DEQ
LOUISIANA

Louisiana Nonpoint Source Annual Report

Federal Fiscal Year (FFY) 2020

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1.0 Executive Summary

2020 Louisiana Nonpoint Source Annual Report

1.0 Executive Summary

The Louisiana Department of Environmental Quality (LDEQ) administers Louisiana's Nonpoint Source (NPS) program and collaborates with the Louisiana Department of Agriculture and Forestry (LDAF) and other agencies and organizations to implement the statewide program to improve water quality across the state. Activities undertaken through these partnerships include prioritization of watershed planning and implementation/demonstration activities, evaluating progress, and reporting program activities. This interagency coordination is the strength of Louisiana's NPS Program, resulting in water quality restoration and improvement, as well as success stories for the state. Louisiana's federal fiscal year (FFY) 2020 NPS Annual Report has been prepared in compliance with Section 319 of the Clean Water Act (CWA). This report outlines progress made in reducing NPS pollution and improving water quality within Louisiana. Sources of NPS pollution include agricultural production, forestry, sand and gravel mining, urban storm water runoff, construction, and onsite disposal systems (OSDS).

OSDS maintenance issues continue to be a concern in Louisiana; therefore LDEQ-NPS continues to place emphasis on water quality problems associated with OSDS. Several partners remain actively involved in inspecting systems and educating homeowners on the importance of protecting Louisiana's waterways by properly maintaining sewage systems. Partners engaged in this effort include Capital Resource Conservation & Development Council (RC&D), Louisiana Rural Water Association (LRWA), Bayou Vermilion District (BVD), and Barataria-Terrebonne National Estuary Program (BTNEP).

In 2020, the NPS Program and its partners participated in watershed restoration activities and education and outreach across the state. These activities led to substantial progress in reducing NPS pollution, improving water quality, and therefore will continue to focus on watersheds in need of restoration. 2020 NPS Program highlights are as follows:

- