clean up. Wildlife hazing is also continuing at Middle Ground to minimize oil exposure to wildlife.

Pass-a-Loture took a direct hit from Hurricane Isaac this year. Impacts to the headquarters were minimal but impacts to the marsh were severe. An estimated 90 percent of the submerged aquatic vegetation was lost, and most of the emergent marsh was wind and salt stressed. All emergent marsh was brown and laid flat throughout the WMA. Perhaps the heaviest impacts were along the WMAs perimeter. Several hundred acres of marsh were lost along the edge of the WMA and the beaches were heavily battered. The beaches of the East Bird Islands were rolled back in excess of 200 feet, and the South Pass Spit was severely fragmented and lost 1-2 feet of elevation.

There are a few restoration project that were implemented or being planned this year including the following:

- **MR-09 Delta-Wide Crevasse CWPPRA Project:** The final round of maintenance funding is planned to be spent next year constructing and cleaning out four to seven new crevasses. Planning and permitting is underway this year.
- The Restore the Earth Foundation implemented their “Gulf-Saver Bag” project on Buttermilk Pond Beach. This project brought in nearly 40 tons of planting material to plant the beach with smooth cordgrass and black mangrove to sustain the beach face and slow erosion.
- USACE dredged the hopper dredge disposal area and beneficially used the material to create new marsh on Delta NWR. This project removed 8 million cubic yards of sand from the mouth of Pass-a-Loutre which should allow more freshwater to flow down the pass and sustain WMA marshes.

Oil and gas activity continues at a rapid pace. This year Dune Energy drilled two new wells adjacent to Loomis Pass. To access the well sites, a significant amount of dredging was required. The material was dredged hydraulically and beneficially used to nourish and create new marsh adjacent to the pass. Dune also plugged and abandoned 16 wells this year as part of a standing order from the Office of Conservation. Apache Oil also plugged and abandoned two wells this year near Southeast Pass.

LDWF entered into a cooperative endeavor with USFWS this year to begin a hog removal project on the WMA. This project is funded by the Northern Gulf Coastal Program and is designed to document hog damage to the marsh, then remove hogs and document recovery rates of the vegetation. This year several hog impact sites were documented, and 146 hogs were removed from the "treatment area," east of South Pass. Surveys will be flown next year to document impacts a year after treatment and remove hogs again. The technique for removing the hogs is shooting from a helicopter with ground support from airboats.

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

- New bulkhead installed along boatshed and dock.
- Surveys of the Freshwater Impoundment Levees were taken in order to design repairs and obtain coastal use permits.
- Two of the WMA campgrounds were enlarged and leveled.
- Shooting lanes and walking paths were created behind the Cadro Pass campground and at the Freshwater Impoundment.

Several research projects are underway on the WMA including the following:

- River Shrimp Hyper-Parasite Study (ULL)
- Hog Enclosures and Vegetative Response (LSU)
- Wildlife Utilization/Response to Different Restoration Techniques Crevasses vs. Terraces (LSU)
- Fisheries Utilization of Natural vs Man-Made Crevasses on MS River Delta (UNO)
- Deer Tagging Project (survival, movement, home range) (LDWF)



LEFT: New roads/hunting lanes installed on reservoir. **RIGHT:** Staff enlarging Loomis Pass campground and repairing hog damage. (Pass-a-Loutre WMA)

An unknown baleen whale washed ashore on North Pass. Pass-a-Loutre staff assisted our Marine Fisheries Division collect samples for identification. Also this year LDWF botanist Chris Reid and Emille Leblanc documented the finding of a new plant never recorded in Louisiana. "Devil's claw" (*Pisonia aculeate*) was found near Loomis Pass. This plant has only been found in southern TX and southern FL in the United States.

During the winter plover surveys staff documented the presence of 15 piping plover and one snowy plover on the perimeter beaches of the WMA.

The Women in the Wild program visited Pass-a-Loutre for a waterfowl hunt. This program teaches women the "how to's" of hunting through several class room settings then brings them to the field to gain first-hand experience. Six women participated in the event and several ducks were harvested.

Staff banded several waterfowl on the WMA this year including 75 black-bellied ducks, two mottled ducks, and a blue-wing teal.

The headquarters recorded 513 visitors this year. Recreational use of the WMA was estimated to be 26,740 visitors. Self-clearing permits recorded 785 visitors to the campgrounds. Total rainfall for the year was 85.3 inches, 25 of which were recorded during and immediately after Hurricane Isaac.

Hunting Statistics

Teal Season

During the four bag checks conducted an estimated 25 hunters harvested 50 teal for a two teal per hunter success

Waterfowl Season

An estimated 320 hunters using the WMA during the 11 waterfowl bag check dates averaged 3.2 ducks per hunter effort. The LAA averaged 3.6



LEFT: Helicopters and airboats assisting with the USFWS/LDWF hog removal project. **CENTER:** Apache drilling a well near Buttermilk Pond. **RIGHT:** Piping Plover on South Pass Spit. (Pass-a-Loutre WMA)



LEFT: Brown and flat marsh following Hurricane Isaac. **RIGHT:** Youth hunters on the WMA. (Pass-a-Loutre WMA)

ducks per hunter effort. The top three species harvested were gadwall (57%), green-wing teal (15%), and northern pintail (6%). Hunters also harvested 25 coots and 35 mergansers.

Deer Season

Self-clearing permits revealed that 67 hunter efforts were made to harvest 12 deer. This equates to one deer per 5.6 efforts. Hunters harvested 10 bucks and two doe.

Hog Season

Hunter interviews and self-clearing permits recorded 418 hunter attempts harvesting 194 hogs for a success of one hog for every 2.2 hunts

Alligator Season

The commercial alligator hunters filled their allotment of 165 alligators.

POINTE-AUX-CHENES WMA
Area Biologist - Shane Granier

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 smoothcord and wire grass. Point Farm is a 1,000-acre bottomland hard wood ridge that is also located on the WMA

The WMA took a direct hit from Hurricane Isaac. Storm surge inundated most of the farm and topped many of the WMA management levees. All the levees and ditches on the Terrebonne side of the WMA were covered in debris and mud. The storms surge broke the western water control structure in Montegut, and severe scour was noted on the PAC/DU levee system. Although the

storm’s surge did not inundate the headquarters, wind damaged a few of the buildings. The boat shed on the St. Louis canal was missing an entire wall after the hurricane, and the Quonset hut and boat sheds were thrown about in the yard. It was noted that the wrack lines on the WMA contained hundreds of dead birds, nutria and other mammals.

In the few weeks following Hurricane Isaac, staff contracted with local vendors to remove the destroyed Quonset hut, remove the debris from WMA levees and ditches, and repaired the WMA boat launches/parking lots. Contracts were secured with local contractors to survey damage to levees and build construction documents so that repairs could be bid.

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

- **TLCD Mitigation Terraces:** The Terrebonne Levee and Conservation District is building terraces in the PAC/DU unit and just south of the Montegut Unit. These terraces are built as mitigation for wetland impacts from several levee projects. There are a few hundred acres of terraces being built and planned for construction this year.
- BTNEP planted 400 bottomland hardwood trees on Point Farm.
- The Coastal Roots program involved several students from Terrebonne Parish who planted 500 trees of bottomland hardwood species on Point Farm.
- The Restore the Earth foundation planted 200 bottomland hardwood tree species on the farm’s dove field.
- The CWPPRA TE-51 “Madison Bay” Project is still in the engineering and design phase.



LEFT: Dune Energy dredging well location and using sediment to create/nourish new marsh. **CENTER:** Staff collecting samples from beached whale. **RIGHT:** Staff checking in harvested deer. (Pass-a-Loutre WMA)

This project (if constructed) will create several terraces on the WMA.

- The South Lafourche Levee district is planning their upcoming mitigation needs and desires to build terraces inside the Grand Bayou management unit. Staff is working with the district to plan this project.

There have been several significant projects completed or under construction on the WMA. The Terrebonne Levee & Conservation District (TLCD) has begun an aggressive campaign to upgrade and improve many levee systems for the local communities that run through Pointe-aux-Chenes WMA. Some of the accomplishments of the TLCD in conjunction with LDWF include:

- Improvements to the parish 4-1 levee.
- Built a new drainage ditch to facilitate drainage away from the limestone road on Point Farm.
- Upgrades to the Montegut management levee.
- Construction of a large bridge across the eastern water control structure of the Montegut management unit.
- Construction of the Morganza to the Gulf hurricane protection levee on Point Farm.
- They have also begun construction of the "Pointe-aux-Chenes Connection" levee that runs from Point Farm the Morganza to the Gulf J-1 levee that is adjacent to hwy 665.
- They have begun construction of phase 1 of the replacement western water control structure on Montegut management unit. Phase 1 consists of the construction of a sheet pile wall closure and removal of the old structure. Phase 2 will be the construction of the new structure and removal of the sheet pile wall.

A few significant projects LDWF has completed or are underway include the following:

- Replaced the boat sheds adjacent to the headquarters that were destroyed by Hurricane Isaac.
- Replaced the Island Rd S-1 water control structure that assists with the management of the PAC/DU management unit.
- Repaired the Tropical Storm Lee damages to the PAC/DU levee - just prior to Hurricane Isaac.
- Planning the Point Farm/Dove Field ditch clean out project. This project went to bid then was put on hold until a wetland determination had been completed.

The Terrebonne Aquatic Clinic was held at the WMA again this year. This project brings all the fifth grade students from Terrebonne Parish to the WMA to teach them how to fish. Several hundred students went through this class.

During the summer months staff banded 164 mottled ducks and forwarded the information to the staff at Rockefeller Refuge.

Visitor use of the headquarters was 347 visitors. Most of these were by Enforcement Division. Recreational use of the WMA was estimated at 82,530 users. There were three visitors to the campgrounds. Total rainfall for the year was 75.38 inches

Hunter Statistics

Teal Season

During the four bag checks conducted an estimated 645 hunters averaged 2.3 teal per hunter effort.

Waterfowl Season

During the 11 waterfowl checks conducted for the season an estimated 2,393 hunters had an average success of 2.5 ducks per hunter attempt. The top three species harvested were gadwall (27%), L. scaup (23%), and green-wing teal (22%). Hunters also harvested 3,795 coots and 75 gallinule. The LAAs on the WMA continue to be a success for hunters seeking a high quality hunting opportunity. The Montegut LAA averaged 4.3 ducks per hunter attempt and the PAC unit LAA averaged a perfect six ducks per hunter attempt.

Deer Season

Thirteen bow hunt efforts and 23 youth hunt efforts were unsuccessful (0 harvest).

Squirrel Season

An estimated 90 efforts were made averaging two squirrel per effort.

Rabbit Season

An estimated 55 efforts were made averaging 0.25 rabbits per hunt.

Dove Season

Thirteen hunter efforts resulted in the harvest of 94 doves for an average of 7.2 doves per effort.

Hog Season

No attempts were made to hunt hogs this year.

SALVADOR/TIMKEN WMAs

Area Biologist - Shane Granier

Salvador WMA is a 35,121-acre WMA located in southern St. Charles Parish. It was purchased from the Exxon Company in 1968 at a cost of \$21 per acre, and marked the first purchase of



TLCD Terrace Projects in the PAC/DU management unit parallel to the PAC/DU levee. **LEFT:** TLCD amphibious excavator building terraces. **RIGHT:** Contractor (Lowland Const.) building terraces via "flexi-float" and land based excavator. (Pointe-aux-Chenes WMA)



LEFT: Boat sheds destroyed by Isaac. **RIGHT:** Structure #2 in Motegut completely blown out by hurricane Issac. (Pointe-aux-Chenes WMA)



LEFT: New boat sheds installed at the headquarters. **RIGHT:** BTNEP planting trees on Point Farm. (Pointe-aux-Chenes WMA)



BEFORE & AFTER: Point Farm ditch clean out projects conducted by LDWF staff. (Pointe-aux-Chenes WMA)



LEFT: Island Road S-1 Structure repair. **RIGHT:** Completed Bridge on Montegut Unit S-2. (Pointe-aux-Chenes WMA)

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 diverts freshwater from the Mississippi River into the northern portion of Salvador WMA then drains into Lake Cataouatche.

Hurricane Isaac had minimal impacts on the WMAs. The worst damage was the significant erosion along the southern shoreline of Timken WMA. On both WMAs, the elevated water and winds helped remove approximately 50 percent of the water hyacinth. Submerged aquatic vegetation remains in good abundance on the north side of Salvador. There are large expanses of marsh that are laid flat, but were still green and recovered quickly.

Staff from the New Orleans City Park Commission toured Timken WMA this year. They were interested in management goals, public usage and needs of the refuge. WMA staff toured them around the area via airboat.

Staff posted the boundary of Timken WMA this year.

The Office of Risk Management directed WMA staff to board up the headquarters this year. Staff complied by putting plywood across all doors and windows. The new *Mississippi Canyon* houseboat was mobilized to the WMA this year. It will be the main headquarters for WMA projects.

An estimated 24,000 recreational users visited the WMAs this year.

Hunting Statistics

Teal Season

During the four bagchecks conducted this year an estimated 155 hunters averaged 1.1 teal per hunter effort.

Waterfowl Season

During the 11 waterfowl bagchecks conducted this season an estimated 455 hunters averaged 2.3 ducks per hunter effort. The highest success was in the Davis Pond diversion area at 2.5 ducks per hunter and the LAA averaged 2.3 ducks per hunter. The top three ducks harvested were blue-wing teal (37%), gadwall (27%), and green-wing teal (10%). Hunters also harvested an estimated 755 coots, 45 gallinule, five mergansers, and 45 rail.

Deer Season

Self-clearing permits recorded 120 hunter efforts were made to harvest 11 deer (nine bucks and two doe). Hunter success was one deer per 10.9 efforts.

Hog Season

Self-clearing permits revealed that five unsuccessful attempts were made to harvest hogs.

ST. TAMMANY REFUGE

Area Biologists - 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 NWR.

The refuge was completely inundated by Hurricane Isaac's storm surge. Much of the vegetation is laid flat and no submerged aquatic vegetation was noticed to have survived. The most significant impact appeared to be the northern roll back of the shore line of Lake Pontchartrain.

STATE WILDLIFE REFUGE

Area Biologists -
David LeBlanc & Cassidy Lejeune

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 McIlheeny 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.

Staff compiled a project and proposed it for grant funding for the National Fish and Wildlife Foundation's Shell Marine Habitat Program. The project was a small scale shoreline protection/living shoreline project. If selected for funding, it will be installed along the shoreline of Vermilion Bay.



Staff participating in the Tour of Timken WMA with New Orleans City Park Representatives. (Salvador/Timken WMAs)



St. Tammany Refuge following Isaac. Noticed flattened marsh in right picture.



LEFT: Photos from interagency field trip to SW Pass for proposed CWPPRA project. RIGHT: Staff posting boundary of the WMA along bay shore. (State Wildlife Refuge)

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.

Staff provided logistical support for an inter-agency CWPPRA field trip to Southwest Pass. The trip was planned to compile a wetland value assessment for a proposed shoreline protection project. If funded, rock protection would be installed along the gulf shoreline near Tete Butte Reef and Southwest Point. This project would occur adjacent to State Wildlife Refuge.

Coastal Operations staff coordinated with Ducks Unlimited regarding the proposed Tom's Bayou Water Control Structure at the refuge. Staff participated in a conference call about the project and forwarded project details and GIS data to Ducks Unlimited. The project was proposed by Ducks Unlimited for funding at the June 2013 Gulf-Coast Joint Venture Chenier Initiative Team Meeting in Texas.

Primeaux and Associates was contracted to repair the bulkhead on the island. This year we received his preliminary designs and commented on errors. Final design and construction is expected next year.

An estimated 9,780 recreational users visited the WMA this year.

OIL SPILL SECTION

Biologists: Laura Carver & David Garland

The oil spill section monitors and responds to reports of oil spills throughout Louisiana. This section works with federal and state trustees within the incident command structure to minimize impacts to wildlife and sensitive wildlife habitat when oil spills occur. In the event that wildlife is impacted by oil, they also take measures to recover the affected animals and have them treated and later released. In addition to immediate response activities, this section works with other federal and state trustees to assess the impacts that a spill has on wildlife through the Natural Resource Damage Assessment process and develop a restoration plan to be funded by the party responsible for the spill to compensate the public for the injured natural resources.

This year the oil spill section received thousands of reports of oiling from the National Response Center and Louisiana State Police. Staff reviewed the reports daily to assess which spills posed a significant impact to wildlife. For many



LEFT: Oiled pelicans from Venice Marina mystery spill.

of the spills, staff simply coordinated with other responding agencies to gain further information on the necessity of a response action. Staff participated in 198 drills to better prepare for future spills.

Staff was very busy this year responding to spills, developing NRDA cases, completing various training sessions, and coordinating with various state trustees. This year LDWF trained 16 personnel to the 40-hour HAZWOPER level to assist with oil spill response work. Other training and coordination meetings we participated in are as follows:

- LOOP LLC emergency response and training workshop.
- U.S. Coast Guard Geographic Response Plan development with both Sector New Orleans and Morgan City. This document identifies sensitive sites throughout the area to assist in spill response actions.
- Assist in the development of the 2012 Clean Gulf Conference held in New Orleans. Staff

also presented at the conference.

- LDWF attended the LOSCO oil spill response management training.
- Staff was also very involved in the development of the New Orleans Area Contingency Plan which is held by the U.S. Coast Guard.

NRDA

Staff worked diligently this year with other trustee agencies to assess natural resource damages stemming from non-Deepwater Horizon oil spills. Current activities include:

- providing advice regarding a potential capping strategy to stop a continuous release from 2005.
- issuing a Certification of Completion for a crevasse restoration project implemented to compensate for natural resource injuries which occurred from an oil spill in 2000.
- working to close out a restoration project which created several acres of new marsh on Delta NWR.



LEFT: A rehabilitated pelican oiled by Venice marina spill. **RIGHT:** Release of a cleaned and rehabilitated pelican from Venice Marina mystery spill.

- continuing to assist in assessment of recent spills.
- delineating habitat types and inventory flora and fauna on Fifi Island near Grand Isle to evaluate appropriateness for restoration objectives.

RESPONSE

- **Houghton/Chesapeake Operating Spill:** This spill occurred on May 6 when approximately 75 barrels of crude oil and 440 barrels of produced water were released into a small 10-foot wide creek. The spill impacted 200 yards of bayou, and an ORSO was using suction pumps and excavators to remove the contamination. D. Garland observed/ documented multiple dead fish and crawfish at the site.
- **Venice Marina/Mystery Spill:** A freelance reporter informed LDWF of oiled brown pelicans in Venice, La. on April 3. The reporter stated that there were multiple live oiled birds and at least 15 dead pelicans. As a result, Coastal Operations staff conducted two site visits during April to assess the situation, capture oiled pelicans, and collected pelican carcasses. A total of five live pelicans were captured and transported to for rehabilitation. All five pelicans were successfully rehabilitated by Wildlife Response Services and released at Point-aux-Chenes WMA during the later part of April. The source of the oil was never determined.
- **Bayou Perot/Settoon Towing Spill:** This incident occurred on March 12 when a tug boat and oil barge struck a Chevron pipeline in Bayou Perot. The collision resulted in an explosion and sustained fire that lasted several days. T. Baker responded to the incident to survey for wildlife and habitat impacts. No oiled wildlife or oil impacts were observed during the site visit.
- **Lake Grande Ecaille/Swift Energy Spill:** This spill occurred on Feb. 26 when a crewboat struck a well head that ruptured and resulted in a continual release of a mixture of salt water and oil. D. Garland and D. Cassidy conducted a site visit on Feb. 28 and documented marsh impacts in multiple areas. Wildlife threatened by the spill included many sea/waterbirds observed perching on pilings near the site (gulls, terns, cormorants, etc.). Staff also documented many lesser scaup north of the spill site, but none appeared to be impacted. LDWF staff recommended the deployment of multiple hazing cannons where impacts were greatest.
- **Bayou Corne, La./Assumption Sink Hole:** In November, Coastal Operations staff was notified of oil in the area and became involved. Coastal Operations staff conducted multiple site visits. Site visits revealed oil impacts to roughly 8 acres and as much as 70 percent coverage in some areas. Cleanup crews were removing oily debris via excavator and removing free floating product via two rope mop skimmers. The potential for wildlife impacts are high due to the habitat types impacted by oil. Coastal Operations will continue monitoring the site and providing recommendations to minimize impacts.



LEFT: Bayou Perot / Settoon Towing incident. **RIGHT:** Lake Grande Ecaille/Swift Energy



Oiled barred owl and site photograph from Bayou Corne Sink Hole.



Bayou Sorrel oil spill (cleanup crew operating drum skimmer and oil impacts).

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 summer 2012 we estimated that 42,151 alligator nests were present in the coastal marsh habitats an increase of 18 percent from 2011 (*Figure 3*).

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/classification of each participant’s property. 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.

In September 2012, the annual wild alligator harvest produced 34,376 alligators, which averaged 7.5 feet in total length and had an estimated value of over \$11.6 million. Beginning in late winter 2008 and continuing into spring and summer of 2009, the worldwide economic recession significantly impacted world trade in raw and tanned alligator skins and manufactured products. Price and demand for wild and farm-raised alligator skins dropped precipitously during this period. The drop in price and demand coincided with the economic recession and with tanners implementing stricter quality standards. During 2010 and 2011, demand and price for both wild and farm-raised alligators began to recover; that recovery has continued into 2013. It is anticipated that price for wild alligators harvested in 2013 will increase as compared to 2012. Adult-sized alligators (those 6 feet and larger) comprised the majority of the harvest (*Figure 4*).

LDWF provided additional alligator harvest opportunities for the general public by continuing its lottery alligator harvest program. In 2012 the lottery alligator harvest program provided opportunities for 333 alligator hunters to harvest 856 alligators. Lottery alligator harvests were conducted on 43 public areas (WMAs and public lakes) throughout the state.

FIGURE 3. LOUISIANA COASTAL MARSH ALLIGATOR NEST PRODUCTION (1970-2012)

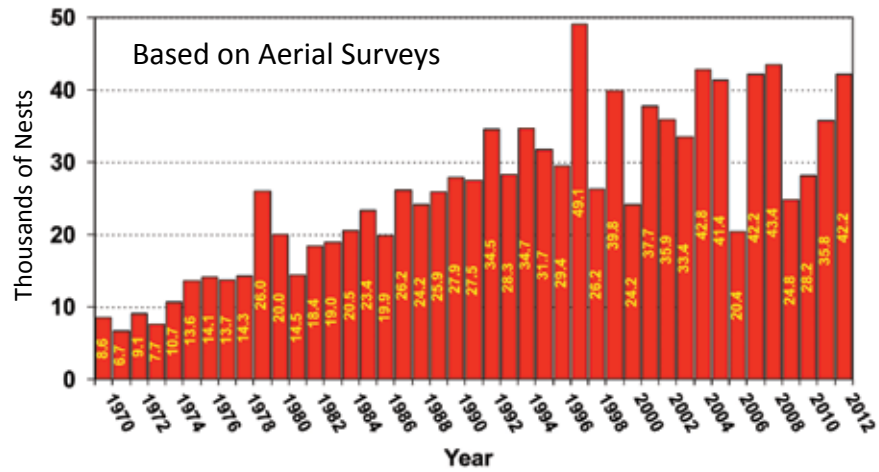
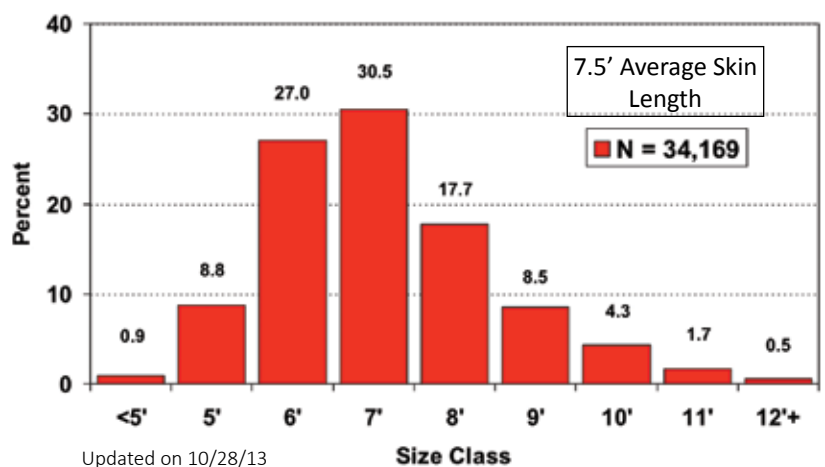
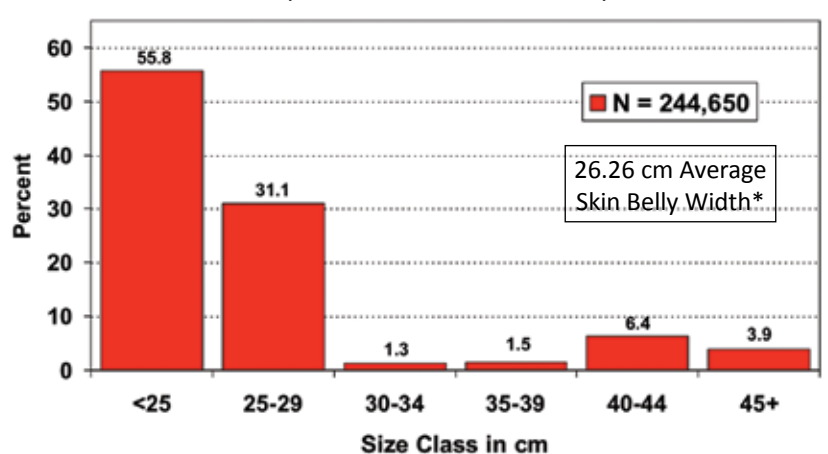


FIGURE 4. LOUISIANA WILD ALLIGATORS HARVESTED (2012 REGULAR HARVEST SKIN LENGTHS)



Updated on 10/28/13

FIGURE 5. LOUISIANA FARM ALLIGATORS HARVESTED (2011 SKIN BELLY WIDTHS)



*Skin length averaged approximately 51 inches, 2011 Tag Year (updated 10/28/13)

FARM ALLIGATOR PROGRAM

The December 2012 statewide farm/ranch inventory totaled 565,036 alligators, up from 376,493 alligators in December 2010, but down from a record 731,909 in December 2008. The decline in 2012 was due in large part to the worldwide economic recession, and to farmers voluntarily limiting their egg collections significantly in summer 2009; then collecting about half the usual amount in 2010 (205,261 eggs) as markets and demand slowly improved. Market conditions continued to improve in 2011-2012 as both skins and meat were in high demand, and in 2011 with farmers collected 353,176 wild alligator eggs yielding 300,546 hatchlings. In 2012 farmers continued to build their inventories collecting 413,648 eggs yielding 349,514 hatchlings. During the 2011 tag year (September 2011 - August 2012) 244,652 alligators with a base value of \$56.5 million were harvested. Average belly width of farm raised alligators was 26.26 centimeters (4.25 feet in length) with the majority of the harvest comprised of 18-29 cm belly width alligators (*Figure 5*). Projected farm alligator harvest for the 2012 tag year (September 2012 - August 2013) is 280,000 alligators valued at over \$67.6 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. The remaining animals can be sold by the farmer. During FY 2012-2013, a total of 32,166 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 were harvested in September 2012, and data on size class and sex ratio collected. Data evaluation continues on survival rates of the farm-released alligators.

Program staff routinely communicate with various alligator industry participants including hunters, 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 2012-2013, a total of 60 nuisance alligator hunters were enrolled in the program; annually the nuisance hunters respond to several thousand complaints and harvest approximately 1,300 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 2012-2013.

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 recent 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. 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. Staff from the LSU Department of Experimental Statistics assists with annual evaluation of survival and growth based on farm "re-traps" recovered in September harvests.

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 ranching quotas). This is an integral part of our required "finding of no detriment" needed to achieve export authorization by the USFWS.



3. Evaluation of Statewide Harvest Program -

We continue to analyze size class frequency distribution, average size, sex ratios, etc. for alligators harvested each year. During the 2012 wild season staff collected sex ratio data on 14,255 alligators (68 percent males, 32 percent females) which represented 41.5 percent of the total alligators harvested. This project, coupled with the coast-wide nest survey provides critical information regarding the status of the wild alligator population. Data generated from these projects provide the basis for evaluating the impact of our current harvest strategies and for establishment of annual wild harvest quotas.

4. Evaluation of Alligator Nest Density -

LDWF biologists work with cooperating alligator farmers to gain access to their GPS data from annual egg collections. This data will facilitate comparisons between our coast wide nest survey and estimates of nest density as recorded by the farmer during egg collections. Some farmers have advised staff of reduced nest production on selected wetlands; close review of this nesting production data will allow us to evaluate nest distribution and density changes over time.

5. West Nile Virus (WNV) -

LDWF, in conjunction with the LSU School of Veterinary Medicine (LSUSVM), continues to monitor occurrence of WNV on alligator farms in Louisiana. Initial mortality related to WNV occurred in fall/winter 2003. Aggressive mosquito control on farms has reduced on farm mosquito populations and seems to have reduced the incidence of WNV in recent years. However, 2012 turned out to be the worst year on record for human cases of WNV in Louisiana and in the U.S. Notifications have been provided to all farmers regarding the increased frequency of occurrence, and farmers have been urged to be diligent with their on-farm practices to control mosquito populations in their grow-out pens and surrounding farm area. During FY 2012-2013 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 WNV vaccine was developed, gained conditional approval by the USDA and became available to farmers

in October 2011 from the Boehringer-Ingelheim Company. The vaccine requires two, 0.5 ml injections into the tail of the alligator (a two to four week interval between injections is recommended). The cost is \$2.50 per injection or \$5 per animal. Work continues on development of a single dose vaccine. Several farmers have taken advantage of this new proactive technology to prevent WNV 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 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 evaluated the most appropriate methods of euthanasia for alligators, and demonstrations were made at industry meetings.

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 will be 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. Facility completion is set for fall 2013 with plans to stock with hatchlings and initiate research projects thereafter.

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 husbandry 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 alligators is conducted to monitor health status of farm alligators released to the wild.

2. LSU Experimental Statistics -

The LSU Department of Experimental Statistics is 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. Assistance is being provided with refining statistical analyses of growth comparisons of farm-released and native wild alligators. Discussions will be needed to transition to new statisticians due to the pending retirement of the current contract statistician and research associate.

3. Nutrition Research (LSU AgCenter, Aquaculture Research Station) -

A detailed research project entitled "Effects of Dietary Protein on Alligator Growth and Air/Water Quality of Production Systems" was undertaken after being listed as a high priority area requiring further knowledge to improve farm production while minimizing costs (avoid feeding excess protein that might go unutilized). The investigators (Dr. Robert Reigh and Dr. Greg Lutz) are evaluating various commercially available feeds with protein levels ranging from 37 percent to 55 percent protein in order to evaluate food conversion rates and water and atmospheric ammonia levels; so as to advise alligator farmers as to the optimum dietary regime available while avoiding toxic ammonia buildup in commercial sheds. Preliminary results showed the 41 percent to 55 percent protein diets were not significantly different in their effects on alligator body weight or chest girth, but the 37 percent protein diet did show significantly lower body weight at the end of the feeding trial. Another study entitled "The Effect of Dietary Energy-to-Protein Ratios for Compounded Alligator Diets" was initiated as well. Dr. Reigh and his research associate

also submitted a manuscript for publication in the scientific literature entitled "Amino Acid Availability of Selected Plant Products and Fish Meal for American Alligator (*Alligator mississippiensis*)" to evaluate the use of corn grain, soybean meal, soy protein concentrate, wheat gluten, and menhaden fish meal for alligator feeds.

4. Electrical Immobilization (Smith-Root, Inc.) -

LDWF contracted with Smith-Root, Inc., to conduct a study entitled "Evaluation of Pulsed Electric Field Technology to Immobilize Farm-Raised Alligators." Recent concerns regarding the handling and euthanasia of reptiles in commercial operations overseas has led the Louisiana alligator industry to evaluate their husbandry and harvesting practices. The recent demand for larger alligator hides has led to an increase in the number of alligators being raised to over 5 feet in length. This creates a new challenge for restraining these animals for evaluation of hide quality and euthanasia. Although electrical immobilization has been well investigated in fish, little work has been done with this technology for alligator immobilization. In order for this technique to be deemed acceptable, a number of studies have to be performed to ensure their humane application. The pilot study was done in late November 2012 to determine applicability of electro-immobilization equipment for alligators and initial results were promising. Numerous tests were done evaluating vertical and horizontal placement of electrode probes; threshold responses of alligators to AC, pulsed bi-polar, and pulsed DC waveforms; voltage gradient and exposure times to induce immobilization; and the effects of temperature on the resulting immobilization. The contractors provided a detailed report entitled "Evaluation of Pulsed Electric Field Technology to Immobilize Farm-Raised Alligators." Further studies are planned for November 2013, to determine if electrosedation is suitable to assist farmers in safe handling of larger alligators, rather than just prior to euthanasia; blood samples for stress hormone analyses and EEGs will evaluate manual restraint vs. electrosedation.

OTHER RESEARCH

We published several abstracts and full papers this year, including records on a farm-released alligator which had survived over 20 years from when it was marked on May 1, 1992 and when it was recaptured on Sept. 7, 2012. We also published findings of native wild and farm-released

alligators dispersing between Louisiana and Mississippi. We co-authored a paper on stem cell niche and replacement of teeth in alligators which was published in the Proceedings of the National Academy of Sciences. We had two abstracts on our research accepted for presentation at the Crocodile Specialist Group meeting held in Manila in May 2012. We also published a "popular" article in our agency's outreach publication *Wildlife Insider* on the alligator egg ranching program.

We co-authored a paper in Comparative Biochemistry and Physiology with physiologists at University of North Texas on cardiovascular control in embryonic, hatchling and yearling alligators.

Dr. Dan Janes from Harvard University continued molecular biology work on alligator embryos provided by LDWF; as did other collaborators and university professors and graduate students. We co-authored a manuscript with Dr. Janes and colleagues which was published in the scientific literature in the journal *Sexual Development*.

We continued to support and collaborate with post-doctoral research associates with their work on oxygen levels in developing alligator embryos and cardiovascular physiology under varying conditions. Associates from several universities (University of North Texas, University of California at San Bernardino, Harvard University, Yale University, Indiana University School of Medicine, Vanderbilt University, and University of Arizona) were hosted at Rockefeller in late summer 2012 and June 2013 to collect additional samples for several studies. Several collaborators made presentations with LDWF staff as co-authors at meetings including the 7th Congress of the International Symbiosis Society in Krakow in July 2012, the Society for Developmental Biology in Montreal in July 2012, the Society for Integrated and Comparative Biology meeting in San Francisco in January 2013, and the Federation of American Societies for Experimental Biology in Boston in April 2013.

We conducted a study on the effects of feral swine on alligator nests; including a detailed survey of all Louisiana alligator ranchers. This was accepted and published in the *Southeastern Naturalist* in 2012, and an updated manuscript is being prepared to summarize results from 2011, 2012, and 2013.

We previously assisted a graduate student from California with his research on use of stable isotopes to determine alligator diet (non-invasive); the manuscript is in review. We also supported Dr. Uriel Zapata with his doctoral research on material properties of alligator mandibular cortical bone. These studies were published in the journal *Bone*, and follow up studies are underway,

with a presentation being made at the Experimental Biology meetings in Boston in April 2013 as noted above.

We also assisted a Ph.D. student from the University of Tennessee with alligator specimens for her research involving molecular techniques and bacterial community diversity in the gastrointestinal tract. We submitted an abstract co-authored with her to the 7th Congress of the International Symbiosis Society which was accepted for presentation at the conference held in Krakow, Poland in July 2012; her work continued into 2013 with additional field trips to Rockefeller to collect water, soil and bone samples.

We published a paper last year on the development of the manus in alligators in collaboration with Dr. Hans Larsson; in June 2012 we began collections of a series of embryos for his further studies. We collected and preserved these embryos through summer 2012, as well as another series of embryos for a graduate student at Iowa State University in summer 2012; and for another research team in June 2013.

Our research efforts have been hampered in large part by lack of holding facilities for alligators. We had a small functioning laboratory, but the tremendous physical plant losses due to Hurricane Rita in 2005 and Hurricane Ike in 2008 have limited our progress. This lab was a shared room in the maintenance workshop and is now not usable due to repairs to the shop. Our biological staff constructed a cover/awning to the semi-repaired holding tanks, which has helped. Initial work done to supply adequate heat to holding tanks was completed in spring 2009 and minor repairs continued this fiscal year. We met several times again this year to discuss schematic drawings for a new lab and holding facility.

PUBLICATIONS/ COOPERATIVE RESEARCH

The following scientific papers were published from approximately July 2012 to June 2013:

Eckalbar, W. L., R. M. Elsey, E. Lasku, A. N. Allen, J. J. Corneveaux, D. F. DeNardo, J. Wilson-Rawls, M. J. Huentelman, A. Rawls, and K. Kusumi. 2012. (Abstract). Evolution of development in the amniotes: new insights from genomic studies of somitogenesis in the lizard and alligator. Presented at the 71st annual meeting of the Society for Developmental Biology. July 19-23, 2012. Montreal, Canada.

Elsey, R. M. and N. Kinler. 2012. The management of American alligators in Louisiana, USA: a history, review, and update. Proceedings of the 21st Working Meeting of the Crocodile Specialist Group. Manila. pgs. 136-148.

Keenan, S. W., A. S. Engel, and R. M. Elsey. 2012. (Abstract). Bacterial community diversity of the American alligator gastrointestinal tract. Presented at the 7th Congress of the International Sym-biosis Society. Krakow, Poland, July 22-28, 2012.

Crossley, D. A., R. M. Elsey, C. Marks, and J. Eme. Environmentally-induced phenotypic plasticity in embryonic reptiles. 2013. (Abstract). Journal of the Federation of American Societies for Experimental Biology. 27:1149.13. Presented at the Experimental Biology meetings. Boston, MA. April 20-24, 2013.

Elsey, R. M. 2013. *Alligator mississippiensis* (American Alligator). Long term survival of farm-released juvenile. Herpetological Review. 44(2):309-310.

Elsey, R. M. and R. Flynt. 2013. *Alligator mississippiensis* (American Alligator). Interstate movement of alligators. Herpetological Review. 44(2):310-312.

Eme, J., R. M. Elsey, and D. A. Crossley II. 2013. Development of sympathetic cardiovascular control in embryonic, hatchling, and yearling female American alligators (*Alligator mississippiensis*). Comparative Biochemistry and Physiology A 165:272-280.

Janes, D. J., R. M. Elsey, E. M. Langhan, N. Valenzuela, and S. V. Edwards. 2013. Sex-biased expression of sex-differentiating genes *Foxl2* and *Fgf9* in American alligators, *Alligator mississippiensis*. Sexual Development. 7:253-260.

Joneson, J., R. M. Elsey, and T. Owerkowicz. 2013. (Abstract). Tenotomy of the caudofemoralis longus has no effect on alligator locomotion. Presented at the Society for Integrative and Comparative Biology meeting. San Francisco, California, January 3-7, 2013. P3.198.

Marks C., J. Eme, R. M. Elsey, D. A. Crossley II. 2013. Chronic hypoxic incubation blunts thermally-dependent cholinergic tone on the cardiovascular system in embryonic American alligator (*Alligator mississippiensis*). Journal of Comparative Physiology B. 183(7):947-957.

Membreno, N., R. M. Elsey, and T. Owerkowicz. 2013. (Abstract). Importance of the calcareous eggshell to normal skeletal development in the American alligator. Presented at the Society for Integrative and Comparative Biology meeting. San Francisco, California, January 3-7, 2013. 137.4.

Shiels, H. A., H. Moore, C. Hill, R. M. Elsey, D. Warren, and D. Crossley. 2013. (Abstract). Effects of developmental hypoxia on alligator cardiac

myocytes. Journal of the Federation of American Societies for Experimental Biology. 27:1149.12. Presented at the Experimental Biology meetings. Boston, MA. April 20-24, 2013.

Tate, K. B., R. M. Elsey, and D. A. Crossley II. 2013. (Abstract). Dehydration stress during embryonic development alters autonomic regulation of the cardiovascular system in the American alligator (*Alligator mississippiensis*). Presented at the Society for Integrative and Comparative Biology meeting. San Francisco, California, January 3-7, 2013. P3.49.

Wu, P., X. Wu, T. Jiang, R. M. Elsey, B. L. Temple, S. J. Divers, T. C. Glenn, K. Yuan, M. Chen, R. Widelitz, and C. Chuong. 2013. Specialized stem cell niche enables repetitive renewal of alligator teeth. Proceedings of the National Academy of Sciences. E2009-E2018.

Zapata, A., R. M. Elsey, and Q. Wang. 2013. (Abstract). Mechanical properties of intramandibular sutures in the American alligator. Journal of the Federation of American Societies for Experimental Biology. 27:519.1. Presented at the Experimental Biology meetings. Boston, MA. April 20-24, 2013.

ALLIGATOR ADVISORY COUNCIL

The Alligator Advisory Council addresses a wide scope of issues concerning the alligator industry locally, nationally and internationally. The council supports husbandry and disease research, addresses public concerns regarding animal welfare, engages in international conservation and trade issues, and develops markets for sustainable Louisiana products.

The council concentrated on several issues associated with alligators and crocodilians through the Convention on International Trade in Endangered Species (CITES) and USFWS programs and regulations. A major accomplishment included the adoption of an expedited CITES export Permit Process (Masterfile System). The Masterfile System substantially saves time and reduces permit costs for alligator farmers and dealers making frequent international shipments. It also covers exports and re-exports, enabling luxury brands to more efficiently utilize the U.S. as a distribution center to Canada and Latin America. The council along with LDWF opened discussions with USFWS and Switzerland to consider a pilot project to test an electronic permitting reporting system.

The videographer from the Swiss national TV program that previously aired the controversial python film failed to comply with numerous requests by both LDWF and alligator farmers for reasonable time to assess his information request regarding the alligator industry and access to farms for filming and interviews. As a result he left Louisiana without obtaining any accurate, current information regarding the Louisiana alligator industry. The subsequent program content was not well received by any of the CITES authorities or other experts in the European Union. LDWF is working closely with Louisiana Public Broadcasting to develop a documentary film on LDWF's alligator management program.

The Alligator Advisory Council along with the Fur Advisory Council and the LDWF worked with some of the biggest names in sustainable use wildlife conservation including Safari Club International, World Wildlife Fund, Traffic and the IUCN Polar Bear Specialist Group to address a proposal at the 2013 CITES conference that threatened the sustainable use of polar bears by the Inuits. The proposal was defeated, however

21 members of the U.S. House of Representatives have sponsored House Resolution 220 which includes provisions encouraging CITES "to adopt stronger protections for polar bears, blue fin tuna, and other endangered species" at the next CITES meeting in 2016.

The Alligator Advisory Council worked with the LSU School of Human Ecology to promote the use of lower grade alligator skins. Several LSU alumni have incorporated grade-3 alligator leather into their fashion lines. Marsh on the Catwalk Alligator Competition was held as a part of the Hemline Fashion Show at Lyceum Dean. Anthony Ryan Auld, winner of Project Runway, Season 2, was afforded grade 3 alligator to design Joanna Cole, then editor of Marie Claire magazine in New York, an outfit for a fashion event. Grade 3 alligator hide design, patterning and construction was demonstrated in a New Orleans Fashion Week workshop. The focus of garment construction was on bustier development. The use of lower grade alligator was promoted in China, Europe and Hawaii by LSU School of Human Ecology faculty.



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 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.

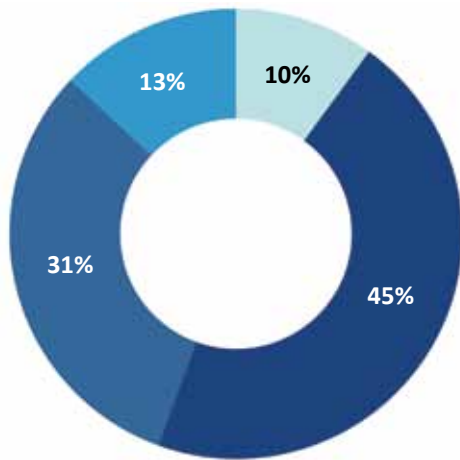
ORGANIZATION

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 Management - 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

FISHERIES FUNDING SOURCES



- Federal Funds
- Statutory Dedications
- Self-Generated Funds
- Interagency Transfer Funds

The Statutory Dedications utilized by the Office of Fisheries are primarily the Conservation Fund and the Artificial Reef Trust Fund. The Conservation Fund is funded primarily by license revenue and oil and gas revenue from 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 offshore 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, research related to species utilizing artificial reef structures, operations of the Artificial Reef program, and other research and monitoring needs of the department.

The Federal funds used by LDWF come from various federal entities, such as U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA), and Gulf States Marine Fisheries Commission (GSMFC). The funds from the USFWS are primarily from Federal Assistance in the Sport Fish Restoration program. The 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, to respond to marine mammal strandings, and to provide assistance to the commercial fishing industry for recovery related to hurricanes. The funds from GSMFC represent various grants that are utilized to collect recreational and commercial fisheries dependent data and provide assistance to the commercial and recreational fishing industry for recovery related to hurricanes.

The 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.

The Self-Generated funds are provided by other non-governmental entities and are used to fund various projects. These projects include fisheries monitoring and seafood safety testing following the *Deepwater Horizon* oil spill and funding for marine mammal and sea turtle stranding response and mapping.

ONGOING MONITORING OF 2010 *DEEPWATER HORIZON* OIL SPILL

Response and recovery efforts related to the 2010 *Deepwater Horizon* oil spill, continued throughout FY 2012-2013. As one of the primary state agencies involved in oil spill response, Louisiana Department of Wildlife and Fisheries (LDWF) staff continued to respond to reports of residual oiling from the spill and participated in response and recovery efforts of marine mammals and sea turtles, participated in the ongoing Natural Resource Damage Assessment (NRDA), and worked to ensure that the seafood harvested in open waters tested at acceptable levels for public consumption according to standards set by the U.S. Food and Drug Administration (FDA) and the Environmental Protection Agency (EPA). LDWF also conducted enhanced fisheries monitoring to better manage fisheries in the wake of the spill.

FISHERIES CLOSURES

Portions of state waters located around Grand Terre Island and Bay Jimmy, within the Barataria Basin, remained closed to all recreational and commercial fishing except for recreational and charter boat angling. Portions of state waters within the Mississippi River Delta also remain closed to commercial fishing. These areas were still closed at the end of FY 2011-2012.

During FY 2012-2013 LDWF took emergency actions to close certain additional state waters to commercial fishing and certain recreational fishing activities due to residual oiling from the *Deepwater Horizon* oil spill. On Sept. 5, 2012, LDWF closed a portion of state outside waters between Caminda Pass and Belle Pass due to the emergence of a large tar mat and concentration of tar balls on Fourchon Beach. Specifically, all commercial fishing and recreational harvest of shrimp, crabs and oysters is prohibited from the eastern shore of Belle Pass at -90 degrees 13 minutes 30 seconds west longitude eastward to the western shore of Belle Pass at -90 degrees 02 minutes 46.6 seconds west longitude. Additionally, on June 26, 2013, LDWF immediately closed all commercial fishing and certain recreational fishing activities in additional areas of Grand Terre Islands due to the discovery of large tar mats in the intertidal and subtidal areas of Grand Terre Islands. These mats were located in areas that were adjacent to but not included in waters previously closed to fishing. This closure includes state outside waters seaward a distance of one-half mile from the shoreline from the southwestern shore of East Grand Terre at -89 degrees 54 minutes 04 seconds west longitude, thence eastward along the shoreline to the southeastern shore of Grand Terre at -89 degrees 51 minutes

39 seconds west longitude, thence eastward along 29 degrees 18 minutes 46 seconds north latitude to -89 degrees 51 minutes 19 seconds west longitude.

ENHANCED RESOURCE MONITORING

In response to the *Deepwater Horizon* oil spill, Fisheries biologists continued independent sampling efforts in order to both monitor fisheries resources and to document trends in Louisiana saltwater fisheries. Monitoring efforts are divided into three components: inshore, nearshore and reef fish monitoring. The information gathered through enhanced monitoring is used to better manage these species in light of the oil spill.

INSHORE MONITORING

Inshore monitoring takes place in the shallower areas around the coast where normal depths are from 1 to 30 feet. Sampling gear in this area includes: seines, trammel nets, gill nets, trawls, dredges and square meters.

In the case of oysters, normal sampling was increased in several coastal areas, including those areas east of the Mississippi River where confirmed reports of oil occurred. In addition to the increases in sampling sites, dredge sampling was also instituted during months when dredging did not traditionally occur prior to the spill (November through February). Increases in sample replication at the sites were instituted in 2011 and continued throughout FY 2012-2013.

NEARSHORE MONITORING

Nearshore monitoring takes place in offshore waters, where normal depths are from 30 to 240 feet. Nearshore monitoring is conducted in the three designated zones off Louisiana's coast: Eastern Zone, Central Zone and Western Zone. A different zone is sampled monthly, which allows each zone to be sampled quarterly during the year. A total of 384 samples are taken on an annual basis. Nearshore sampling provides fishery-independent monitoring (samples collected without direct reliance on commercial or recreational sectors) and assessment data essential to the management of Louisiana's marine fisheries. The information gathered throughout these monitoring efforts is used in stock assessments and management policy.



FIGURE 1. Areas closed to all commercial and recreational fishing except for recreational angling and charterboat angling as of June 30, 2013.

Lab biologists utilize an offshore research vessel and a variety of sampling gear to accomplish proposed work. Groundfish surveys use a 42-foot standard trawl and perform 30 minute tows on a randomized transect, sampling eight sites per transect. Bottom longline utilizes a 1-mile long mainline deployed along proportionally allocated randomized stations of which 100 hooks are soaked for one hour. Vertical line uses commercial bandit gear on production platforms, artificial reefs and natural bottoms. Three bandits rigged with 10 hooks are deployed for five-minute drops per site.

During this reporting period, eight groundfish surveys were conducted sampling a total of 151 stations. Also, three bottom longline surveys were conducted, sampling a total of 46 stations, and one vertical line survey was conducted, sampling a total of 32 stations.

REEF FISH MONITORING

The reef fish monitoring study is a collaborative effort between the Office of Fisheries and LSU. The study takes place on the natural reef habitats located on Louisiana’s shelf edge bank. Many important recreational and commercial species (red snapper, tunas and billfishes) use these areas as spawning, nursery and foraging grounds.

Data is collected during eight 12-day cruises taken each year of the study. Acoustic and video imagery, vertical longline, fish traps and neuston nets are all used to collect valuable information including reef/community structure, population diversity and density, biological metrics, and larval condition.

MARINE MAMMAL AND SEA TURTLE STRANDING AND RESCUE PROGRAM

The LDWF Marine Mammal and Sea Turtle Stranding and Rescue Program is the first responder to all marine mammal and sea turtle strandings in Louisiana. The Office of Fisheries continues to receive and investigate all reports of live and dead marine mammals and sea turtles.

Fisheries 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. All sea turtle carcasses are recovered for necropsy to be performed by a NOAA veterinarian. Where logistically possible and appropriate, marine mammal carcasses are also recovered for necropsies, or are necropsied in the field.

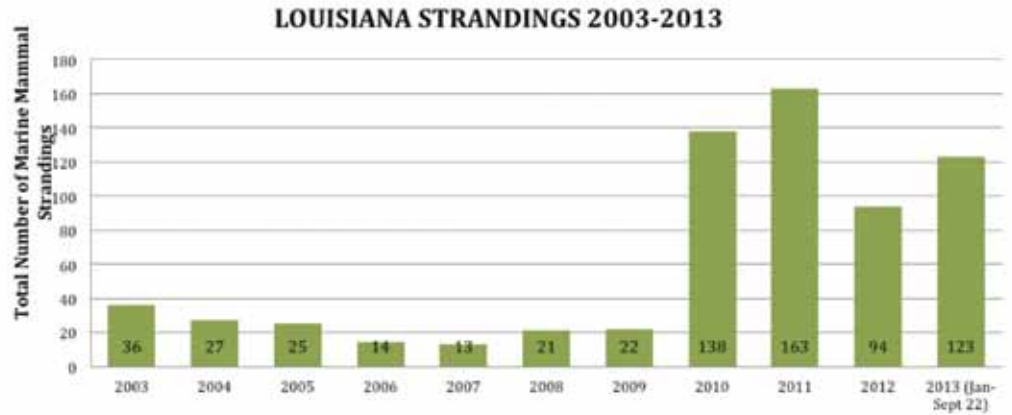


FIGURE 2. Total number of marine mammal strandings in Louisiana from 2003-2013.

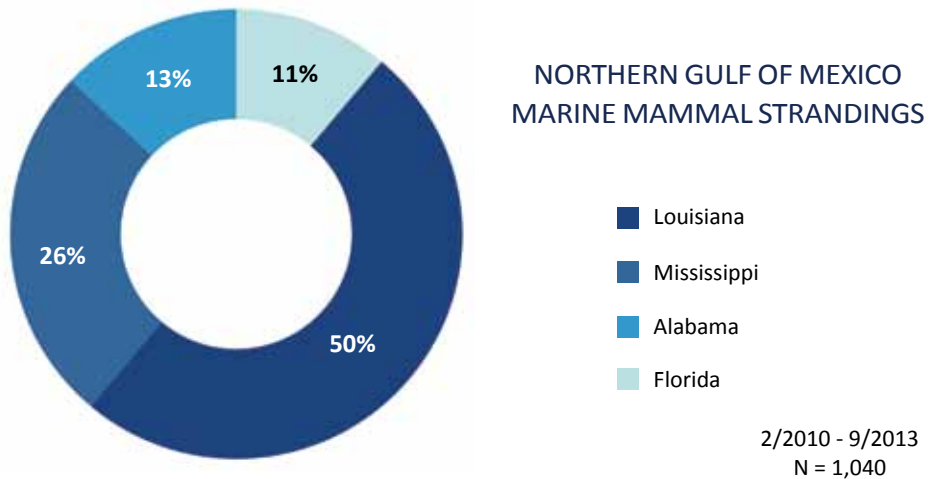


FIGURE 3. Comparison of Northern Gulf UME strandings by state.



LDWF staff release a rehabilitated Kemp’s ridley sea turtle back into the Gulf of Mexico.

Since the onset of the *Deepwater Horizon* oil spill response through June 30, 2013, more than 625 live and dead sea turtles, including incidental captures, have been responded to, as well as over 470 live and dead marine mammals gulf-wide (Figure 2) with 50 percent of the total marine mammal strandings occurring in Louisiana waters.

Currently, the Northern Gulf is enduring the longest and largest Unusual Mortality Event (UME) in the history of the Gulf of Mexico which began in February 2010 (Figure 3). A UME is defined as: "a stranding that is unexpected; involves a significant die-off of any marine mammal population; and demands immediate response"(NOAA).

LDWF assisted with the NRDA Dolphin Health Assessments conducted in Barataria Bay, a region that has seen a large number of marine mammal strandings since the spill. Staff also participated in follow-up monitoring of dolphins sampled in during the Barataria Bay 2011 Dolphin Health Assessments. Live captures of dolphins were conducted in June 2013 through NRDA in collaboration with NOAA/NMFS/National Ocean Service, National Marine Mammal Foundation, International Fund for Animal Welfare staff, independent contractors, Chicago Zoological Society, and trustee entities.

TISSUE TESTING FOR SEAFOOD SAFETY

Following the *Deepwater Horizon* oil spill, state and federal officials worked to address seafood safety concerns about the consumption of fish from Gulf of Mexico waters. While fisheries closures implemented in both state and federal waters were aimed at preventing seafood products that may have come into contact with oil from the *Deepwater Horizon* oil spill from entering the market, additional measures were undertaken in order to ensure that the seafood being harvested in waters off Louisiana's coast met the thresholds set by FDA for safe seafood consumption.

In May 2010, LDWF began collecting, testing, and analyzing seafood tissue samples for polycyclic aromatic hydrocarbons (PAH's) coast-wide on a regular, ongoing basis. In March 2011, LDWF combined its efforts with the Louisiana Department of Health and Hospitals (DHH), Louisiana Department of Agriculture and Forestry (LDAF) and Louisiana Department of Environmental Quality to create The Louisiana Seafood Safety Plan which calls for collection of and testing of samples from inshore species, nearshore

TABLE 1. Tissue testing for FY 2012-2013 by type.

Month/Year	Atchafalaya Vermillion Teche	Barataria	Calcasieu Sabine	Pontchartrain	Terrebonne	Nearshore
FISH SAMPLES						
July 2012	7	7	4	7	7	24
August 2012	7	6	3	2	5	24
September 2012	7	7	5	8	6	21
October 2012	7	7	7	7	7	27
November 2012	6	7	4	8	6	12
December 2012	7	5	6	6	7	9
January 2013	6	7	6	5	6	7
February 2013	6	7	5	6	5	8
March 2013	7	7	5	8	4	58
April 2013	6	6	5	8	4	74
May 2013	6	7	3	5	5	39
June 2013	7	7	5	10	7	11
Total	79	80	58	80	69	314
SHRIMP SAMPLES						
July 2012	1	1	-	2	1	20
August 2012	1	1	-	-	1	17
September 2012	1	1	-	1	1	11
October 2012	1	1	1	1	1	-
November 2012	1	1	1	3	-	20
December 2012	1	1	1	1	1	13
January 2013	1	1	1	1	-	-
February 2013	1	1	1	1	-	10
March 2013	1	1	-	2	1	-
April 2013	1	1	1	-	1	6
May 2013	1	1	1	-	1	1
June 2013	1	1	1	2	1	9
Total	12	12	8	14	9	107
CRAB SAMPLES						
July 2012	1	1	-	1	1	-
August 2012	1	-	-	-	-	-
September 2012	1	1	-	1	1	-
October 2012	1	1	-	1	1	-
November 2012	1	1	1	1	-	-
December 2012	1	-	1	1	-	-
January 2013	1	1	-	1	-	-
February 2013	1	1	-	1	-	-
March 2013	1	1	1	1	1	-
April 2013	1	1	-	1	-	-
May 2013	1	1	1	1	1	-
June 2013	1	1	1	1	1	-
Total	12	10	5	11	6	-

reef fish and pelagic species in addition to corresponding water and sediment samples. The samples were collected, transported and tested based on protocols agreed upon by the FDA, EPA and the Gulf States.

Since sampling onset, over 3,500 tissue samples of crabs, finfish and shrimp from coastal Louisiana have been tested for hydrocarbon contamination, along with corresponding sediment and water samples in many cases.

For FY 2012-2013, LDWF collected 886 composite samples (44 crab, 162 shrimp, and 680 finfish) of seafood for testing. DHH was responsible for collecting all oyster samples. A website (www.gulfsource.org) is available for the public to access the results of those samples. All of those samples tested below the FDA-established levels of concern.

NATURAL RESOURCE DAMAGE ASSESSMENT ACTIVITIES

Since the *Deepwater Horizon* oil spill, Office of Fisheries staff has worked in coordination with state and federal trustees on a NRDA. This co-

ordination included conference calls, work plan development, work plan review, data QA/QC, and many meetings to develop an injury assessment. Staff participated in Technical Work Groups on fish, oyster, submerged aquatic vegetation, marine mammals and sea turtles, in addition to assessments on shoreline, water column, near-shore benthic, lost human use, and response injury. LDWF staff assisted with vessels and staff time in the spring 2013 Nearshore Oyster Sampling Plan, 2013 Oyster Quadrat Abundance Monitoring Plan, 2013 Oyster Recruitment Monitoring Plan, Marine Mammal and Sea Turtle Prey Sampling Plan, and a Dolphin Health Assessment Plan.

EARLY RESTORATION EFFORTS

In April 2011, BP committed to fund up to \$1 billion for Early Restoration of resources in the Gulf of Mexico from the impacts of the *Deepwater Horizon* oil spill prior to the completion of the NRDA. As a part of this process, following agreement between BP and the NRDA Trustees and public review and comment, the Louisiana Oyster Cultch project was funded through the Early Restoration process. The project calls for

the construction of six oyster cultch plants and an oyster hatchery to restore oyster resources injured as a result of the spill. The first two cultch plants were constructed in 2012. Four additional Early Restoration cultch plants were constructed during the past fiscal year. In fall 2012, approximately 20,000 cubic yards of limestone cultch material was spread over a location in Bay Crab (Plaquemines Parish) and approximately 29,000 cubic yards of crushed concrete was deposited at a site in Lake Fortuna (St. Bernard Parish). The following spring, approximately 40,000 cubic yards of limestone were placed on a site in Mississippi Sound near 3-Mile Pass (St. Bernard Parish) and just over 18,000 cubic yards of limestone were spread over suitable water bottoms in Drum Bay (St. Bernard Parish).

On April 1, 2013 the notice to proceed was given to start the construction of the NRDA oyster hatchery on Grand Isle, La. The new hatchery building is intended to help augment oyster production on the early restoration cultch plants. The structure will be similar construction to the adjacent LDWF Marine lab facility including prestressed concrete piles, floor decking and wall panels, and standing seam metal roofing. Construction is ongoing at this time.

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, maintaining healthy fish populations and habitat for the benefit of Louisiana's residents and visitors, both of 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 shrimp sampling continued with last year's modified sampling program. As a result, additional 6-foot and 16-foot trawl sampling stations were included in the sampling plan, and the frequency of sampling was adjusted in some cases. During FY 2012-2013, 128 6-foot trawl and 3,462 16-foot trawl samples were collected. Information crucial to setting both the opening and closing dates for the spring shrimp season in inside waters 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. Nearly 500 square-meter samples are collected each July, and over 3,200 dredge samples are collected during each calendar year.

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 Assessment

The 2012 oyster stock assessment results indicated a decrease (-23 percent) in statewide oyster resource availability on the public oyster seed grounds, with stocks remaining at some of the lowest levels in the last 20 years. The overall statewide oyster stock assessment for 2012 showed approximately 1.234 million barrels of oysters (seed-size and market-sized oysters combined) available. This was the third straight year that the Oyster Stock Assessment indicated declining oyster resources.

Sustainable Oyster Shellstock Modeling

Under contract and through collaboration with LDWF, a research team led by Dr. Tom Soniat at the University of New Orleans (UNO) developed and tested a sustainable oyster shellstock 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 2012 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 in Hackberry Bay during the 2012-2013 oyster season. The model indicated that 3,500 barrels of seed and 4,700 sacks of market oysters could be harvested without detriment to the existing reef mass. Based on the model guidance, the oyster season was closely monitored and closed once these harvest thresholds were met. Although model guidance was produced for all other public oyster areas, the commercial harvest season was only modified for Hackberry Bay.

Fouling and Disarticulation Studies

In the spring of 2013, CSA 7 biologists began a tray study in lower Calcasieu Lake to gather data on fouling and disarticulation rates of oysters through time. As oyster mortality estimates are important to stock size estimates and successful oyster management, accurately determining how long and oyster has been dead is necessary.

Methods of estimating oyster mortality can vary and may include techniques such as counting boxes (box = two oyster valves gaped open, but still attached at the hinge), or counting "recent" dead (counting both boxes and single valves that appear to have died since the time of the previous sampling event). The LDWF oyster management program uses the "recent" dead method, but determinations of "recent" can sometimes be subjective. Therefore, the fouling study was developed to provide photographic examples of the appearance of the inside of oyster shells in a temporal context. The disarticulation portion of the study was developed to determine the temporal integrity of the oyster box (i.e. how long before a box breaks apart into separate valves).

Preliminary data generated from these studies are being compiled and analyzed to provide guidance to future studies. The vast majority of fouling found on shells during each retrieval period was barnacles (*Balanus spp*), and a heavy set of barnacles was found on some shells after only seven days in the water. An educational manual of photographs will be developed to more accurately determine length of time since oyster mortality. For the disarticulation study, a number of boxes disarticulated quickly (24 percent after seven days), but disarticulation seemed to stabilize through time and was 29.2 percent at after 57 days. It is expected that these studies will be repeated in the fall of 2013 and the disarticulation trays will likely remain in the water until all boxes have disarticulated.

Vessel Monitoring System

In an effort to better manage public oyster beds, the Office of Fisheries has implemented the Vessel Monitoring System (VMS) Pilot Program,

which requires oyster vessels fishing on public seed grounds to have a VMS provided by the Office of Fisheries. VMS is a GPS system that utilizes satellites to indicate where a vessel is located at all times, providing valuable data on fishing effort by location. By covering costs associated with the purchase, installation and operation of VMS, important information can be gathered through the pilot program and recommendations can be made to the Louisiana Wildlife and Fisheries Commission (LWFC) regarding greater utilization of this public resource.

In August 2012 the bid for VMS services was awarded to Pole Star/Absolute Software Inc. Shortly after, seed ground permit holders were notified of the new VMS requirement and informed how to schedule an installation. VMS installations began during the Fall of 2012. During FY 2012-2013, roughly 320 VMS units were installed on permitted oyster vessels. Installations



Fouling tray study sample



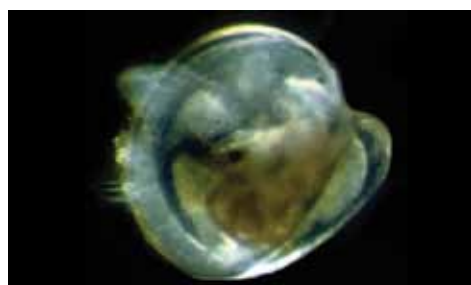
LDWF biologist preparing for a square-meter sample

were suspended in early 2013 and are scheduled to resume summer of 2013 when an updated version of the VMS hardware will be available.

Detailed analysis of the VMS data began in June of 2013 and will continue into FY 2013-2014. LDWF intends to use the data to develop advanced fishing effort models to assist in public seed ground stock assessments. Initial assessments of the data being collected are promising. The project is being funded through a Federal CDBG grant in cooperation with the Office of Community Development. The entire cost of data collection will be covered for the two-year pilot study. After two years, the project will be reassessed along with future funding options.

Oyster Hatchery and Research

Fisheries continued its partnership with the Louisiana SeaGrant Bivalve Hatchery in oyster resto-



A hatchery-raised oyster larvae (pediveliger stage) approximately 14 days post-fertilization.

ration work by utilizing hatchery-reared oyster larvae and spat (spat are oysters that are smaller than 25mm). Between July 2012 and June 2013, LDWF and the SeaGrant Hatchery deployed approximately 6.3 million oyster spat and over 367 million oyster larvae on suitable water bottoms within public oyster areas, namely Calcasieu Lake in southwestern Louisiana. Biological sampling of these plantings has shown poor results, however, as no significant difference in spat numbers can be found in planted areas as compared to surrounding reefs. Additional larvae and spat are planned to be deployed on appropriate public oyster grounds during the next fiscal year as both hatchery and deployment methods continue to be developed for the purpose of increasing spat survival in planted areas.

Remote Setting Program

Since the 2010 *Deepwater Horizon* oil spill, Louisiana’s public oyster seed grounds have experienced significantly lower levels of successful oyster reproduction (oyster spat set). Spat set is a key indicator of the overall oyster population’s stability because it shows the recruitment of young oysters into the population. In response, LDWF developed the Remote Setting Program to increase oyster production levels through the following activities:

- Stockpiling of cultch material.
- Deploying and subsequently “seeding” cultch material with oyster larvae.
- Setting oyster larvae onto cultch material.

- Placing set material into on-shore tanks that can be used for future deployments.

LDWF is working closely with Plaquemines Parish on the Remote Setting Program and is utilizing Buras Boat harbor as the program’s work site. Funding for the project comes from LDWF, CPRA and a CDBG grant through Plaquemines Parish. Site improvements and the construction of work areas and the remote setting tanks are currently in the planning phase. However, the site is currently used as a storage and loading site for cultch material being deployed under the program. LDWF is also collaborating 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.

One component of the Remote Setting Program is designed deploy cultch material to certain pre-selected sites using contracted private oyster vessels. Beginning in December 2012, properly equipped oyster vessels were loaded with material using an aggregate conveyor at the Buras facility. There were 6,149 tons of material deployed at four different sites. They were compensated \$50 per ton and \$6 per mile for participating in the program. This portion of the program targeted the Hackberry Bay, Black Bay and Lake Fortuna areas.

Remote Setting Program numbers as of FY 2012-2013

Total Vessels Participating	35
Total Material Deployed	2,788 tons
Total Payments Invoiced	\$153,361.80

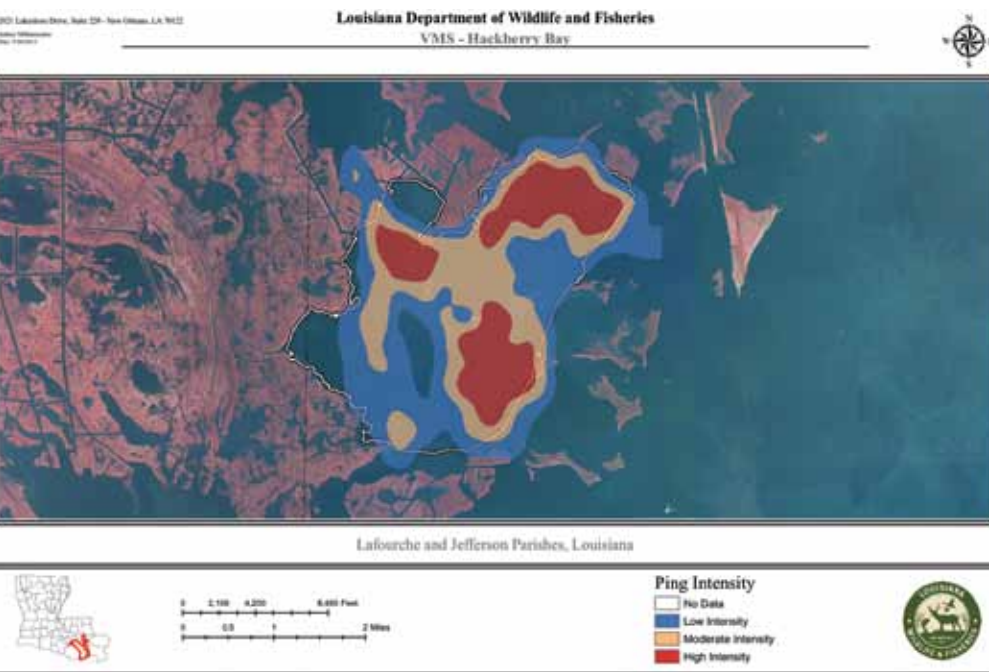


FIGURE 4. Heat map analysis of VMS activity in Hackberry Bay.

Update of Reef Acreage East of Mississippi River (CSA 1-North and CSA 1-South)

Based upon recent water bottom assessments utilizing side-scan sonar in 2010 and 2011, an extensive effort was initiated to update reef acreage (“reef” refers to dense or scattered shell) on public grounds east of the Mississippi River. Historic reef acreage has been utilized for stock assessment calculations since the original water bottom assessments were performed in the mid-1970s. It is expected that this initiative will be completed during the next fiscal year with updated acreage being utilized in the 2013 oyster stock assessment.

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 information 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 designed to sample coastal waters in an objective manner. The surveys collect information based on geographic ranges independent of commercial or recreational fishing operations.

A comprehensive monitoring program was developed in 1985 to protect and enhance our valuable fisheries resources by providing information regarding the status of fish stocks that occur in the coastal waters of Louisiana at some point during their life cycle. Three gear types are used coast-wide to sample various year classes of estuarine-dependent fish.

1. A bag seine is used to sample young of the year and provide information on growth and movement. More significantly, these samples provide information on the forage species and ecological components of marsh-edge and shoreline habitats throughout the coastal zone. Seine samples are taken quarterly during the first month of the quarter.
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 taken monthly from October through March.

During FY 2012-2013 the fishery-independent finfish sampling program collected 1,588 (99 percent) gill net samples, 423 (108 percent)

seine samples, and 533 (99 percent) trammel net samples for a 99 percent completion rate. Seine samples exceeded 100 percent due to extra sampling conducted in some areas of the state. Sample information for FY 2012-2013 includes a re-design in fishery-independent finfish monitoring sampling frequency based upon internal statistical analysis.

FRESHWATER SAMPLING

Freshwater fisheries resources are monitored and managed through various sampling methods. In FY 2012-2013, biologists estimated relative abundance, age, growth and mortality, size class structure and species composition, and genetics of sportfish populations in addition to physiochemical characteristics of the water on 125 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.

One means of freshwater sampling is through electrofishing. Samples are collected in both spring and fall to provide a measure of population trends including abundance, size, distribution, age structure and genetic composition. A total of 756 stations were sampled for 189 hours of timed electrofishing during the fiscal year.

Sampling included largemouth bass and crappies in the spring and fall, with forage samples of all species also collected in the fall.

Seine samples are also taken to determine fish community relative abundance, and young-of-the-year recruitment of popular sport fishes. Eighty-five seine hauls were made during the fiscal year.

Entanglement and trap net webbing are also fished in a standardized manner to collect crappies, catfishes and sunfishes. A total of 289 gill net samples were taken on various lakes and rivers, while 343 lead net and hoop net samples were fished during the fiscal year.

Mini biomass samples (one-day rotenone) were taken in the coastal freshwater marshes as a means to measure species diversity and abundance. Coastal districts cooperatively made 43 biomass samples in FY 2012-2013.

Larval fish samples used to determine the extent of the Asian carp invasion in Louisiana waters was initiated in the spring and summer of 2013. Asian carp populations are continuing to expand and invade United States waters. Ichthyoplankton (drift) nets were used to capture and assess Asian carp in the early life history stages (larvae) in Louisiana waters. By documenting the pres-

TABLE 2. Largemouth genetics analyses on selected Louisiana lakes and rivers during FY 2012-2013.

LAKE/RIVER	SAMPLE #	% NATIVE	% HYBRID	% FLORIDA	% FL GENOME
Caddo Lake	269	64.3%	29.7%	6%	35.7%
Lake Bruin	149	91.9%	7.4%	0.7%	8.1%
Iatt Lake	113	85.8%	12.4%	1.8%	14.2%
Red River #3	130	84.6%	15.4%	0%	15.4%
Red River #4	127	84.2%	14.2%	1.6%	15.8%
Calcasieu River	139	88%	12%	0%	12%



LEFT: Bag Seine sampling. RIGHT: Gillnet sampling.

ence/absence of Asian carp larvae we will have information to assist in determining the leading edge of expansion. Twenty-six waterbodies and 64 stations were sampled and 379 larval collections were taken in 2012-2013.

Trotline studies were conducted on Caddo Lake and Toledo Bend Reservoir to assess the size distribution of blue and channel catfishes. During FY 2012-2013 a total of 130 trotline sets were made during 21 days of sampling to capture catfishes.

Special largemouth bass age, growth and mortality studies continued on eight water bodies during 2012-2013, while crappie age, growth and mortality studies continued on four lakes. The extensive data collected will be used in consideration of existing and proposed harvest regulations. Genetic analyses of largemouth bass populations were completed on six waterbodies statewide with final number sampled and results presented in *Table 2*.

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, crabbers, oyster harvesters and fishermen. Nearly 13,000 commercial fishermen and over 1,500 seafood dealers/processors and brokers register each year to provide the nation with fresh seafood.

Implemented in 1999, 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 sheddors and commercial fishermen holding fresh products licenses. There were over 185,000 commercial fishing trips reported last year producing in excess of 150 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.

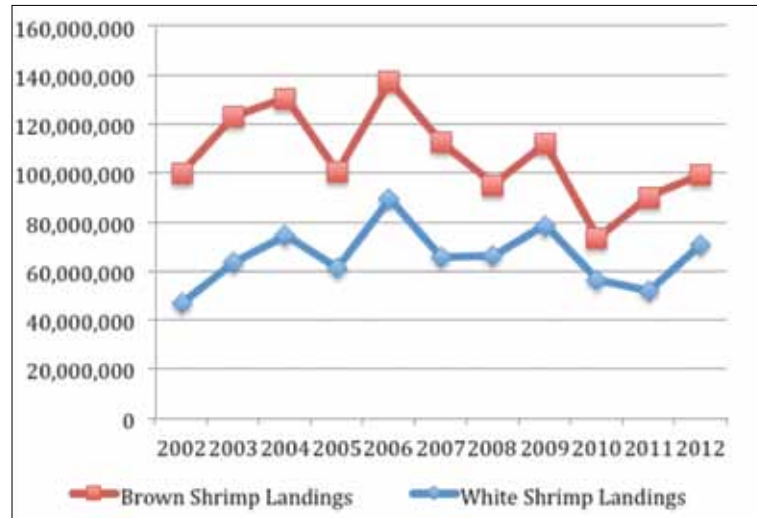


FIGURE 5. White and brown shrimp landings in pounds.

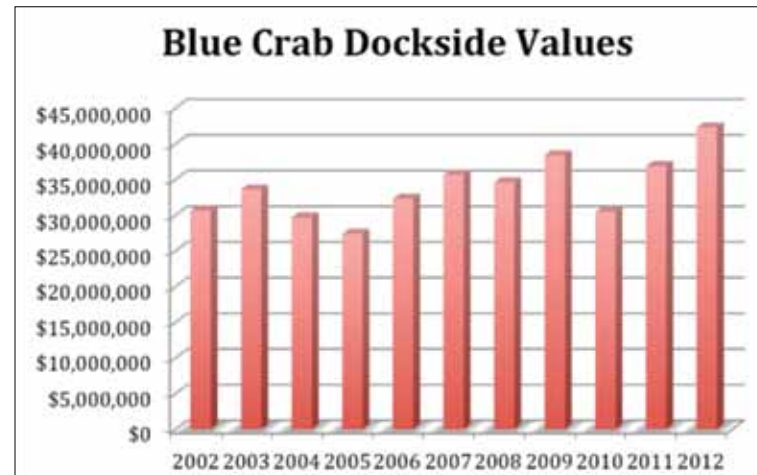


FIGURE 6. Blue crab dockside values.

- 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 2012, total shrimp landings measured approximately 102.2 million pounds (all species combined/heads on weight) and had a dockside value of \$147.5 million. Brown shrimp landings comprised approximately 29 percent of 2012 landings. White shrimp landings in 2012 measured nearly 71.5 million pounds (heads-off) weight.

Louisiana commercial blue crab landings for 2012 totaled approximately 45.4 million pounds and had a dockside value of approximately \$43.1 million. Louisiana lead all states in blue crab landings in 2012, and eclipsed Maryland, last year's leader, by 2.7 million pounds.

Louisiana regularly leads the nation in the production of oysters and continues to account for approximately one-third of the nation's oyster landings. Among Gulf of Mexico states, Louisiana consistently ranks first in landings, accounting for over 50 percent of all oysters landed (*Figures 7 and 8*).

RECREATIONAL HARVEST

LDWF continues to monitor recreational fisheries through the Marine Recreational Information Program and creel surveys. The Marine Recreational Information Program, formerly the Marine Recreational Statistics Survey, in cooperation with NMFS and GSMFC, uses dockside interviews of recreational anglers to determine catch, and

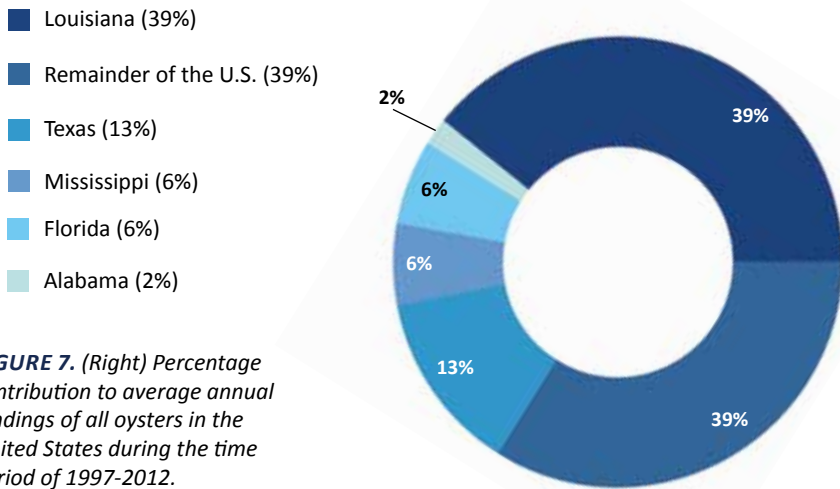


FIGURE 7. (Right) Percentage contribution to average annual landings of all oysters in the United States during the time period of 1997-2012.

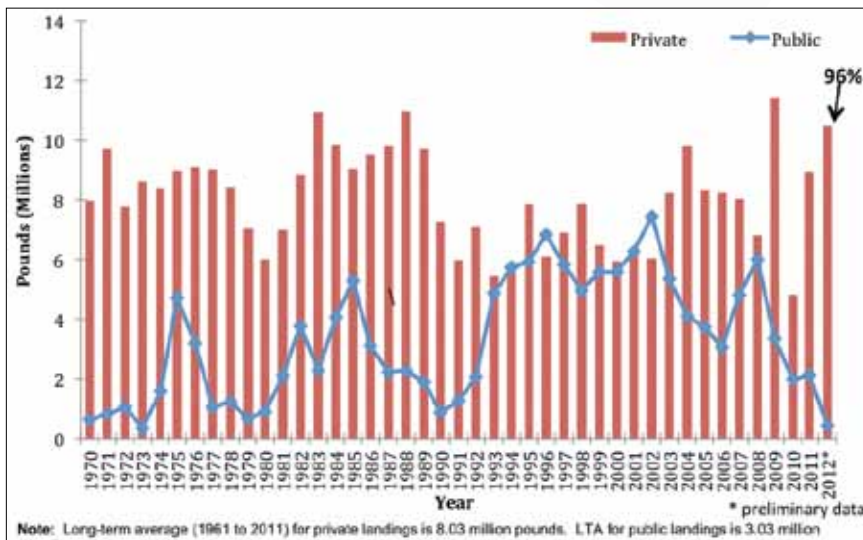


FIGURE 8. Historical Louisiana oyster landings from private oyster leases and public oyster areas.

- Indian Creek Lake
- Lake Bartholomew
- Lake Louis
- Pearl River

A stock assessment of striped mullet in Louisiana waters was produced and presented to LWFC for transmittal to the Louisiana Legislature in February 2013. This assessment uses virtual population analysis to estimate annual time-series of spawning stock biomass and fishing mortality rates. Yield-per-recruit and spawning potential ratio were used to estimate the impact of fishing pressure on potential yield and spawning potential of this stock in Louisiana.

Staff also participated in a benchmark Gulf-wide blue crab stock assessment through the GSMFC’s Gulf Data, Assessment and Review process. This assessment used a modification of the most recent Chesapeake Bay blue crab stock assessment model as a base model to estimate time-series of juvenile and adult abundances, fishing mortality rates, and maximum sustainable yield related reference points. The final report is available at <http://www.gsmfc.org/publications/GSMFC%20Number%20215.pdf>.

Fisheries staff began work on a stock assessment of black drum in Louisiana waters. This assessment will explore various age-structured modeling options appropriate to the available data. A final report will be available in FY 2014-2015.

Largemouth bass population dynamics and fishery characteristics were determined for 10 Louisiana waterbodies. Additionally, equilibrium age-structured population models were developed to simulate each fisheries response to multiple size regulations. Results provide the information to better understand the effects of current largemouth bass harvest regulations on their fisheries while also providing a baseline to compare future regulation change against. Final project reports are available describing the status of each waterbody’s largemouth bass population and fishery, as well as a comparison of population dynamics and fishery characteristics among all waterbodies included in this project.

a telephone survey to determine charter fishing effort. During FY 2012-2013, fisheries biologists conducted approximately 6,451 interviews of recreational fishermen along Louisiana’s coast. There were an estimated total of 4,057,976 angler trips taken. Anglers harvested an estimated 8 million spotted seatrout and 2.1 million red drum during this time. Approximately 400 charter vessels were monitored with an estimated 121,026 charter angler trips during this time. It should be noted that the number of angler trips and harvest estimates include preliminary figures for the first six months of 2013.

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 freshwater fish harvested. Three recreational creel surveys were conducted on inland waters during FY 2012-2013. These lakes and rivers include Poverty Point Reservoir, Calcasieu River and Latt Lake.

ASSESSMENTS

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.

WATERBODY MANAGEMENT PLANS

Waterbody Management Plans are a compilation of lake description, history, authorities, synopsis of fisheries and vegetation sampling data, analyses, corrective measures needed, and recommended actions. During FY 2012-2013, the nine management plans below were approved. Plans will be available on the LDWF website once reviewed and approved.

- Black Bayou Reservoir
- Blind River
- Claiborne Lake
- Calcasieu River
- Crooked Creek Lake

MARINE FISHERY MANAGEMENT PLANS

LDWF will begin developing new and updating existing fishery management plans to provide a mechanism to strategically implement science-based management recommendations for 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 has developed a document to guide the development of future fishery management plans with reference to applicable principles and standards of the United Nations Food and Agriculture Organization Code of Conduct for Responsible Fisheries.
- A first draft of a revised pilot fishery management plan for Louisiana blue crab will be completed by Oct. 31, 2013. Estimated completion date is March 21, 2014.
- The fishery management plan will also be complemented by a United Nations Food and Agriculture Organization-based self-assessment.

MANAGEMENT RECOMMENDATIONS

Through utilization of the previously mentioned recreational and commercial sampling techniques, fisheries managers then analyze the resulting data to develop recommendations to renovate 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

Since 1975, LDWF has managed the shrimp fishery in inside waters using a shrimp management zone concept that has provided the flexibility needed to create staggered opening and closing dates, season extensions, special seasons, and special gear seasons between shrimp management zones. However, greater flexibility in managing the shrimp resource is now provided through the use of a basin type management 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, and Calcasieu and Sabine River basins.

Based on analysis of historic data, as well as data generated from biological sampling conducted by Fisheries biologists, the following shrimp management recommendations were made to the Secretary of LDWF and the LWFC. These measures were implemented during FY 2012-2013.

Pontchartrain and Portions of Mississippi River Basins

2012 - Spring Inshore Shrimp Season

Opened at 6:00 am May 21, 2012 from the MS/LA state line westward to South Pass of the Mississippi River
Closed at 6:00 am July 9, 2012 except for the following waters:

- Lake Pontchartrain including Rigolets Pass from the mouth of Lake Pontchartrain extending eastward to the western side of the CSX Railway Bridge.
- Chef Menteur Pass from the mouth of Lake Pontchartrain southeasterly to the mouth of Lake Borgne.
- The Mississippi River Gulf Outlet.
- That portion of Lake Borgne seaward of a line extending one-half mile from the shoreline.
- That portion of Mississippi Sound beginning at a point on the Louisiana-Mississippi Lateral Boundary at latitude 30°09'39.6" N and longitude -89°30'00" W; thence southeasterly to a point at latitude 30°03'12" N and longitude -89°21'30" W; thence northeasterly to the most easterly point on Isle Au Pitre at latitude 30°09'20.5" N and longitude -89°11'15.5" W, which is a point on the double-rig line; thence northerly along the double-rig line to a point on the Louisiana-Mississippi Lateral Boundary at latitude 30°12'37.9056" N and longitude -89°10'57.9725" W; thence westerly along the Louisiana-Mississippi Lateral Boundary to the point of beginning.
- The open waters of Breton and Chandeleur sounds as described by the double-rig line.
Closed at 6:00 am July 14, 2012 except for the following waters:
 - The open waters of Breton and Chandeleur sounds as described by the double-rig line.

2012- Fall Inshore Shrimp Season

Opened at 6:00 p.m. Aug. 13, 2012 from the MS/LA state line westward to South Pass of the Mississippi River.

Closed at official sunset Jan. 18, 2013 except in the following areas:

- The open waters of Breton and Chandeleur sounds as described the double-rig line in R.S.56:495.1(A)2.

2013 - Spring Inshore Shrimp Season

Opened at 6:00 a.m. May 27, 2013 from the MS/LA state line westward to South Pass of the Mississippi River.

Closed at 6:00 a.m. July 18, 2013 except for the following waters:

- That portion of Mississippi Sound beginning at a point on the Louisiana-Mississippi Lateral Boundary at latitude 30°09'39.6" N and longitude -89°30'00" W; thence southeasterly to a point at latitude 30°03'12" N and longitude -89°21'30" W; thence northeasterly to the most easterly point on Isle Au Pitre at latitude 30°09'20.5" N and longitude -89°11'15.5" W, which is a point on the double-rig line; thence northerly along the double-rig line to a point on the

Louisiana-Mississippi Lateral Boundary at latitude 30°12'37.9056" N and longitude -89°10'57.9725" W; thence westerly along the Louisiana-Mississippi Lateral Boundary to the point of beginning.

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

Western Mississippi River, Barataria, Terrebonne, Atchafalaya River and Vermilion-Teche River Basins

2012 – Spring Inshore Shrimp Season

Opened at 6:00 am May 7, 2012 from the eastern shore of South Pass of the Mississippi River westward to the Atchafalaya River Ship Channel Buoy Line.

Closed at 6:00 am June 23, 2012 except for the following waters:

- That portion of state inside waters from the eastern shore of South Pass of the Mississippi River westward to the eastern shore of Bayou Lafourche.

Closed at 6:00 am July 9, 2012 in the remainder of these waters.

2012 – Fall Inshore Shrimp Season

Opened at 6:00 a.m. Aug. 13, 2012 from the eastern shore of South Pass of the Mississippi River westward to the western shore of Vermilion Bay and Southwest Pass at Marsh Island.

Closed at official sunset Dec. 18, 2012 except for the following waters:

- The portion of state inside waters within the Terrebonne Basin south of 29°13' 00" N from -90°18'00" W westward to -90°34'00" W, and those inside waters south of 29°06'00" N from -90°34'00" W westward to -90°46'00" W.

Closed at official sunset Dec. 20, 2012 in the remainder of these waters.

2013 - Spring Inshore Shrimp Season

Opened at 6:00 a.m. May 13, 2013 in the following waters:

- That portion of state inside waters from the eastern shore of Bayou Lafourche westward to the western shore of Vermilion Bay and Southwest Pass at Marsh Island.
- That portion of state outside waters extending 3 nautical miles seaward from the shoreline from the Atchafalaya River Ship Channel at Eugene Island as delineated by the Channel red buoy line westward to the western shore of Freshwater Bayou Canal at -92 degrees 18 minutes 33 seconds west longitude.

Closed at 6:00 a.m. July 4, 2013 from the eastern shore of Bayou Lafourche westward to the Atchafalaya River Ship Channel at Eugene Island as delineated by the Channel red buoy line except for the following waters:



FIGURE 9. 2012 Fall Shrimp Season Opening Map.



FIGURE 10. 2013 Spring Inshore Shrimp Season Opening Map.

- That portion of state inside waters south of 29 degrees 15 minutes 00 seconds north latitude from 90 degrees 18 minutes 00 seconds west longitude westward to -90 degrees 34 minutes 00 seconds west longitude, and those inside waters south of 29 degrees 07 minutes 00 seconds north latitude from -90 degrees 34 minutes 00 seconds west longitude westward to -90 degrees 50 minutes 30 seconds west longitude.

Closed at one-half hour after sunset July 6, 2013 from the Atchafalaya River Ship Channel at Eugene Island as delineated by the Channel red buoy line westward to the western shore of Freshwater Bayou Canal.

Closed at 6:00 a.m. July 18, 2013 in the remainder of these waters.

Mermentau, Calcasieu and Sabine River Basins

2012 - Spring Inshore Shrimp Season

Opened at 6:00 am May 21, 2012 from the Atchafalaya River Ship Channel Buoy Line westward to the LA/TX state line.

Closed at 6:00 am July 9, 2012 except for the following waters:

- That portion of state inside waters from the eastern shore of the Calcasieu River Channel westward to the LA/TX state line.

Closed at 6:00 am July 12, 2012 from the eastern shore of the Calcasieu River Channel westward to the LA/TX state line.

2012 – Fall Inshore Shrimp Season

Opened at 6:00 a.m. Aug. 13, 2012.
Closed at official sunset Dec. 18, 2012.

2013 – Spring Inshore Shrimp Season

Opened at 6:00 a.m. May 27, 2013 from the western shore of Vermilion Bay and Southwest Pass at Marsh Island westward to the LA/TX state line.

Closed at 6:00 a.m. July 9, 2013.

Offshore Shrimp Seasons

Closed at official sunset Dec. 18, 2012 in the following waters:

- That portion of state outside waters, south of the Inside/Outside Shrimp Line as described in LA R.S. 56:495 seaward a distance of 3 nautical miles, from the northwest shore of Caillou Boca at -90°50'27" W west-

ward to the Atchafalaya River Ship Channel at Eugene Island as delineated by the Channel red buoy line.

Closed at official sunset Jan. 7, 2013 in the following waters:

- That portion of state outside waters, south of the Inside/Outside Shrimp Line as described in LA R.S. 56:495 seaward a distance of 3 nautical miles, from the Atchafalaya River Ship Channel at Eugene Island as delineated by the Channel red buoy line westward to the western shore of Freshwater Bayou Canal at 92 degrees 18 minutes 33 seconds west longitude.

Opened at 6:00 a.m. April 16, 2013 in the following waters:

- That portion of state outside waters, south of the Inside/Outside Shrimp Line as described in LA R.S. 56:495 seaward a distance of 3 nautical miles, from the northwest shore of Caillou Boca at -90°50'27" W westward to the Atchafalaya River Ship Channel at Eugene Island as delineated by the Channel red buoy line.

Opened at 6:00 a.m. May 13, 2013 in the following waters:

- That portion of state outside waters, south of the Inside/Outside Shrimp Line as described in LA R.S. 56:495 seaward a distance of 3 nautical miles, from the Atchafalaya River Ship Channel at Eugene Island as delineated by the Channel red buoy line westward to the western shore of Freshwater Bayou Canal at 92 degrees 18 minutes 33 seconds west longitude.

BLUE CRAB MANAGEMENT

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, and minimum size limit, time, gear and area restrictions.

Louisiana's annual commercial blue crab landings have typically been above 40 million pounds since 1997 with landings from 2002 through 2009 averaging 47.4 million. However, there have been notable decreases including reductions related to hurricanes Katrina and Rita in 2005, and in the years since the 2010 *Deepwater Horizon* oil spill landings are still below the 2002-2009 average of 47.4 million pounds. Inception of the LDWF Trip Ticket Program in 1999 has significantly increased the ability to monitor trends in blue crab catch rates coastwide as well as among estuarine basins.

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 LDWF secretary and LWFC and implemented during FY 2012-2013:

July 2012

- Commercial king mackerel season opened on July 1 at 12:01 a.m., concurrent with a federal opening.
- Commercial fisheries for small coastal sharks and large coastal sharks re-opened July 1 following an annual seasonal closure from April 1 through June 30.
- Commercial fishery for large coastal sharks closed on July 6 at 11:30 p.m., concurrent with a federal closure.
- Recreational fishery for red snapper closed on July 16 at 11:59 p.m., concurrent with a federal closure from NOAA Fisheries and GSMFC.
- The LWFC adopted a Notice of Intent at its July meeting to modify regulations requiring a free Offshore Recreational Landings Permit to include all species of reef fish from the following groups: amberjacks, snappers (except gray snapper), groupers and hinds. Public comments on the Notice of Intent were accepted until Thursday, Oct. 4, 2012.
- The LWFC adopted a Notice of Intent at its July meeting to modify harvest regulations for reef fish to require reporting and validation of recreationally landed reef fish. Reef fish included in the reporting and validation requirements are: red snapper, greater amberjack, gag, red grouper, black grouper, yellowfin grouper, yellowmouth grouper, scamp, rock hind and red hind. Reef fish regulations were also modified to allow the

Secretary of LDWF to close, open, re-open or re-close any reef fish season if state or federal landings allocations were met. Proposed changes in the regulations would require that a written harvest report be maintained on a vessel recreationally possessing the above species as well as require the validation of those species caught or possessed prior to offloading. Public comments on the Notice of Intent were accepted until Thursday Oct. 4, 2012.

- The LWFC adopted emergency regulations to close the recreational season for the harvest of gray triggerfish consistent with federal regulations on July 4, 2012 at 11:59 p.m.

August 2012

- Louisiana closed the commercial season for the harvest of king mackerel on Aug. 22, 2012 at 12:00 p.m. consistent with federal regulations.

October 2012

- Commercial fishery for the harvest of striped mullet with a strike net opened on Oct. 15, 2012.

December 2012

- Final rules requiring a no cost Recreational Offshore Landing Permit published in the December 2012 Louisiana State Register. Recreational anglers and charter captains must now have a Recreational Offshore Landing Permit when landing tunas, swordfish, billfish, snappers (except gray), amberjacks, groupers and hinds. Permit rules also require the reporting of all recreationally landed yellowfin tuna prior to offloading. Charter captains are permitted to use an LDWF-issued landing tag and may report landings after offloading yellowfin tuna. Along with the publication of final rules requiring this permit and yellowfin tuna reporting, LDWF launched a website, a toll free phone number, and an Android and iPhone application to facilitate permit registration and yellowfin tuna reporting. Information regarding the program can be found at www.wlf.la.gov/rolp. Public meetings were held regarding the new program, news releases were issued and letters were sent to all reef fish and highly migratory species permitted charter/headboat operators. The LWFC, at its December meeting, adopted a Notice of Intent to modify existing rules for the harvest of large coastal sharks. Proposed rule modifications would adopt a 36 shark possession limit consistent with federal regulations. At that same meeting the LWFC also

adopted emergency rules allowing the 36 shark limit to be in effect immediately with the current season.

- Commercial fishery for spotted seatrout closed at midnight on Dec. 31, 2012.
- Commercial fishery for small coastal sharks closed on Dec. 31, 2012.

January 2013

- Commercial fishery for small coastal sharks opened at 12:01 a.m. Jan. 1, 2013.
- Commercial fishery for non-sandbar large coastal sharks opened at 12:01 a.m. Jan. 1, 2013.
- All Louisiana waters closed to the commercial harvest of striped mullet with a mullet strike net on Jan. 15, 2013.
- 2012-2013 commercial king mackerel season was set consistent with federal season.
- The LWFC set the 2013 recreational greater amberjack season with creel and size limits consistent with federal regulations, including the June through July closure.
- The LWFC set the 2013 commercial greater amberjack season consistent with federal regulations, including the adoption of emergency rules to implement the 2,000 pound commercial trip limit.
- Commercial fishery for spotted seatrout opened on Jan. 2, 2013.

February 2013

- The annual stock assessment for striped mullet was presented to the LWFC for transmittal to the Louisiana Legislature.
- The final rule modifying state reef fish harvest regulations to implement a weekend only Louisiana state waters recreational red snapper season beginning on the Saturday preceding Palm Sunday and ending Sept. 30 of each year were published in the Louisiana State Register on Feb. 20. The season will allow a recreational bag limit of three red snapper per day at 16 inches minimum total length. A weekend would be defined as Friday, Saturday and Sunday, with the exception of the Mondays of Memorial Day and Labor Day which would also be classified as a weekend. The rule also includes provisions allowing the Secretary of LDWF to modify the portions of that rule pertaining to red snapper recreational harvest limits and seasons if the NOAA Fisheries Service institutes sub-regional management for red snapper or as the secretary otherwise deems necessary.

April 2013

- Louisiana waters closed to the recreational and commercial harvest of all sharks on April 1, 2013, consistent with a state closed season.

May 2013

- The LWFC, at its May meeting, adopted a Notice of Intent to allow for a traversing agreement with Mississippi that allows anglers who hold a Mississippi recreational fishing license to possess certain species of fish (reef fish, highly migratory species, coastal migratory pelagic species, and triggerfishes) harvested from the federal EEZ while crossing Louisiana territorial waters within defined traversing corridors. Public comment was accepted through July 12, 2013.

June 2013

- Louisiana modified its recreational red snapper season on June 1 at 12:01a.m. to be consistent with the federal season. Louisiana waters opened daily to the recreational harvest of red snapper with a two-fish bag limit.
- Louisiana modified its recreational red snapper season on June 29 at 12:01 a.m. to revert back to the previously established state recreational red snapper season that opened on March 23, 2013.

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 economical 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 Mollusc 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 LWFC and include a large continuous area east of the Mississippi River as well as area 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).

These public oyster areas are utilized heavily by the commercial oyster industry. Periodic reef rehabilitation projects (cultch plants) help maintain the productivity of the public grounds. Cultch planning provides settlement surfaces for the attachment of larval oysters by placing suitable hard material, such as oyster shells, limestone or crushed concrete on the water bottoms.

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 LWFC 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. A law change during the 2008 Louisiana Legislative Session requires that the public grounds only be opened to the taking of seed oysters only between the first Wednesday following Labor Day and the second Monday in October, as well as for harvesting seed oysters.

In FY 2012-2013, the oyster season on most of the public grounds opened on Oct. 29, 2012 (Table 3). The season produced low amounts of harvest as oyster availability was generally low statewide, but especially on the public oyster grounds east of the Mississippi River. Based on harvest estimates from fishermen interviews on the water, the public oyster areas produced approximately 39,000 barrels of oysters (seed and market-size oysters combined) during the season (one barrel = two sacks). Harvest of market oysters totaled approximately 65,000 sacks, representing a 71.6 percent decrease in harvest from the previous season. Calcasieu Lake in south-

western Louisiana produced the largest share of the harvest as fishermen took approximately 39,000 sacks of market-size oysters.

FRESHWATER FINFISH MANAGEMENT

In addition to highly sought after commercial species, revisions were also made to regulations for several freshwater species.

Changes in black bass size and creel limit in the Atchafalaya Basin, Lakes Verret/Palourde, Fausse Point/Dauterive Areas from 10 fish daily, 14-inch minimum length to seven fish daily, no minimum length.

Act 719 of the 2013 legislative session changed crappie regulations as follows:

1. Change in possession limit for crappie on Toledo Bend Reservoir from 50 to 100.
2. Change in daily creel limit for crappie on D’Arbonne Lake from 25 to 50.
3. No person shall possess filleted fish while aboard a vessel on freshwater. However, for the purpose of consumption, a person shall have no more than 2 pounds of filleted finfish per person on board a vessel in freshwater.

TABLE 3. 2012-2013 Oyster Season Dates

PUBLIC OYSTER AREA	SEASON OPENING	SEASON CLOSURE
Primary Public Oyster Seed Grounds east of the Mississippi River, including Lake Borgne, and the Bay Gardene Public Oyster Seed Reservation	Oct. 29, 2012	April 30, 2013
Hackberry Bay Public Oyster Seed Reservation	Oct. 29, 2012	Nov. 18, 2012
Barataria Bay Public Oyster Seed Grounds	Oct. 29, 2012	April 30, 2013
Lake Chien and Lake Felicity Public Oyster Seed Grounds	Oct. 29, 2012	Oct. 31, 2012
Deep Lake, Lake Tambour, and Lake Mechant Public Oyster Seed Grounds	Oct. 29, 2012	April 30, 2013
Bay Junop Public Oyster Seed Reservation	Oct. 29, 2012	April 30, 2013
Vermilion/East and West Cote Blanche/Atchafalaya Bay Public Oyster Seed Grounds	Sept. 5, 2012	April 30, 2013
West Cove portion of Lake Calcasieu	Nov. 1, 2012	April 30, 2013
Little Lake Public Oyster Seed Grounds	Sept. 5, 2012	April 30, 2013
Bay Gardene, Sister Lake, East side of Calcasieu Lake and Sabine Lake	Season Remained Closed	

Regulations were developed to address the Rio Grande cichlid possession rules which had a conflict with the fisherman not being able to keep or release the fish once caught. These fish are now allowed to be kept if they are dead. Another regulation was developed to restrict the sale of in-state "wild caught" invasive apple snails to help reduce the speed of spreading this species to other parts of the state by the aquarium trade. In conjunction with the outreach section, materials were developed to distribute to the public in order to help educate them on the existing exotic species and reducing introductions.

Gear regulations governing the use of yo-yo mechanical fishing devices were amended to include the following: Except for an object used strictly in the construction of a pier, boathouse, seawall or dock, no object which is driven into the lake bottom, a stump, tree or the shoreline shall be used to anchor a yo-yo or trigger device. "Object" means rebar or other metal material, cane, PVC tubing, construction material, or any other type of material.

FISHERIES RESEARCH LAB

The Fisheries Research Lab is located on Grand Isle, right on the shore of Barataria Bay, one of the richest estuarine complexes in the Gulf of Mexico. While fisheries research is conducted throughout the state, the Fisheries Research Lab is the heart and primary location for research in 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. In addition to historic sampling data collected, 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.

ASSESSMENT OF FISH ASSEMBLAGES ON ARTIFICIAL STRUCTURES IN THE NORTHERN GULF OF MEXICO

This study assesses fish assemblages and encrusting communities on artificial substrates found in the northern Gulf of Mexico. The objectives are to characterize assemblages on and around these structures, map vertical and hori-

zontal distributions, estimate relative abundance, and document species diversity at the selected sites. Data will be collected at three replicate standing structures. Platforms with similar design, relative isolation from other man-made or naturally occurring structural influences, and located within 50 miles of the Fisheries Research Laboratory (Grand Isle, La.) were selected. Observations were being conducted quarterly, weather permitting, using scientific divers to survey each structure in 15-foot depth increments, from the surface to a depth of 105 feet. Video footage and still photographs are used to both support and supplement diver observations. This study should provide a better understanding of the fish assemblages associated with artificial structures, facilitating further research into individual species' relationships with artificial reefs and the suitability of these structures as habitat for stock enhancement for target species. For the period of July 2012 - July 2013, three members

of the dive survey team obtained the Divemaster Certification in order to lead dive operations from the lab. Scientific divers completed 24 dives during nine total days of sampling for FY 2012-2013. Project site surveys for quarters one, two and three were completed with 99 species documented via roving diver surveys with supporting photo and video data.

CHARACTERIZING THE USE OF GREEN-STICK FISHING GEAR IN THE NORTHERN GULF OF MEXICO

The primary objective of this project is to characterize the catch and bycatch of green-stick fishing gear when used to target Atlantic tunas, particularly yellowfin tuna, in the northern Gulf of Mexico. The pelagic longline is the primary gear type used to target commercially valuable tuna species in the northern Gulf of Mexico. This



Grand Isle Fisheries Research Lab

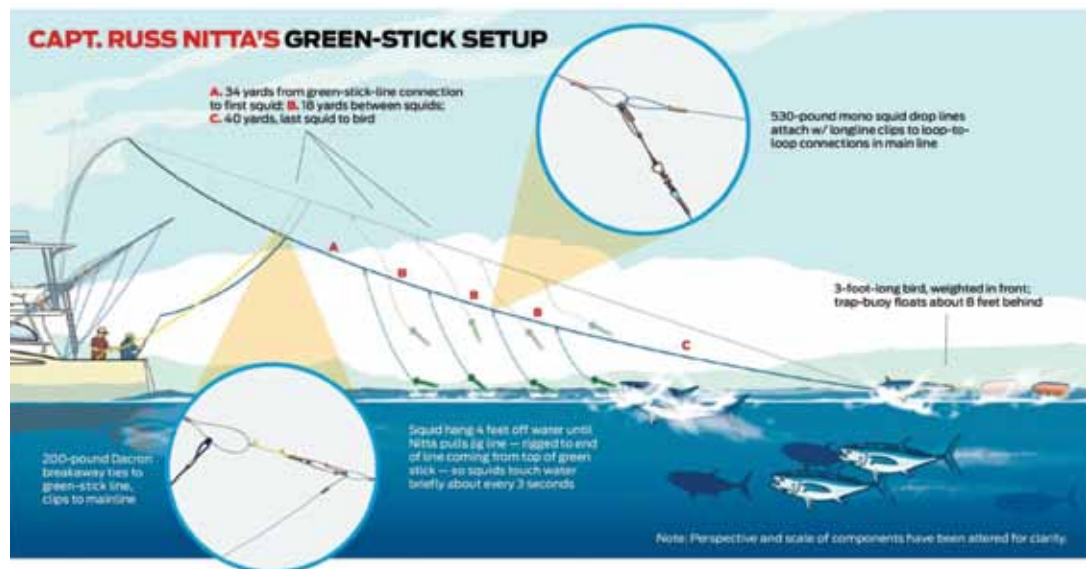


FIGURE 11. Description of a typical 'green-stick' rig. (illustration courtesy of Dave Shepherd, Sportfishing Magazine)

gear is known to have a high bycatch to catch ratio, which includes the taking of sea turtles, marine mammals, sharks and billfish. Green-stick gear was developed in order to reduce the taking of non-target species, but the efficiency of the gear has not been empirically tested in the northern Gulf of Mexico where a large commercial yellowfin tuna fishery exists. The data collected thus far by LDWF biologists will help state and federal fishery managers gain a better understanding of the gear’s ability to reduce bycatch while maintaining economically viable target catch rates.

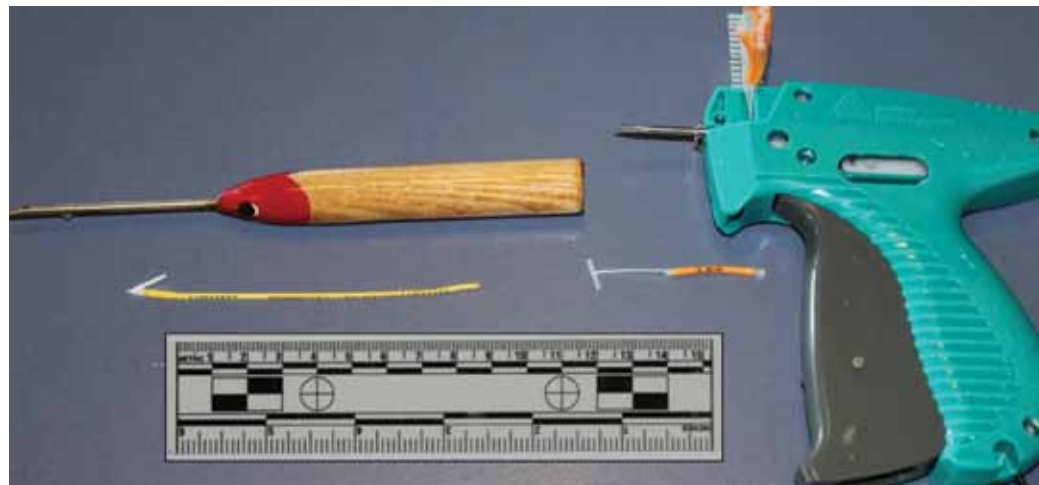
Data collection focuses on reporting the features that contribute to the gear’s success (or lack thereof) at catching target tuna species. Catch condition and release condition data are also collected to help evaluate the gear’s ability to target commercial species and provide lower incidental bycatch mortality.

During the time period covered by this report, sampling trips have been conducted in open waters along steep contour lines and canyons, around oil and gas production platforms, and behind actively fishing shrimp trawl vessels in waters ranging from 160-3,000 feet. Two species of commercially valuable tuna have been captured using the green-stick including yellowfin (31 individuals), blackfin (73 individuals), over a total of 50 active fishing hours. Other commercial species captured included mahi mahi (one individual). All fish captured have been hooked in the jaw and all by-caught fish were alive upon release. Bycatch species caught included little tunny (eight individuals), skipjack (nine individuals), almaco jack (three individuals), great barracuda (one individual), and blue runner (two individuals).

Fisheries biologists continue to report results to the Highly Migratory Species Division at NOAA in St. Petersburg, Fla. Additional sampling trips are planned for spring 2014.

TARPON DNA TAGGING

Fisheries Research Lab biologists are currently engaged in a tarpon DNA tagging project. The objective of this project is to calculate the geographic range of the Atlantic tarpon using DNA fingerprinting techniques. This project will also yield valuable information relating to recapture rates and migratory paths. This program will allow biologist to analyze the movement and survival rates in what is primarily a catch-and-release fishery. Survival rates are determined by tracking tarpon using a DNA fingerprint and recapture data obtained from sampling tarpon DNA. The project will also track movement of



Dart-tip tag and applicator (left) and T-bar tag and applicator (right) used in Tarpon DNA Tagging study.

tarpon using DNA tagging instead of standard internal dart tagging practices. The main advantage to this method is that the fish’s DNA is the tag. All sampling is performed by recreational anglers.

LDWF provides kits and instruction information to anglers. Once collected, the samples are sent to the Fisheries Research Lab where the data is recorded, and the samples are then sent to a contact at the Florida Wildlife Research Institute for DNA analysis. A total of 47 tagging kits were distributed during FY 2012-2013 with 23 DNA samples returned. Future plans include producing an instructional DVD, posting informative flyers at marinas, and distributing kits and brochures at outreach events and fishing tournaments.

SPOTTED SEATROUT TAG RETENTION STUDY

The Office of Fisheries is currently involved in a long-term cooperative tagging program; this study was an effort to quantify the effects of commonly used tags for spotted seatrout. The full six-month retention trial was conducted in a closed recirculation aquaculture system at the Fisheries Research Lab, and compared the survival and retention rates of sub-legal (< 12 inches) and legal-sized (> 12 inches) spotted seatrout tagged with either a T-bar or dart-tipped external anchor tag. Both size classes of tagged fish were randomly distributed over four holding tanks, with 40 fish per tank consisting of 10 fish per size and tag treatment (Table 4). Additionally, there was a randomized, nested tagger component whereby two biologist (Tagger A and B) each tagged half of the fish in each treatment tank.

Survival was high for all treatments (average overall survival of 92.5 percent) with no significant differences by tag type or size class (Figure

TABLE 4. Average (± SD) total initial length and weight of spotted seatrout distributed evenly among four replicate tanks, by size and tag treatments.

TREATMENTS	SMALL FISH (S)	LARGE FISH (L)
T-anchor Tag (T)	27.2 ± 0.3 cm 161.4 ± 7.6 g	33.1 ± 0.3 cm 305.4 ± 9.2 g
Dart-anchor Tag (D)	27.1 ± 0.6 cm 162.0 ± 8.6 g	33.2 ± 0.6 cm 311.8 ± 28.6 g



FIGURE 12. Representative size classes (small above; large below) of spotted seatrout tagged with dart-tip or T-bar external anchor tags.

12). Fish were healthy with an average weight gain of 46.1 percent over the entire study on a daily diet of shrimp. The overall tag retention rate was 76.9 percent, with no significant differences observed for either tag type or size class. The average tag retention rate for dart-tagged

fish was 77.5 percent, compared to T-bar tagged fish with 76.3 percent. The average retention rates for the treatments were 70, 78, 85, and 75 percent for SD, ST, LD, and LT, respectively. There was a significant difference in tag retention due to the tagger, but only for dart tags and small size-class fish. These results can be used to improve the effectiveness of the cooperative tagging program, and will help guide future quantitative studies on tag retention.

ACOUSTIC TELEMETRY TAGGING

LDWF is also conducting research project to quantify the tag retention rates for spotted seatrout, and to track the movements of acoustically tagged spotted seatrout in Lake Pontchartrain. The acoustic telemetry study, a joint project with LSU researchers, is currently underway. During FY 2012-2013, 90 acoustic receivers were deployed throughout Lake Pontchartrain starting in early fall of 2012, and have been recording data from passing tagged fish. Eighty-nine spotted seatrout have been implanted with acoustic transmitters during tagging events held in fall 2012 and spring 2013. Data are downloaded regularly from all receivers and will be analyzed to determine the movements, residency and habitat preferences of the spotted seatrout. The receiver array is also being utilized to cooperatively track red drum and bull sharks tagged by UNO and sturgeon tagged by USFWS.

PELAGIC RESEARCH PROGRAM

The LDWF Pelagic Research Program made substantial advancements in FY 2012-2013 and continues to move forward with the use of animal tracking technology to study the movements, distribution and habitat preferences of several key species in order to improve the data available to fisheries managers in the region.

YELLOWFIN TUNA ELECTRONIC TAGGING

Pop-up satellite archival tags (PSAT) and internal archival tags (IA) are being used to study the movements and habitat preference of yellowfin tuna. PSATs record light-level, water temperature, and depth data. At a pre-programmed time the tag will pop off the animal, float to the surface, and transmit the stored data through the Argos tracking system. Deployments for PSAT tags are typically limited to 12 months due to battery capabilities. IA tags record light levels, internal and external temperature, and depth data. The key distinction is that these tags are surgically implanted inside the abdomen of the fish, therefore requiring a recapture for data acquisition, and battery life can be anywhere between five to 10 years.

Yellowfin tuna for this study were captured using rod and reel on LDWF vessels in the waters adjacent to the Mississippi River Delta (Figure 13). After being carefully netted with a large landing net, tuna were placed on a V-shaped cradle. A hose was placed in the mouth of the fish in order to irrigate the gills and a chamois was used to cover the eyes and mouth. Curved fork length was measured. PSAT tags (Microwave Telemetry X-tag) were attached at the base of the second fin. For IA tag implantation a 2.5-cm incision was made through the skin and the muscle, on the ventral side of the fish. A piercing needle was used to make a secondary hole 1.5 cm distal from the incision and to guide the fiber-optic light stalk from the tag out of the secondary hole. The body of the tag was placed into the abdominal cavity and the wound was

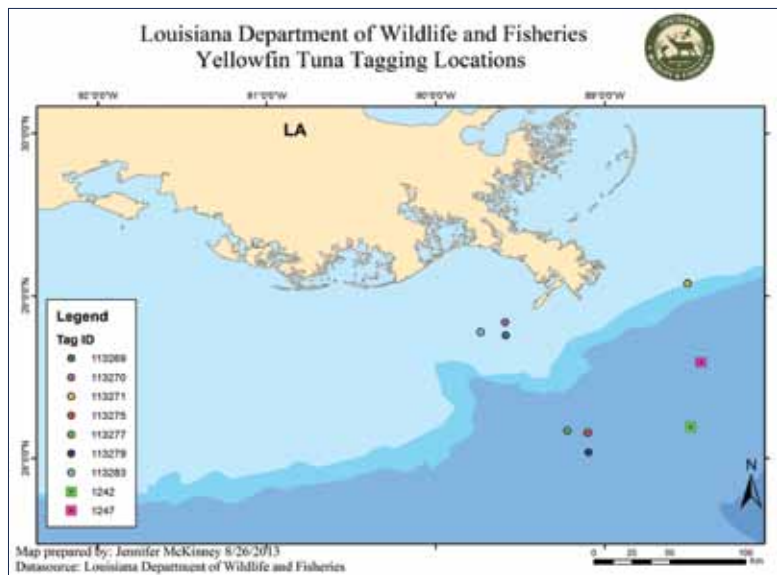


FIGURE 13. Release locations of yellowfin tuna (individual fish depicted by color) fitted with a pop-up satellite tag (circles) or implanted with internal archival tags (squares) in FY 2012-2013

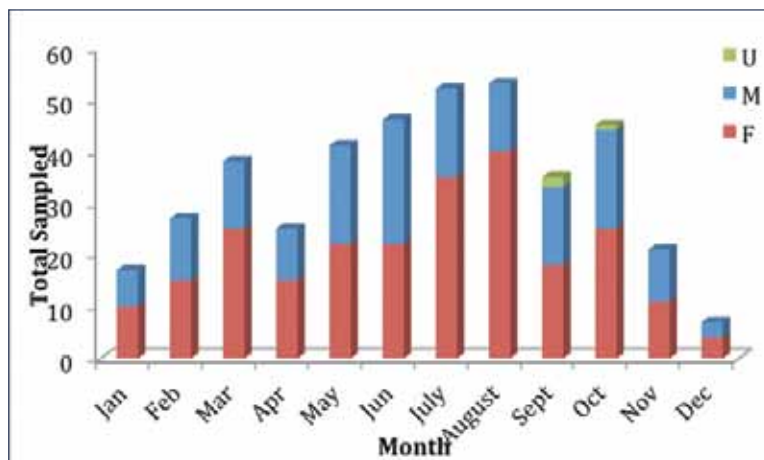


FIGURE 14. Sampling frequency distribution of yellowfin tuna samples taken in FY 2012-2013. Female shown in red, male in blue, unknown in green.

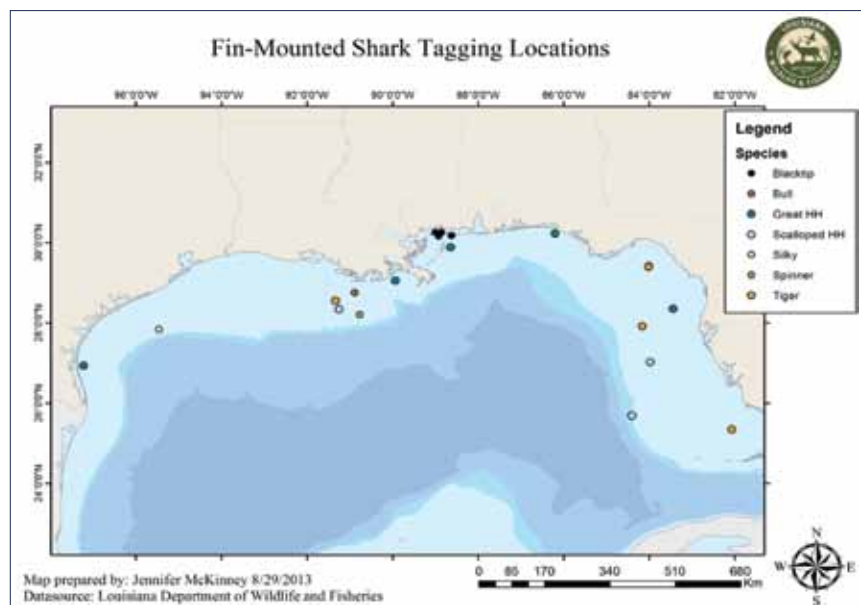


FIGURE 15. Release locations of sharks fitted with a smart-position-only-tag (SPOT) in FY 2012-2013. Species indicated by the color of the circle.

closed with two stitches. A conventional streamer tag was placed at the base of the second dorsal fin denoting a 'high dollar reward' for return of the internal tag. Tuna were released back into the water in less than three minutes.

During FY 2012-2013, nine yellowfin tuna were successfully tagged (seven PSAT and two IA). Mean and max size of tagged fish was 130.7 and 163.8 cm curved fork length. Average retention of PSATs was 19.25 days (range: 12-30 days). Modifications have been made to the attachment mechanism in order to increase tag retention. The new attachment method utilizes a hollow needle to thread a 15 cm section of 150lb monofilament through the pterygiophores at the base of the second dorsal fin; the monofilament is crimped with a stainless steel sleeve into a yoke so that the PSAT tag remains above the midline of the body just behind the second dorsal fin, resulting in a strong attachment in better hydrodynamic position.

YELLOWFIN TUNA BIOLOGICAL SAMPLING

As part of this ongoing project, LDWF biologists collect samples from recreational ports in Venice, La. Curved fork length (CFL) is measured and gonads, stomachs, muscle tissue and fin clips are collected. During FY 2012-2013, 407 yellowfin tuna were sampled by LDWF biologists during all months of the year. Most samples were collected from all fish; however, at times during cleaning the target sample is ruined or mutilated and cannot be used. Fin clips for DNA were only taken from reproductively mature fish during the spawning season. Since the samples were opportunistically collected from the recreational fishing community, all fish were above the minimum size limit of 27 inches

In addition, young-of-the-year tunas were targeted by LDWF vessels during routine fieldwork. These young-of-the-year tuna (yellowfin, blackfin and skipjack tunas) were collected as part of the Atlantic-wide sourcing project being conducted at Texas A&M University at Galveston (TAMUG) and funded by LDWF. LDWF is responsible for collecting these young-of-the-year tuna from the north-central Gulf of Mexico, while TAMUG coordinates collection of young tunas from other sites throughout the Atlantic basin including Africa, Brazil, Panama, USBVI, Dominican Republic and Venezuela. Otoliths were removed from young-of-the-year tuna for trace element and stable isotope microchemistry to establish natal signatures from which stock discriminations may be based in future years.

SHARK TAGGING STUDIES

In an attempt to determine movements, distribution and essential habitat requirements for shark species in the Gulf of Mexico, electronic tags are being deployed by LDWF biologists. Data from the tagging studies will be available for incorporation into future federal management plans and international policy for highly migratory species. Interactive websites using this data provides a unique and exciting form of educational outreach.

LDWF biologists have been working with the NMFS Mississippi Laboratories on the Bottom Longline research cruise in order to tag large coastal and pelagic shark species Gulf-wide. In FY 2012-2013, 22 sharks were released from Key West, FL to Galveston, TX, fitted with fin-mounted SPOT tags (*Figure 15*). The target species of this research included tiger sharks (n=5), great hammerhead (n=5) and scalloped hammerhead (n=3). Blacktip (n=5), silky (n=2), bull (n=1) and spinner (n=5) were included in order to determine their suitability for SPOT tracking technology.

In an effort to better understand the large filter-feeding whale shark and its association with spawning tunas in the northern Gulf of Mexico, LDWF is using tracking technology to study feeding whale sharks. In the fall of 2012, an adult female and adult male were tagged on the same day approximately 70 miles due south of the Mississippi River Delta while they were feeding amongst schooling tuna. In the summer months, large aggregations (10 to 100+) of whale sharks occur at Ewing Bank (approximately 120 miles southwest of the Mississippi River Delta) and have been documented feeding on the eggs of recently spawned bonita or 'little tunny.' During the June 2013 aggregation, 25 whale sharks were documented via aerial survey and 10 were tagged with a combination of PSAT (n=5) and SPOT (n=5) tags.

SOUTHEAST AREA MONITORING AND ASSESSMENT PROGRAM

The Southeast Area Monitoring and Assessment Program (SEAMAP) is a cooperative state, federal and university program designed for the collection, management, and dissemination of fishery-independent biological and environmental data of the coastal waters (state and EEZ) off the Southeastern United States and the Gulf of Mexico. For the past 33 years 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, bottom longline, and vertical line. The surveys are conducted by teams of five to nine Fisheries biologist who collect, work-up and enter data on all biological samples. In addition, all surveys collect environmental parameters and a water column profile, primarily using a Conductivity/Temperature/Depth rosette, at each site along with water samples collected at bottom, middle and surface depths for chlorophyll measurements.

SEAMAP SHRIMP/GROUNDFISH SURVEY

The SEAMAP Shrimp/Groundfish Survey segment performed by LDWF collects information on shrimp and groundfish abundance and distribution west of the Mississippi River using a 42-foot trawl in water depths up to 60 fathoms, with occasional sites at deeper depths. Ichthyoplankton stations are also piggybacked onto this survey at seven preselected sites to determine species composition, abundance and distribution, with 60-cm bongo nets (335- μ m mesh) and 1x2m neuston nets (950- μ m mesh) in the central coast areas. Ichthyoplankton samples will be field processed and transferred to the NMFS Pascagoula Laboratory for transshipment to the Polish Sorting and Identification Center. Shrimp/Groundfish surveys are made in summer and fall in conjunction with the NMFS SEAMAP Shrimp/Groundfish Survey, and we select stations from their randomized sampling grid. At least 24 trawl locations are sampled on each survey. Additional stations are added as feasible. Species are identified, counted, measured, weighed and recorded; this data is submitted to the SEAMAP data management system, and near-real time data is transmitted to NMFS as required. During spring and fall of 2013, 56 shrimp/groundfish randomly assigned locations, ranging from latitude 28° 45' to 29° 43' and longitude -89° 26' and -93° 57', were sampled. The depths sampled ranged from 9-330 feet. Plankton samples were collected at seven set locations per survey off the Louisiana coast, ranging from latitude 28°30' to 29° 00' and longitude -89° 30' to -91° 30'.

SEAMAP ICTHYOPLANKTON SURVEY

SEAMAP Ichthyoplankton Surveys are conducted to provide information on the occurrence, abundance and geographical distribution of the eggs and larvae of spring spawning fish, particularly Atlantic bluefin tuna, and of fall spawning fish, particularly king and Spanish mackerel, lutjanids, and sciaenids. Ichthyoplankton sampling is conducted in conjunction with the NMFS SEAMAP Spring and Fall Ichthyoplankton Surveys, and samples are collected at stations selected from the NMFS ichthyoplankton grids. Sampling is conduct-

ed using 60-cm bongo nets (335- μ m mesh) and 1x2m neuston nets (950- μ m mesh). Ichthyoplankton samples is field processed, preserved and transferred to the NMFS Pascagoula Laboratory for transshipment to the Polish Sorting and Identification Center. All station information is sent to the SEAMAP Data Manager. During the spring and fall of 2013, surveys were conducted at a total of 25 stations (between the latitudes 28°29 and 29°30, longitudes 88°29 and 93°59).

SEAMAP BOTTOM LONGLINE SURVEY

The SEAMAP Bottom Longline Survey performed by LDWF collects information on the abundance and distribution of elasmobranchs and bottom feeding species with standard one nautical mile longline sets. LDWF coordinates with NMFS (Southeast Fisheries Science Center, Pascagoula) to generate a station universe in which bottom longline stations are proportionally allocated based on the width of the continental shelf by longitude and depth. The annual stations are divided with the intent of sampling the entire Louisiana coast once per season (spring, summer, fall) during the months of March through October. All species are recorded, counted, measured for length(s), weighed and sexed (sharks). Sharks are tagged with dart/T-

bar tags prior to their release and this information is sent to NMFS. Otoliths and female ovaries of selected reef species are removed and processed. In 2013, Office of Fisheries biologists completed a total of 81 bottom longline stations, landing 1,401 sharks and 471 individuals from other various species. A total of 539 sharks were tagged and released.

SEAMAP VERTICAL LINE SURVEY

The SEAMAP Vertical Line Survey is conducted monthly to collect information on the spatial and temporal distribution of commercial and recreational reef species off the Louisiana coast using commercial vertical line (bandit) gear. Sampling site selection is random within the three longitudinal zones, ranging in depth from 60 to 360 feet. Each zone is sampled quarterly in rotation utilizing standard commercial methods. The sites roughly consist of 23 percent artificial reefs, 3 percent natural bottom, and 74 percent petroleum production platforms. The data collected for each fish is the size of the hook on which it was caught, total length, total weight, and sex. Otoliths and female ovaries are removed and processed in the lab for age and growth. In 2013, 213 vertical line stations were sampled, landing 824 fish, of which 757 were red snapper (92 percent).



TOP: LDWF staff sorting samples from the 42-foot trawl.
BOTTOM: Measurements taken during a bottom longline cruise.

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.

In a cooperative effort, LDWF assists local government entities requesting financial assistance in the development and construction of boating and fishing access facilities. This program covers both freshwater and saltwater projects, and may include the construction of boat ramps, parking areas, docks, bulk heading and fishing piers. Three access projects were completed in FY 2012-2013. An additional seven projects are in the planning or construction stage.

ACCESS

BOATING ACCESS PROJECTS COMPLETED

- **Abbeville Public Boat Launch** - Renovations to the existing parking and docking area as well as improvements to the entrance and exit ramps from the highway to provide safer access to the facility were completed.
- **Leonville Boat Launch** - Construction of a new facility including a 30-foot-wide boat ramp to accommodate two vehicles simultaneously was completed.
- **Parish Camp Boat Ramp (Lake Bistineau)** - Upgrades to an existing boat ramp and parking were completed.

BOATING ACCESS FACILITIES PLANNED OR UNDER CONSTRUCTION

- **Boggy Bayou Boat Launch** - The proposed project includes installation of a 30-foot gangway and a new 60-foot floating dock on either side of the existing boat ramp, parking area improvements, additional lighting, and a picnic area.
- **Port O'Bistineau Landing** - Project plans include 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 include renovations to existing structures at the facility and expansion of the parking area.
- **Ferriday (Lake Concordia) Public Boat Ramp** - Undergoing renovations to the existing boat ramp and dock as well as construction of a new parking area.

- **Lake Pontchartrain Marina, BIG-P, Tier I** - Planned renovations to 18 transient boat slips damaged during Hurricane Isaac.
- **Slidell Municipal Marina, BIG-P, Tier II** - Project plans include upgrading an existing facility to include accommodations for boats greater than 26 feet.
- **Leeville Public Boat Launch** - Project includes constructing a 42-vehicle aggregate parking area, two 30-foot wide concrete ramps, vinyl sheet piling, and a 27-foot wide access road with 20 additional parking spots.
- **New Iberia City Park Enhancement** - Project includes upgrading parking, boat ramp and dock facilities.

FISHING ACCESS PROJECTS COMPLETED

- **Grand Isle-Chenier Fishing Pier** - Renovations to the existing fishing pier were completed.

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.

NUISANCE AQUATIC VEGETATION

Control of nuisance plant species is also 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 Nuisance Aquatic Vegetation 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 2012-2013 in an ongoing effort to restore and improve the aquatic habitat and the natural balance of plants and fish.

The Aquatic Vegetation Management Program format was created for lakes that do not have an approved LDWF Waterbody Management Plan to provide basic lake information and description, a listing of lake authorities, historical vegetation control information, current aquatic plant status, and recommendations for aquatic 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 2012-2013 the Aquatic Plant Control Program completed 80 Vegetation Management Plans for Louisiana public waterbodies.

In FY 2012-2013, herbicides were applied to 102,425 acres of nuisance aquatic vegetation to provide boating and fishing access in lakes and water bodies throughout the state. The majority of these efforts included control of 46,428 acres of water hyacinth, 43,782 acres of giant salvinia, 6,748 acres of common salvinia, and 4,625 acres of alligator weed. In addition, approximately 417,000 adult giant salvinia weevils and 72,000 adult common salvinia weevils were stocked into 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 more healthy fish population. For impounded waters, partial dewaterings, 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 nine inland reservoirs in FY 2012-2013 (Table 5).

TABLE 5. Drawdowns conducted in FY 2012-2013.

LAKE NAME	PURPOSE OF DRAWDOWN	DATES
Anacoco Lake	lake bed renovation	Fall/Winter
Lake Bistineau	bottom oxidation; vegetation control	Summer/Fall
Cheniere Lake	bottom oxidation; vegetation control	Fall/Winter
Chicot Lake	bottom oxidation; vegetation control	Fall/Winter
D’Arbonne Lake	bottom oxidation; vegetation control	Summer/Fall
Eunice City Lake	bottom oxidation; lakebed renovation	Fall/Winter
Lake Louis	bottom oxidation	Fall/Winter
Nantachie Lake	water supply; vegetation control	Summer/Fall
Saline Lake	bottom oxidation; vegetation control	Summer/Fall/Winter



LEFT: Leonville public boat launch after improvements. **RIGHT:** Aquatic vegetation spraying activities.

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 effectively manage the aquatic vegetation infestations throughout Louisiana's public waterbodies.

The aquatic invasive, giant salvinia, was first discovered on Lake Bistineau in 2006. Since that time, the 17,000-acre impoundment has been infested with several thousand acres of the plant each summer. In 2009, giant salvinia infestations covered an astounding 8,500 acres of the lake. Successive cold winters and a flood event helped to reduce the plant coverage dramatically, but it soon rebounded. Since 2011, LDWF has utilized herbicide applications, floating boom, giant salvinia weevils and drawdowns in an effort to control the infestation on Lake Bistineau. In FY 2012-2013, 8,286 acres of giant salvinia were treated on Lake Bistineau by private airboat contractors, 2,611 acres by LDWF spray crews, and 580 acres by a contracted helicopter sprayer. Approximately 75,700 adult weevils were stocked on the lake during FY 2012-2013. The giant salvinia weevils were raised in a greenhouse and transplanted in the early spring to allow establishment and provide control throughout the growing season. Drawdowns were initiated when giant salvinia coverage exceeded 1,500 acres. During these drawdowns, water levels were fluctuated when possible to strand the maximum amount of plant material. Although a significant amount of plant material remains in the heavily timbered northern part of the lake, these combined efforts have successfully controlled infestations in the southern part of the lake and thus provided recreational opportunities that had been impeded in past years.

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.

INLAND LAKES AND PONDS

The renovations of Ivan Lake in Bossier Parish continued in FY 2012-2013 with additional improvements including grubbing and marking boat roads and installing new piers and shoreline access, spawning beds, artificial reefs, and security lighting. Fish stocking continued in 2012

and 2013. The drawdown of Anacoco Lake continued into summer and fall 2012 for lake renovation. The lake was down throughout the growing season and will be allowed to refill in the winter of 2012 with restocking of fish to follow in 2013.

The Community Fishing Program was developed to provide fishing opportunities to public community water bodies of the state where shoreline access is sometimes limited, providing economical (close to home) fishing experiences while helping to promote community and family oriented activities. Each year suitable sites will be improved to make lasting fishing opportunities for anglers of all ages.

Community Fishing Projects Completed in FY 2012-2013:

- **BREC ponds in Baton Rouge, La.** - stocking ponds and youth aquatic outreach and education.
- **City Park in New Orleans, La.** - Bayou Metairie and lagoon systems north of Interstate 610 were dredged from their average depth of 3 feet to the traditional average depth of 5.5 feet. Shoreline grasses were planted to increase the water/habitat interaction.
- **Waddill Wildlife Refuge in Baton Rouge, La.** - Ponds drained to remove undesirable fish species, then refilled and restocked with coppernose bluegill.

BAYOU ST. JOHN AND CITY PARK LAGOONS

In FY 2012-2013 monthly nearshore seines in New Orleans City Park and Bayou St. John were completed to assess baseline data on reintroduced red drum and native fish assemblages in Bayou St. John and City Park to determine their responses to restoration activities. Additionally, analysis of the benthic epifauna was included in this work. Duckweed and *Ceratophyllum spp.* have become dense along the shore of the site. In previous years, this site has been markedly turbid and with little to no submersed aquatic macrophytes. Currently five red drum are being tracked in Bayou St. John, but no noticeable changes in movement patterns have been detected after removal of the structure.

Meters that continually record water quality with real-time satellite communication continued to collect data (dissolved oxygen, salinity, temperature, conductivity and water level elevation) throughout the project area. These meters are calibrated and managed by the U.S. Geological Survey and funded and supported by the Office of Fisheries.

The outdated waterfall structure in Bayou St. John has been removed, which represents the culmination of many years of work. Increased

flow is apparent throughout the bayou and increased exchange with Lake Pontchartrain is occurring. However, this is only one part of the collaborative connectivity restoration project. Focus has now shifted towards channelization of the sand flat on the Lake Pontchartrain side of the flood control structure.

ARTIFICIAL REEFS

The Louisiana Artificial Reef Program (LARP) 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 LSU executive director of the School of the Coast and Environment, and the executive director of SeaGrant, or their designees. The council is charged with providing guidance on policy, procedural matters, site selection and allocation of funds to LARP. The Office of Fisheries administers and manages LARP 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 of LARP. The plan centers on nine artificial reef planning areas and the conversion of oil and gas platforms in permanent marine hard-bottom habitat. The program also includes Special Artificial Reef Sites, deepwater reefs and inshore artificial reefs. LARP works closely with stakeholders, public and private conservation groups, and appropriate regulatory agencies when developing, maintaining and monitoring Louisiana's artificial reefs.

In FY 2012-2013, LARP enhanced 14 offshore reefs on 20 oil and gas platforms, and received \$11.1 million in donations from oil company participation. To aid in future management, monitoring and development of offshore artificial reefs, a comprehensive multi-beam survey of 13 (in addition to the 66 done the year before) offshore reefs was conducted. In addition, the St Tammany Pier Reef was created on Lake Pontchartrain from bridge rubble generated from the demolition of the I-10 bridge spans; and the California Point and Sweet Lake Reefs were created in Breton Sound and Calcasieu Lake, respectively.

Rigs-to-Reef remains a large component of LARP. Due to recent policy changes by the Bureau of Safety and Environmental Enforcement, the regulatory body responsible for offshore oil and gas



LDWF diver conducting a research project on a submerged oil platform.

structures, LARP is examining options to expand its current plan to address the removal of near-shore oil & gas structures and identifying incentives for increased oil company participation.

LARP has been expanding its inshore reef program by incorporating appropriate materials of opportunity. Recycled concrete and reclaimed oyster shell are being pursued for inshore reef development across the state. The Breton Sound and Lake Calcasieu Reefs are well underway to be developed and completed in FY 2012-2013. A comprehensive water bottom habitat characterization and assessment survey is being contracted for LARP's inshore reefs to evaluate the current reefs and aid in further management of the inshore reef development.

For more information on reef locations, please visit the LARP website: <http://www.wlf.louisiana.gov/fishing/artificial-reef-program>.

Important Figures for FY 2012-2013

72 Total established offshore artificial reef sites

- 46 planning area reefs
- 18 special artificial reef sites
- 8 deepwater reefs

Offshore structures converted to permanent habitat

- 333 platform jackets
- 8 drill rig legs
- 35 oil and gas structures deployed

31 established inshore reefs

- created St. Tammany Pier Reef
- created Cypremort Point II Reef
- permitted one inshore artificial reef sites for development

CLEAN VESSEL PROGRAM

The Clean Vessel Program provides funds to owners of recreational boating facilities for construction and renovation of boat sewage disposal facilities. The purpose of this program is to reduce overboard discharge of raw boat sewage in Louisiana's waters by providing boaters with a safe and convenient method to dispose of boat sewage. Through the program, recreational boating facility owners are reimbursed up to 75 percent of the costs of approved activities. Funds are also used to develop and distribute educational and promotional materials to encourage boaters to use these facilities and to promote environmentally responsible behavior.

Two pumpout stations were completed during the fiscal year:

- **Pontchartrain Landing RV Park & Marina (New Orleans, La.)** - Two fixed boat sewage pumpouts completed October 2012.
- **SeaBrook Harbor Marina (New Orleans, La.)** - One fixed boat sewage pumpout completed June 2013.

Clean Vessel educational activities for FY 2012-2013 included the distribution of educational information at National Hunting and Fishing Day in Baton Rouge, La.

FRESHWATER FISH STOCKING

The freshwater fish hatchery program consists of four facilities: Monroe Fish Hatchery (Monroe, La), Booker Fowler and Beechwood Fish Hatcheries (Forest Hill, La.), and Huey P. Long Fish Hatch-

ery (Lacombe, La.). The hatcheries 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. The program assists other local, state and federal agencies by providing fish and/or fish transportation services for outreach and education activities that introduce or encourage fishing. The hatchery program also provides free technical advice for pond owners, and supports Fisheries Outreach and Aquatic Education programs.

After 30 years of stocking Florida largemouth bass in Louisiana waters, it has become evident stocking Florida largemouth bass in some waterbodies is not as successful as stocking in other waterbodies, despite repeated annual stockings. Louisiana's wide assortment of lake types and habitats result in variable rates of introgression of the Florida largemouth bass. Louisiana is also in the process of identifying waterbodies where preserving native largemouth bass is important. As a result, Inland Fisheries has worked to revise its fish stocking policy "Resource Enhancement Through Stocking" over recent years. Stocking lakes where introgression was not occurring, or was occurring at very low levels, was discontinued.

The 2013 policy revisions focused on stocking fewer but larger Florida largemouth bass fingerlings, which may increase survival of stocked fingerlings, and improve introgression in some water bodies which are managed with a goal of increasing the size potential of largemouth bass. Changes to this policy incorporated in the spring of 2013 included increasing the minimum fingerling length for Florida largemouth bass from 1 inch to 2 inches, and reducing the number of fish requested per acre of largemouth bass habitat from 50-100 per acre to 10-20 per acre. The new policy also defines eligibility for stocking, lists procedures for requesting and stocking fish, and addresses the stocking of non-Florida largemouth bass species.

As a result of the policy changes, Louisiana's freshwater hatcheries were asked to meet the new minimum length requirement and to continue working on developing techniques to exceed that requirement.

EXPERIMENTS IN 2013 WERE CONDUCTED TO SOLVE THE FOLLOWING PROBLEMS:

1. Through adjusting stocking densities of fry in ponds and increasing grow-out time, can the hatcheries produce 3-inch fingerlings and stock them by June 1? If so, what is the production capacity for producing 3-inch fingerlings?

2. Through adjusting stocking densities of fry in ponds and increasing grow-out time, can the hatcheries produce 2-inch fingerlings and stock them by June 1? If so, what is the production capacity for producing 2-inch fingerlings?
3. Does supplemental feeding improve growth during the 60-day spring grow out window?

Experiments were conducted at LDWF's Booker Fowler Fish Hatchery, USFWS' Natchitoches National Fish Hatchery, and LSU's Aquaculture Research Station. Pond stocking density experiments at Natchitoches National Fish Hatchery and Booker Fowler Fish Hatchery compared ponds stocked at four different densities (10,000, 20,000, 30,000, and 40,000 fry/acre) to see how density affected growth and numbers of fingerlings produced per acre. There were four replicates for each rate at each hatchery.

The density studies determined that 3-inch fingerlings produced from spring-spawned Florida largemouth bass cannot be produced in quantities large enough to meet the Inland Fisheries' statewide stocking request before it gets too hot to safely handle and stock fish in the summer. Two-inch fingerlings from spring-spawned Florida largemouth bass can be produced in quantities that approach the annual numbers requested.

Supplemental feeding studies at LSU Aquaculture Research Station and USFWS' Natchitoches National Fish Hatchery compared growth of bass fingerlings fed fish or young crickets to bass that were not fed and found no significant differences in growth during the 60-day grow out period.

FEED TRAINING

Continued progress was made in developing techniques for training Florida largemouth bass fingerlings to eat commercial diets at Louisiana hatcheries. Commercially available diets formulated for largemouth bass have improved and better drugs are available to treat common diseases associated with feed training largemouth bass. Hatchery biologists worked on determining the best densities for feed training at Booker Fowler Fish Hatchery. The preferred training density at Booker Fowler is 30 fish per gallon of water.

FISH STOCKING

During FY 2012-2013, LDWF hatcheries, through partnerships with the USFWS, the City of Shreveport, Rockefeller State Wildlife Refuge, and other local government and community organizations, participated in producing and/or stocking over 4 million fish in 74 water bodies around the state of Louisiana. *Table 6* provides comprehensive list of fish stocked in Louisiana's waters during FY 2012-2013.

The Stocking Program is involved in an array of fisheries-related programs and additional services outside of fish stocking.

The program continued to provide technical support for departmental Fisheries Outreach and departmental Aquatic Education Programs in 2012-2013. Support functions include providing fish and fish transportation for the Outreach Program's mobile aquarium events and occasionally providing stand-in personnel at some Fisheries Outreach events. A one hour per week, 10 week-long Fish Biology class was also conducted by a hatchery biologist for a local junior high home school group. The hatchery also provides a paddlefish spawning demonstration and fertilized paddlefish eggs or fingerlings to Louisiana teachers participating in Aquatic Education's Native Fish in the Classroom Program, a program designed to teach children about the role of hatcheries in Louisiana, environmental stewardship and basic embryonic development and life requirements of young paddlefish in a recirculating system.



TOP: Huey P. Long Fish Hatchery's new harvest kettle/drain structure with water and air supply. **BOTTOM:** Florida largemouth bass fry hatched at Booker Fowler Fish Hatchery being released into a rearing pond at Natchitoches National Fish Hatchery (photo courtesy of Jan Dean, USFWS).

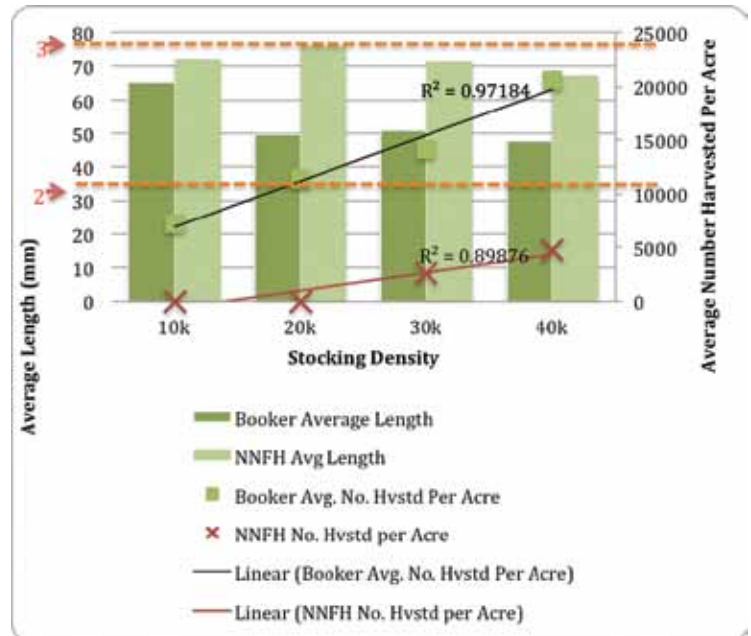


FIGURE 16. Results of Booker Fowler Fish Hatchery and Natchitoches National Fish Hatchery Florida largemouth bass density studies. Broken red lines indicate the goal lengths of 2 inches and 3 inches.

FISH STOCKING BY WATERBODY

TABLE 6. 7/1/2012 - 6/30/2013

Waterbody	Species	Size	Number
Anacoco Lake	Bluegill	Fingerlings	16,699
	Florida Largemouth Bass	Fingerlings	16,128
	Redear	Fingerlings	35,828
Anderson Pond (Kisatchie NF - Natchitoches Parish)	Florida Largemouth Bass	Fingerlings	52
Bartholomew Lake	Triploid Grass Carp	Adults	750
Bayou DeSiard	Northern Largemouth Bass	Fingerlings	16,896
	Northern Largemouth Bass	Adults	50
	Triploid Grass Carp	Adults	3,650
Beaver Park Pond	Channel Catfish	Fingerlings	149
Black Lake and Clear Lake	Triploid Grass Carp	Adults	13,671
Black Bayou Lake (Caddo Parish)	Triploid Grass Carp	Adults	5,819
Boeuf River	Triploid Grass Carp	Adults	1,000
Bombing Range Pond (Kisatchie NF - Winn Parish)	Florida Largemouth Bass	Fingerlings	51
BREC Pond - Black Water	Florida Largemouth Bass	Adults	85
BREC Pond - Burbank	Channel Catfish	Fingerlings	200
	Hybrid Striped Bass	Fingerlings	40
BREC Pond - Doyles	Channel Catfish	Fingerlings	50
	Florida Largemouth Bass	Phase 2 Fingerlings	100
BREC Pond - Flanacher	Channel Catfish	Fingerlings	75
	Florida Largemouth Bass	Phase 2 Fingerlings	100
BREC Pond - Forest Park	Channel Catfish	Fingerlings	75
	Florida Largemouth Bass	Phase 2 Fingerlings	150
BREC Pond - Palomino	Channel Catfish	Fingerlings	50
	Florida Largemouth Bass	Fingerlings	100
BREC Pond - Perkins	Channel Catfish	Fingerlings	150
	Florida Largemouth Bass	Adults	35
	Florida Largemouth Bass	Fingerlings	114
	Florida Largemouth Bass	Phase 2 Fingerlings	150
BREC Pond - Sherwood	Channel Catfish	Fingerlings	135
	Florida Largemouth Bass	Adults	270
BREC Pond - Zachary	Channel Catfish	Fingerlings	75
	Florida Largemouth Bass	Phase 2 Fingerlings	280
Caddo Lake and James Bayou	Florida Largemouth Bass	Fingerlings	79,292
Calcasieu River	Hybrid Striped Bass	Fingerlings	99,797
Caney Creek Reservoir	Florida Largemouth Bass	Fingerlings	43,500
Caney Lake Upper (Kisatchie NF - Webster Parish)	Florida Largemouth Bass	Fingerlings	1,125
Caney Lake Lower (Kisatchie NF - Webster Parish)	Florida Largemouth Bass	Fingerlings	705

The stocking program also assisted the U.S. Forest Service, USFWS and Fort Polk with transporting adult catfish they purchased from private farms for fishing derbies to their derby sites. In 2013, the program assisted with delivering 2,800 pounds of catfish to Fort Polk, 3,140 pounds of catfish to U.S. Forest Service lakes and ponds, and 300 pounds to Natchitoches National Fish Hatchery.

All hatchery employees assisted with the planning, setup, and cleanup of the Woodworth 2013 National Hunting and Fishing Day celebration. This year's event was attended by 2,600 participants. This one-day event introduces hunting, fishing, shooting and other outdoor activities to participants. The hatchery exhibit included a mobile aquarium with a typical freshwater fish assemblage on display, a living stream tank with hatchery-raised Florida largemouth bass and hybrid striped bass, minnow racing, turtle racing, and a bass fishing techniques station.

As time allows, hatchery biologists assist private pond owners with technical advice and some water quality testing. Pond owners call or stop by looking for solutions to problems or for advice on constructing and stocking ponds.

One or more biologists representing the LDWF's hatchery program attended the following annual meetings in FY 2012-2013:

- Louisiana Chapter of the American Fisheries Society
- Louisiana Association of Professional Biologists
- Southern Division of the American Fisheries Society
- Aquaculture America/World Aquaculture Society
- Louisiana Wildlife Federation

One or more hatchery biologists are a member of the following aquaculture groups:

- Southern Division of the American Fisheries Society Aquaculture Technical Committee
- American Fisheries Society Fish Culture Section
- Southern Division of the American Fisheries Society Hatchery List Serve

Hatchery presentations were given by the hatchery biologists at the following meetings/events in FY 2012-2013:

- LDWF Annual Fall Biologists/Stocking Meeting
- Louisiana/Texas Border State Fisheries Meeting
- Louisiana/Mississippi Border State Fisheries Meeting
- Louisiana/Arkansas Border State Fisheries Meeting
- Bass Pro Shops Fall Fishing Event, Denham Springs

LDWF hatchery employees visited the following fish culture facilities in FY 2012-2013, taking advantage of the opportunity make new contacts, view aquaculture systems, and share techniques/ideas/creative designs:

- North Mississippi State Fish Hatchery, Enid, MS
- Sea Center Texas, Lake Jackson, TX
- CCA Marine Development Center, Corpus Christi, TX
- East Texas State Fish Hatchery, Jasper, TX
- Richmond Hill Fish Hatchery, Richmond Hill, GA
- Watha Fish Hatchery, Watha, NC

A one-day fish health workshop was arranged for hatchery and extension employees. Dr. John Hawke with LSU School of Veterinary Sciences provided the class in order to improve employee knowledge of common fish health issues and necropsy techniques.

LDWF hatcheries also participate in the USFWS National Investigational New Animal Drug (INAD) 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 (INAD) exemptions, and 2) contribute important drug efficacy and safety data needed to support the future approval of new drugs for use in aquatic species." (<http://www.fws.gov/fisheries/aadap/programPDFs/NIP%20Standards%20April%202011.pdf>)

Waterbody	Species	Size	Number
Catham Lake	Redear	Fingerlings	159,492
Chemin-a-Haut State Park	Coppernose Bluegill	Fingerlings	22,097
	Northern Largemouth Bass	Fingerlings	11,355
	Northern Largemouth Bass	Adults	50
	Redear	Fingerlings	5,125
Cheniere Brake Lake	Florida Largemouth Bass	Phase 2 Fingerlings	1,217
Chicot Lake	Florida Largemouth Bass	Fingerlings	17,305
Corney Lake (Kisatchie NF - Claiborne Parish)	Florida Largemouth Bass	Fingerlings	6,750
Cotile Lake	Florida Largemouth Bass	Fingerlings	10,028
Cross Lake	Channel Catfish	Fingerlings	17,898
	Florida Largemouth Bass	Fingerlings	28,227
	Florida Largemouth Bass	Phase 2 Fingerlings	6,000
	Hybrid Striped Bass	Fingerlings	50,056
False River	Florida Largemouth Bass	Adults	301
	Florida Largemouth Bass	Fingerlings	6,528
	Hybrid Striped Bass	Fingerlings	26,070
	Redear	Fingerlings	231,147
Fort Polk Ponds	Channel Catfish	Adults	208
Fullerton Lake (Kisatchie NF - Vernon Parish)	Florida Largemouth Bass	Fingerlings	223
Girard Park Pond	Channel Catfish	Fingerlings	149
Government Pond (Kisatchie NF - Vernon Parish)	Florida Largemouth Bass	Fingerlings	61
Grand Bayou Reservoir	Florida Largemouth Bass	Fingerlings	20,027
Gum Springs (Kisatchie NF - Winn Parish)	Florida Largemouth Bass	Fingerlings	111
Indian Creek Reservoir	Florida Largemouth Bass	Fry	894,600
	Triploid Grass Carp	Adults	18
Ivan Lake	Black Crappie	Fingerlings	4,142
	Bluegill	Fingerlings	501,266
	Channel Catfish	Fingerlings	10,026
	Florida Largemouth Bass	Adults	200
	Redear	Fingerlings	107,129
	Threadfin Shad	Adults	12,000
	Triploid Grass Carp	Adults	600
Kincaid Lake	Florida Largemouth Bass	Fingerlings	8,986
Kisatchie Ranger District Ponds (Kisatchie NF - Natchitoches Parish)	Redear	Fingerlings	2,268
Lacassine Pool	Florida Largemouth Bass	Fingerlings	63,040
Lake Arthur and Mermentau River	Paddlefish	Fry	266,039
	Paddlefish	Fingerlings	15,302
Lake Bruin	Florida Largemouth Bass	Fingerlings	10,682
	Hybrid Striped Bass	Fingerlings	29,139
Lake Cataouatche	Florida Largemouth Bass	Adults	302
	Florida Largemouth Bass	Fingerlings	10,332
	Florida Largemouth Bass	Phase 2 Fingerlings	867

Waterbody	Species	Size	Number
Lake Concordia	Hybrid Striped Bass	Fingerlings	10,010
Lake Claiborne	Hybrid Striped Bass	Fingerlings	62,843
Lake Killarny	Florida Largemouth Bass	Fingerlings	875
Lake St. John	Hybrid Striped Bass	Fingerlings	20,020
Lamar Dixon 11-acre Pond	Triploid Grass Carp	Adults	55
La. Tech Community Pond	Channel Catfish	Fingerlings	704
Long Lake	Black Crappie	Fingerlings	4,823
Martin Lake	Florida Largemouth Bass	Phase 2 Fingerlings	4,300
Millers Lake	Florida Largemouth Bass	Fingerlings	36,651
Moore Lake	Channel Catfish	Fingerlings	149
Nantachie Lake	Florida Largemouth Bass	Fingerlings	10,137
	Triploid Grass Carp	Adults	2,000
New Orleans City Park	Florida Largemouth Bass	Adults	50
Plane Road II (Kisatchie NF - Winn Parish)	Bluegill	Fingerlings	1,692
	Florida Largemouth Bass	Fingerlings	228
	Redear	Fingerlings	717
Powerline Road Pond (Kisatchie NF - Winn Parish)	Bluegill	Fingerlings	846
	Florida Largemouth Bass	Fingerlings	101
	Redear	Fingerlings	512
Rockefeller Refuge	Alligator Gar	Fingerlings	370
	Florida Largemouth Bass	Fingerlings	269,706
	Florida Largemouth Bass	Phase 2 Fingerlings	22,800
Sam Houston Park	Coppernose Bluegill	Fingerlings	20,805
Sherburne WMA Pond	Channel Catfish	Fingerlings	149
Sicily Island WMA Pond	Channel Catfish	Fingerlings	537
State Police Youth Camp	Channel Catfish	Fingerlings	50
Stuart Lake (Kisatchie NF - Grant Parish)	Florida Largemouth Bass	Fingerlings	51
Thistlewaite WMA Pond	Channel Catfish	Fingerlings	149
Toledo Bend Reservoir	Florida Largemouth Bass	Fingerlings	458,970
	Florida Largemouth Bass	Phase 2 Fingerlings	5,196
Turkey Creek Lake	Florida Largemouth Bass	Fingerlings	30,021
	Florida Largemouth Bass	Adults	192
Twin Lakes	Florida Largemouth Bass	Fingerlings	509
Valentine Lake (Kisatchie NF - Rapides Parish)	Florida Largemouth Bass	Fingerlings	407
Vernon Lake	Florida Largemouth Bass	Fingerlings	21,019
Veteran's Park	Channel Catfish	Fingerlings	104
West Pearl River	Bluegill	Fingerlings	199,971
Woodworth Outdoor Educational Center	Channel Catfish	Adults	561
	Coppernose Bluegill	Adults	789
	Florida Largemouth Bass	Adults	150
Grand Total (Statewide)			4,083,978

FISHERIES OUTREACH AND EDUCATION PROJECTS

OUTREACH

The Aquatic Outreach and Education Programs are designed to inform the public about the programs and projects currently going on in the Office of Fisheries. Through outreach efforts, the Office of Fisheries Extension staff reached out to over 127,000 Louisiana citizens in FY 2012-2013.

Via a strong presence at youth recreational events, industry-related expos and other state-sponsored events, LDWF strives to align its efforts with the desires of citizens and foster a community sense of resource and habitat stewardship.

During FY 2012-2013, LDWF Extension staff made 109 public appearances at events ranging from boat shows to school programs, community events to outdoor festivals. Among these were the Louisiana Sportsman's Show in Gonzales and the Louisiana Balloon Festival, which together accounted for over 49,000 attendees. The Fisheries Extension staff conducted fishing workshops and youth events, several of which included scout troops. These activities focused on sport fish restoration projects and giving participants a hands-on fishing experience. Extension staff also assisted with the Louisiana Women in the Wild Workshop held at Cabela's in Gonzales with 35 participants. This workshop focused on teaching basic fishery resource ecology, fisheries management, and understanding of the safe and ethical use of recreational fishing equipment.

Our fisheries biologists also work 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 also saw the debut of the casting inflatable. This mobile display serves as a way to teach youth, as well as adults, casting techniques. It provides an eye-catching centerpiece to draw the public and is a fun way to get people interested in fishing and finding out more about the department.

Materials and publications designed and available for distribution during FY 2012-2013 include:

- Waterproof/UV-coated Fishing Regulations
- Individual Species Profile Brochures: greater amberjack, southern flounder, yellowfin tuna, black drum, red snapper
- Toledo Bend Artificial Reef Brochure
- Booker Fowler Fish Hatchery Brochure

- Newly designed Sport Fish Restoration Projects Brochure
- LDWF Directory Brochure
- Fish Catch and Release Brochure
- Fish-measuring Ruler Stickers
- Freshwater and Saltwater Pocket Creel Cards

LOUISIANA COOPERATIVE MARINE SPORT FISH TAGGING PROGRAM

The Louisiana Cooperative Marine Sport Fish Tagging Program is a collaborative effort between the Office of Fisheries, the Coastal Conservation Association (CCA) of Louisiana, universities and non-profit organizations.

One of the main goals of the program is to establish a volunteer marine fish tagging program. Participating in the Tagging Program offers anglers a unique opportunity to act as citizen scientists working alongside biologists for a common goal - to improve our understanding of marine fish movements, patterns of habitat use, and estimates of population size. 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 management and conservation.

Large numbers of dedicated volunteer anglers are essential to the success of any tagging study. In FY 2012-2013, the tagging program was promoted at CCA and LDWF events across coastal Louisiana. Anglers interested in participating in the tagging program can submit an application by phone, mail, email, Facebook message or in person. CCA or LDWF personnel will collect this information and assign the angler a unique ID number, tagging kit and 10 tags to get them started. A marked increase in angler participation occurred during FY 2012-2013, partially due to program promotion using the social media outlet Facebook. The "Tag Louisiana" Facebook page, which has over 800 friends, 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 also increasing interest and awareness for the tagging program.

Working with the angling community has proven to be an efficient and cost-effective means for collecting data. Since the program started with CCA of Louisiana in 1988, over 11,000 anglers have participated either by tagging fish themselves or reporting a recaptured tagged fish. This has resulted in over 139,000 tagged red drum, spotted seatrout and yellowfin tuna, and more than 4,000 recaptures reported. In FY 2012-2013, 298 active anglers (active angler is defined as tagging at least one fish per year) tagged 9,261 fish and reported 415 recaptured fish. Of the 9,261 tagged fish, 5,575 were red drum, 3,091 were spotted seatrout, 33 were yellowfin tuna, and 562 were non-targeted species. Of the 415 reported recaptures, 306 were red drum, 86 were spotted seatrout, three were yellowfin tuna, and 20 were non-targeted species. The recapture rate was 4 percent for red drum, 2.6 percent for spotted seatrout, and 6.1 percent for yellowfin tuna. LDWF Outreach staff hosted a youth exclusive event in Grand Isle State Park on Free Fishing Weekend in June. Over 50 youth anglers competed for prizes and trophies at this event.

LOUISIANA SALTWATER SERIES

The Louisiana Saltwater Series was created by the Louisiana Wildlife and Fisheries Foundation to promote the conservation of Louisiana's saltwater sport fish resources. LDWF provides staff to help facilitate these catch, tag and release fishing tournaments. Through this saltwater fishing series, the Office of Fisheries and Louisiana Wildlife and Fisheries Foundation strives to enhance the resource while providing a competitive opportunity for avid fishermen and newcomers alike. The events are also used to encourage participation in the Louisiana Cooperative Marine Sport Fish Tagging Program. Data collected from the tournament entries serves as a valuable tool for Fisheries biologists to better understand the life history and habitat of these popular sport fish.

The Louisiana Saltwater Series was again a great success, with 984 fish tagged. Over 20 spotted seatrout were also tagged and released this fiscal year including a few which were implanted with acoustic tags in Lake Pontchartrain.

Staff at the Audubon Aquarium of the Americas attends many of our tournaments to provide

FIGURE 17. Total speckled trout and redfish tagged and recaptured since Louisiana Saltwater Series inception in 2010



LEFT: Youth angler poses a tagged speckled trout prior to release (photo courtesy of J.W. Meche). RIGHT: Youth angler recognition during a LA Saltwater Series tournament.

TABLE 7. Red Drum, *Sciaenops ocellatus*, tagged and recaptured during FY 2012-2013 LA Saltwater Series Tournaments.

DATE	LOCATION	TEAMS REGISTERED	REDFISH TAGGED	REDFISH RECAPTURED
July 14, 2012	Rigolet's Marina (Slidell)	52	109	9
Aug. 25, 2012	Boudreaux's Marina (Cocodrie)	51	118	4
Oct. 5-6, 2012	Venice Marina (Venice Championship)	47	202	17
March 2, 2013	The Dock (Slidell)	53	69	10
April 20, 2013	Calcasieu Point Landing (Lake Charles)	42	86	13
May 4, 2013	Seaway Marina (Lafitte)	52	95	7
June 8, 2013	Port Fourchon Marina (Port Fourchon)	39	71	15
June 29, 2013	Sweetwater Marina (Delacroix)	74	209	2

supplemental fish tagging, presenting the unique opportunity to release large numbers of fish at one time and location. Aquarium staff provides technical support and information to the anglers regarding best fish handling practices.

ELMER’S ISLAND

Elmer’s Island is a coastal refuge, encompassing 230 acres of beach and dune area, managed by LDWF. Once a privately owned commercial campground, Elmer’s was closed in 2001. In 2008, state acquired the property and reopened it to the public, though initially accessible only by boat. Repairs to the access road in 2009 allowed access to visitors by land and water. Since then, Elmer’s has become a very popular summertime destination for fishing, bird-watching, picnics, water sports and other recreational activities.

In August 2012, Elmer’s Island was partially closed to the public and subsequently remained closed as a result of residual oil that was uncovered from Hurricane Isaac and the necessary clean-up. In February 2013, beach access was allowed during weekend hours (including Fridays), with closures during the week for oil spill clean-up activity.

Elmer’s Island Refuge was used during WETSHOP (an LDWF sponsored teacher workshop), to educate about coastal land loss, dune monitoring and coastal habitat. Volunteers assisted with several beach sweeps and native planting events. Coastal Protection and Restoration Authority submitted coastal restoration plans for the Caminada Headlands project, which will include Elmer’s Island Beach.

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 and potentially increasing the number of crabs available for harvest, by preventing crab mortalities in abandoned, out-of-use traps.

In January 2013, the LWFC ratified a final rule authorizing two temporary crab trap closures and derelict crab trap cleanups.

Derelict crab trap clean-ups were conducted over two 10-day periods in St. Bernard and Plaquemines parishes in February and March. One of the Office of Fisheries partners in previous crab trap removal efforts, Louisiana SeaGrant helped spearhead the 2013 cleanups. The CCA, Louisiana Crab Task Force, individual volunteers and volunteer organizations provided assistance with the cleanups.

The first crab trap closure began in a portion of Plaquemines Parish over a 10-day period from Feb. 16-25, 2013. LDWF and Louisiana SeaGrant hosted volunteer clean-up days on Saturday, Feb. 16 and Saturday, Feb. 23. Both volunteer days operated out of Beshel’s Marina in East Point-a-la-Hache.

The second crab trap closure took place in a portion of St. Bernard Parish over a 10-day period beginning on March 9, 2013, at 6 a.m. and ending on March 18, 2013, at 6 a.m. A single volunteer clean-up day was hosted on March 9 and operated out of Breton Sound Marina in Hopedale.

Together, over 32 boat and 193 man days of effort were logged during the cleanup effort, resulting in the removal of over 969 abandoned and derelict crab traps.

TABLE 8. Number of crab trap closures and numbers of trap removed annually.

YEAR	AREA	DATES	TRAPS
2004	Upper Terrebonne Bay Estuary	Feb. 28 - March 14	6,676
	West Vermilion Bay	May 14-22	218
	Total		6,894
2005	Sabine Lake	Feb. 18-27	4
	Breton Sound Estuary	Feb. 26 - March 13	1,941
	Middle Terrebonne Bay Estuary	March 5-20	2,437
2006	East Vermilion Bay/ West Cote Blanche Bay	May 16-22	241
	Total		4,623
	Southwest Terrebonne Bay Estuary	March 4-13	2,935
2007	East Lake Pontchartrain	Feb. 24 - March 5	774
	Upper Barataria Bay Estuary	March 3-12	724
2008	Total		1,498
	Upper Terrebonne Bay Estuary	Feb. 23 - March 2	1,234
2009	Terrebonne Bay Estuary	N/A	788
2010	Upper Barataria Bay Estuary	Feb. 27 - March 7	477
2011	Western Plaquemines Parish	Feb. 26 - March 5	1,100
2012	St. Bernard/ Plaquemines Parish	Feb. 25 - March 5	1,950
	Terrebonne Parish	March 17-26	750
2013	Total		2,708
	Eastern Plaquemines Parish	Feb. 16 - March 25	492
	St. Bernard Parish	March 9-18	477
	Total		969
Overall			23,226



FIGURE 18. Map of derelict crab trap closures since 2004.

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 manmade disasters. Some long-term programs include the monitoring and permitting of seismic exploration and oversight of private oyster lease areas.

In addition, the Office of Fisheries is pursuing several initiatives for Louisiana's commercial fishing industry including a seafood certification programs, a seafood technology and equipment program, and a professionalization program which 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 to promote the prior.

The goal of the Louisiana Wild Seafood Certification Program is to increase sales and market potential for wild-caught Louisiana seafood. By creating an origin based brand, LDWF, in cooperation with DHH and the LDAF, 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.

In August 2012, the rules for the Louisiana Wild Seafood Certification Program were finalized and the program was officially launched in October 2012. Shortly after, a program website was launched to allow anyone interested in participating in the program and consumers to learn more about the program.

Interested participants can obtain an application from this website. Before applying, applicants must also participate in a 45-minute training video also 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.

Since the programs launch, LDWF has strived to find ways to promote the program and encourage industry participation and consumer awareness. The Louisiana Seafood Promotion and Marketing Board funded a TV, billboard and print ad campaign which ran for several months after the program was launched. LDWF also hired a full time marketing representative to travel coastal Louisiana educating the industry on the program, encouraging them to sign up and assisting them as needed. 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.

As of FY 2012-2013 there were a total of 55 permitted seafood businesses participating in the program.

The goal of a seafood 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 and be available for future generations. Many retailers worldwide have been under increasing pressure to "prove" that the seafood they are sourcing is from sustainable fisheries. Similar requirements are beginning to be made by U.S. retailers, including Wal-Mart, Target and Krogers to name a few.

LDWF is seeking out mainstream certifications for major fisheries, such as those offered by the Marine Stewardship Council (MSC). In March 2012 Louisiana's blue crab fishery became the first blue crab fishery in the world to receive MSC

sustainability certification. The Office of Fisheries will continue the upkeep required for certification, including completion of a coastwide crab trap bycatch study that began in January 2013, sponsoring a diamondback terrapin population assessment, and meeting the annual conditions set by the MSC standards. During FY 2012-2013, the blue crab fishery underwent its first MSC surveillance audit. Scientific Certification Systems published the audit report on MSC's website in April 2013. Scientific Certification Systems determined Louisiana's blue crab fishery was on target for four of the six indicators that received a conditional approval and recommended it maintain the MSC certificate until the second annual surveillance audit.

In addition to MSC certification, the Office of Fisheries is also investigating development of its own sustainability certification. The Office of Fisheries has partnered with the Audubon Commission to develop a sustainability certification program specifically for Louisiana, similar to those developed for Alaska and Iceland.

We have formalized our working relationship with Audubon Nature Institute by signing a three-year contract for them to begin leading our gulf-wide third party sustainable seafood certification program. Through an RFP process, Audubon Institute has selected Global Trust as the third party certifier subcontracted under their agreement. This subcontract will train Audubon Nature Institute on the fishery assessment/certification process. This program will involve two key components:

1. Certification to an United Nations Food and Agriculture Organization based standard which will be developed by a technical committee made of Gulf seafood stakeholders.
2. A fishery improvement planning process that will be led by Audubon Nature Institute to guide those fisheries that don't meet the certification requirements.

LDWF is also directly engaging the United Nations Food and Agricultural Organization and other international partners in developing the specific sustainability standards for its fisheries.

We are continually vetting our program with seafood buyers to ensure our program will have market acceptance once developed. LDWF has engaged national retail organizations in intense dialogue concerning their sustainable seafood needs and desires.

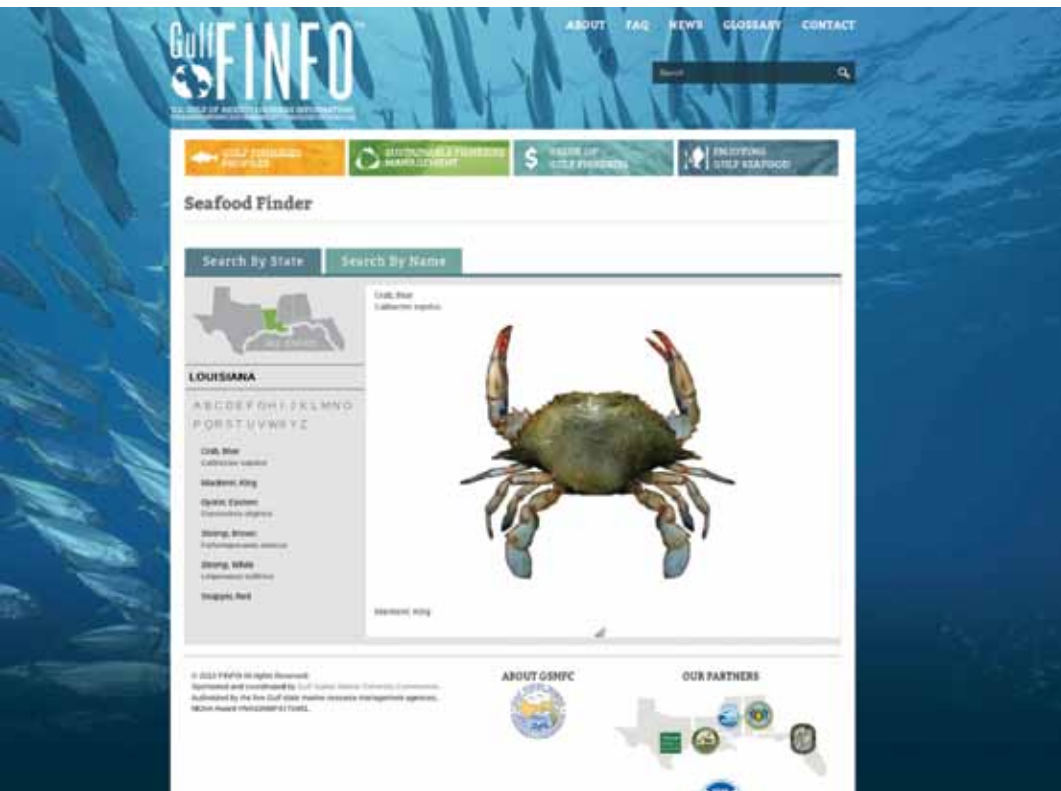


FIGURE 18. Screenshot of a working draft of the FINFO website.

As support for LDWF sustainability certification efforts, we have started the process of developing robust fisheries management plans for our major fisheries and began working on a FINFO site in cooperation with GSMFC.

FINFO

(In cooperation with GSMFC and other Gulf states). FINFO is a web-based portal for information about the science and management of Gulf fisheries; the objective is to provide seafood buyers with easy to understand, science-based information about the responsible management of Gulf fisheries and sustainability of Gulf seafood.

COMMERCIAL SEAFOOD INDUSTRY PROFESSIONALIZATION

The primary goal of the Industry Professionalization Program is to create a better informed and more efficient commercial fishing industry. The program will provide ongoing education opportunities for fishermen and industry participants to receive the most relevant and up-to-date information as it pertains to their industry.

The Office of Fisheries continues to work with the Louisiana SeaGrant program located at LSU to develop a curriculum for a professionalization program that covers a variety of topics including:

fishing/boating regulations and requirements; food quality and safety practices; advanced gear technology; business planning and marketing; seafood industry economics; and vessel safety. LDWF provided LSU SeaGrant with a detailed list of requirements to be incorporated into a robust industry-wide training program covering the aforementioned topics. LDWF expects to receive the full proposal in September 2013 and begin actively developing training material in January 2014.

LDWF participated in LSU SeaGrant's Seafood Academy offering information to the industry on LDWF certification and sustainability initiatives.

A new training video has also begun production titled "Best Practices for Producing High Quality Seafood in Louisiana." This is being done in collaboration with LSU SeaGrant and covers proper refrigeration, sanitation and chemical use during the handling and processing of various types of seafood.

As a small pilot program, the Office of Fisheries launched the Louisiana Oyster Fisheries Training series. Training meetings were held in April and June 2012. No additional Louisiana Oyster Fisheries Training series were held during FY 2012-2013. However, LDWF began developing curriculum and content for a new series to be launched during FY 2013-2014.

This program includes deployment of a small team (i.e. LDWF Fisheries Oversight, Enforcement, DHH and Vietnamese and Spanish interpreters) to a specific location to inform/reinforce (through education, not enforcement) requirements, expectations and best practices. Operation Outreach is to serve the role of "help us help you" where the focus/goal is to overcome language barriers, misunderstanding of requirements, and to help our oyster industry deal with increasingly complex FDA regulations on the handling and transport to market of raw oysters.

This program began tackling issues within the oyster industry such as lot identification, human waste disposal, and a sack size study to help standardize the sack measurement across the industry.

Also, an educational video on Louisiana Oyster Harvesting Tags and Requirements video was produced by LDWF staff. The video will be available in English, Spanish and Vietnamese. The video can/may be offered in DVD form as well as internet link form (i.e. LDWF website, Facebook and YouTube). It was brought to our attention that many Vietnamese fishermen utilize YouTube for information and/or instruction.

SEAFOOD TECHNOLOGY AND EQUIPMENT PROGRAM

Over the past few years the Office of Fisheries has been developing various forms of gear modernization programs which have culminated into a broad overarching program that assist all aspects of the commercial fishing industry, from the acquisition of new, more advanced equipment from the vessel, all the way to the processing plant.

The first phase of the Seafood Technology and Equipment Program to be developed was the Oyster Refrigeration Program. Launched in October of 2012, it offers grant funding for 50 percent (maximum of \$10,000) of the cost of new or existing refrigeration equipment for white tag oysters, provided it meets the programs requirements. The funding allows oyster vessels to obtain more advanced refrigeration equipment, assisting oystermen to meet new FDA refrigeration requirements.

The second phase of the program, known as the Health Compliance Program, assists docks and processors participating in the Louisiana Wild Seafood Certification Program with meeting their health permit requirements, a condition required to participate in the certification program. Qualified participants are eligible to receive grant funding for 50 percent (maximum of \$20,000) of

the cost upgrades and/or repairs required to obtain or maintain their DHH permit. The program currently has the potential to reach nearly 50 docks and processors. This program is scheduled for launch fall of 2013.

The Office of Fisheries has two additional programs under development to provide onboard refrigeration equipment and fuel efficient gear upgrades to Louisiana's shrimp vessels. These programs will operate much like their predecessors in that they will offer grants funds for 50 percent of the cost of the upgrades. Details regarding these programs are still be finalized but they are expected to be launched winter of 2013-2014. The Office of Fisheries is continually assessing the funding needs of the commercial fishing industry and has several other potential programs that could make grant funding available for a variety of projects in the future.

OYSTER REFRIGERATION PROGRAM NUMBERS FY 2012-2013

Total Applicants Received	57
Vessels Approved for Payment	6 (\$31,023.38)
Vessels Awaiting Inspection	14
Vessels Approved for Purchase	27

MARKETING

The Louisiana Seafood Promotion and Marketing Board (LSPMB) develops and directs a wide variety of communications and marketing programs to strengthen and revitalize the Louisiana seafood industry. Programs include market development, support of seafood industry trade associations and fisheries agencies, seafood promotions, special events, and advertising and public relations.

Working with the seafood board marketing team which includes GCR, The Graham Group and The Food Group, the Board continued to work diligently in FY 2012-2013 to repair the brand image of Louisiana seafood in the wake of the *Deep-water Horizon* oil spill. In addition to the work that the board does annually, they launched new marketing initiatives and advertising programs.

LSPMB continued their intensive advertising programs in FY 2012-2013. The programs were individualized for two audiences, consumer and chef/trade. Each program had a unique message and call to action. Consumer advertising included billboards, print and digital consumer publications, and trade advertising included both print and digital in trade specific publications.

LSPMB industry and consumer outreach through the various Website channels continued to be a successful way to reach the audience. The *Louisianaseafood.com* site averaged 17,000 unique visitors a month and the trade portals, *Buy.Louisianaseafood.com* and *Sell.Louisianaseafood.com* provided more than 2,000 leads to the Louisiana seafood industry.

LSPMB's e-splash newsletter went to approximately 11,300 subscribers a month providing them with information on LSPMB news, events and Louisiana seafood recipes. LSPMB's interactive reach continued through the social media channels, including Facebook where LSPMB has more than 33,000 fans and more than 6,000 twitter followers.

The Louisiana Seafood "street team" was launched this year and proved to be a successful tool for reaching restaurateurs and grocers across Louisiana. Through this grass roots marketing effort, Louisiana seafood liaisons traveled across the state meeting with store and restaurant managers to put Point of Sale items such as posters and window clings directly in the hands of those who served Louisiana seafood.

LSPMB also sponsored a national retail program for six weeks that targeted 222,000 chefs, restaurateurs and seafood departments. It challenged participants to take the lead in who could buy and sell the most Louisiana seafood. This program resulted in the sale of an additional 275,000 pounds of Louisiana seafood.

The biggest event of FY 2012-2013 was the Super Bowl in New Orleans where Louisiana seafood was the star. LSPMB had a tremendous presence in the media center where media from all over the nation gathered. For the days leading up to the Super Bowl, chefs were on site preparing Louisiana seafood for the media and attracting national attention with cooking demonstrations and sampling. In addition a 47-foot- seafood po-boy build garnered national attention from major publications and bloggers. When the week was over, the Super Bowl helped Louisiana seafood reached thousands of people across the nation.

In addition to the Super Bowl, LSPMB participated in several other events during FY 2012-2013. Through these events they were able to reach more than a million consumers and trade industry members. Those events included the Great American Seafood Cook-Off, Louisiana Cookin' Chefs to Watch, CIA Greystone Flavors Summit, Oysters Jubilee, International Boston Seafood Show, "Only in Louisiana" Grammy Celebration, National Restaurant Association Show, Aspen Food and Wine

Classic, the Annual Louisiana Foodservice and Hospitality EXPO, the Louisiana Seafood Cook-Off and Louisiana Seafood Legislative Day.

Senate Bill 167 introduced during the 2013 legislative session transferred the Seafood Promotion and Marketing Board from LDWF to the Department of Culture, Recreation and Tourism. This change was effective July 1, 2013.

TASK FORCES

The Office of Fisheries has three active task forces: Shrimp, Oyster and Crab. The task forces memberships are currently housed under the LSPMB, allowing for more efficiencies and the hope of greater participation by members. The Office of Fisheries enjoys a close working relationship with the task forces. 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

During FY 2012-2013 the Shrimp Task Force met on July 26, 2012, Nov. 11, 2012 and March 7, 2013. The Shrimp Task Force Management Subcommittee met on July 26, 2012 and March 7, 2013 and the Sustainability Subcommittee met once on July 26, 2012. Agenda items discussed included:

- NOAA Fisheries Draft Environmental Impact Statement and proposed rule that would require TEDs in skimmer and butterfly nets.
- Legislation to increase skimmer net frame size.
- Use of alternate or experimental gear.
- Current exemption on the minimum possession count on white shrimp late in the year.
- Season opening times (time of day).
- Results of ongoing TED testing and observer coverage program conducted by NOAA Fisheries.
- Fisheries Improvement Plan.
- Louisiana Seafood Certification Program.
- 2012 Louisiana Coastal Master Plan.
- Artificial Reef Program.
- Shrimper and crab trap interactions.
- Changes to the serviceable crab trap law.

CRAB TASK FORCE

The Crab Task Force continued to work with the Office of Fisheries in FY 2012-2013 toward improving the Louisiana crab fishery. The task force met on Dec. 6, 2012, Feb. 26, 2013 and May 7, 2013. Agenda items discussed included support for the LDWF blue crab stock assessment, opposi-

tion to any changes to the serviceable crab trap law, enhancing professionalism in the fishery, increases in to the minimum mesh size in crab traps, member absences and vacancies, nominees to the LSPMB, derelict crab trap cleanups, harvest of immature female crabs and MSC certification of the Louisiana blue crab fishery.

OYSTER TASK FORCE

In FY 2012-2013 the Oyster Task Force supported House Bill 236 which increased penalties for certain oyster harvest violations including harvesting from closed waters and harvesting in violation of DHH closures. They also supported HB 345 which extends the oyster seed ground vessel permit program for three years. The Oyster Task Force was saddened by the death of one of the industry's most valuable leaders, Michael Voisin. The state legislature recognized Mike and his accomplishments during the legislative session.

Along with LSPMB, the Oyster Task Force continues to create public relations and marketing opportunities to inform the public and media of the quality of Louisiana oysters post *Deepwater Horizon* oil spill. This included the task force's annual trip to Washington D.C. where they sponsor the "Let the World Be Your Oyster" reception and "Louisiana Alive," 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. The Oyster Task Force also sponsored Oysters Jubilee in New Orleans, and members attended the Interstate Shellfish Sanitation conference and the National Fisheries Institute conference.



GULF OF MEXICO FISHERIES MANAGEMENT COUNCIL

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 that 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 Randy Pausina. His designee for council issues is Myron Fischer, who is delegated to act in 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. In addition, LDWF biologists are 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 highly considered a leader in the council's fishery management process with creative and out-of-the-box methodology, such as the preparation of Reef Fish Amendment 39, Regional Management and alternative allocation methods. Reef Fish Amendment 39 should come to final vote by the end of 2013 or early 2014. Whether the amendment passes or fails, we have opened eyes nationally on alternative means of management.

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 vari-

ous SEAMAP programs. Louisiana moved for the creation of a SEAMAP Vertical Line workgroup after much discussion about current protocol. The motion passed and is currently reviewing and making recommendations to improve the Vertical Line protocol. In addition, LDWF biologists participated in the creation of fishery management plans for Gulf menhaden and blue crab.

SOCIOECONOMIC RESEARCH AND DEVELOPMENT

The Socioeconomic Research and Development (SRD) 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 SRD Section prepares Fiscal and Economic Impact Statements that accompany the Notices of Intent for rules and regulations considered for adoption by the LWFC. During FY 2012-2013, Fiscal and Economic Impact Statements were developed and published along with the Notices of Intent in the Louisiana Register.

The following programs, projects and surveys were conducted in FY 2012-2013.

COOPERATIVE RESEARCH SURVEY PROGRAM

The Cooperative Research Survey Program was implemented in May 2009 to measure the impact and monitor the recovery of Louisiana's seafood industry from the 2005 and 2008 hurricanes. In the spring of 2009, program application forms were mailed to 4,427 fishermen and 395 dealers to measure interest in participating in the Cooperative Research Survey Program. In FY 2009-2010, surveys were mailed to 3,249 commercial fishermen and to 328 seafood dealers who applied to participate in the program. Reports based on the data collected in this program were completed in FY 2012-2013.

GULF SEAFOOD PROCESSOR AND DEALER ECONOMIC SURVEYS

In collaboration with the GSMFC, NOAA and state agencies in Alabama, Florida, Mississippi and Texas, the SRD staff designed a seafood processor survey and a dealer survey in the spring of 2011 to collect economic information from seafood processors and dealers operating in the Gulf of Mexico region. The purpose of these surveys is to provide policy-makers, trade associations and others involved in this industry with a better understanding of how this sector works and how important the seafood purchasing, processing, wholesaling and distribution industry is to local and regional economies throughout the Gulf region. An in-person survey of seafood processors was initiated in the summer of 2011 and completed in 2012. A mail seafood dealer survey began January 2012 and was completed in October. As of June, 2013, 161 completed sur-

veys were received. A follow-up survey of dealers who did not respond to the seafood dealers survey was mailed to 239 seafood dealers in May, 2013. This effort was continued in the summer of 2013. Analysis of the seafood processor survey data and seafood dealers survey will be completed by fall, 2013. Results will be submitted to the GSMFC.

ECONOMIC SURVEY OF THE GULF OF MEXICO INSHORE SHRIMP FISHERY

Gulf of Mexico shrimp are harvested commercially from "inshore" state waters (waters within the jurisdictional boundaries of the individual states) and from "offshore" federal waters. This study examines the economic performance of active commercial shrimp harvesters who primarily operated in inshore waters of western Florida, Alabama, Mississippi, Louisiana and Texas throughout 2012. The data collection was designed by GSMFC and LDWF to track the economic status and performance of vessels holding a state shrimp license for harvesting shrimp in the Gulf. Throughout the spring of 2012, 1,557 shrimpers were randomly selected, stratified by state, from a population of individuals holding a state shrimp harvesting license for the Gulf. After two mailings and a reminder postcard, 410 surveys were returned as of June 30, 2013.

SURVEY OF NATIONAL HUNTING AND FISHING DAY PARTICIPANTS

On Sept. 22, 2012, LDWF held a public event in observation of National Hunting and Fishing

Day at Waddill Wildlife Refuge in Baton Rouge. Personnel from the SRD Section collected exit surveys of 303 participants in this event. Results of this survey were completed and sent to the LDWF Public Information Section in January 2013.

SURVEY OF LOUISIANA SALTWATER SERIES FISHING TOURNAMENT PARTICIPANTS

LDWF organized a series of saltwater fishing tournaments in 2012 and 2013. The SRD Section assisted personnel in the Marine Fisheries Division with the design of an on-line survey of participants in the tournaments held on June 12 and Aug. 23, 2012 and June 8 and June 29, 2013.

PUBLICATIONS, REPORTS AND PRESENTATIONS

Ogunyinka, Ebenezer O., and Jack C. Isaacs. "Participation in Louisiana Recreational Fishing by Male and Female License Holders." LDWF Headquarters, Fourth Floor Conference Room, January 24, 2013.

Isaacs Jack C. "Preparing Notices of Intent and Fiscal Economic Impact Statements." LDWF Wildlife Division Meeting, Woodworth Education Center, March 11, 2013.

Ogunyinka, Ebenezer O., and Jack C. Isaacs. "Assessing High-End Commercial Fishermen's Engagement and Satisfaction in Louisiana Fisheries." LDWF Headquarters, Fourth Floor Conference Room, March 14, 2013.

Isaacs, Jack C., and Alex Miller. "The Economic Status and Performance of the Gulf of Mexico Crab Processing Industry in 2009." Louisiana Crab Task Force Meeting, Waddill Wildlife Refuge, May 7, 2013.

Isaacs, Jack C. "Results of a Survey of Marinas in Coastal Louisiana." Gulf States Marine Fisheries Commission Fisheries Economics Workshop, Destin, Florida, March 19, 2013.

Miller, Alex, and Jack C. Isaacs. "The U.S. Gulf of Mexico Seafood Processing Sector: Economic Status and Performance." Gulf States Marine Fisheries Commission Fisheries Economics Workshop, Destin, Florida, March 19, 2013.

Ogunyinka, Ebenezer O., and Jack C. Isaacs. "Assessing High-End Commercial Fishermen's

Engagement and Satisfaction in Louisiana Fisheries." Gulf States Marine Fisheries Commission Fisheries Economics Workshop, Destin, Florida, March 19, 2013.

Miller, Alex, and Jack C. Isaacs. "The Economic Status and Performance of the Gulf of Mexico Seafood Processing Industry in 2009." Center for Natural Resource Economics Policy meeting, New Orleans, Louisiana, March 26, 2013.

Isaacs, Jack C., and Alex Miller. "The Economic Status and Performance of the Gulf of Mexico Crab Processing Industry in 2009." Center for Natural Resource Economics Policy meeting, New Orleans, Louisiana, March 26, 2013.

Ogunyinka, Ebenezer O., and Jack C. Isaacs. "Gender and Angler Participation in Louisiana Recreational Fishing." Center for Natural Resource Economics Policy meeting, New Orleans, Louisiana, March 26, 2013.

Isaacs, Jack C., Alex Miller, and Ebenezer O. Ogunyinka. "The U.S. Gulf of Mexico Seafood Processing Sector: Economic Status and Performance" North American Association of Fisheries Economists, St. Pete Beach, Florida, May 24, 2013.

Isaacs, Jack C., M. Lee Buckner, and Mike Wood. "Results of a Survey of Louisiana Resident Commercial Fishermen Who Harvested Finfish in Freshwater in Louisiana." Annual Meeting of the Louisiana Chapter of the American Fisheries Society, Baton Rouge, Louisiana. May 30-31, 2013.

Ogunyinka, Ebenezer O., and Jack C. Isaacs. "Socioeconomic Determinants of the Degree of Diversification among Louisiana Commercial Fishermen." Annual Meeting of the Louisiana Chapter of the American Fisheries Society, Baton Rouge, Louisiana. May 30-31, 2013.

Louisiana Department of Wildlife and Fisheries. "A Survey of Freshwater Commercial Fishermen in Louisiana." February, 2013.

REPRESENTATION ON TASK FORCES, STUDY GROUPS AND COMMITTEES

During FY 2012-2013, SRD staff members represented LDWF on the following task forces, study groups and committees:

- Civil Restitution Penalty Committee
- GSMFC Arenarius Technical Task Force
- GSMFC Disaster Recovery Program Committee
- GSMFC FIN Social/Economic Work Group

- Louisiana Blue Crab Task Force
- Louisiana Clean Marina Program Committee
- Louisiana Ozone Action Committee
- LDWF Marine Fisheries Information Systems Proposal Committee
- Louisiana Recreational Freshwater Fishing Task Force
- Louisiana Recreational Saltwater Fishing Task Force
- Louisiana Wild Crawfish Task Force
- *Deepwater Horizon* Oil Spill Human Use Trustees Technical Work Group
- Socioeconomic Scientific and Statistical Committee (Socioeconomic SSC) of the Gulf of Mexico Fishery Management Council
- Technical Advisory Committee for the US-FWS's National Survey of Fishing, Hunting and Wildlife-Associated Recreation.

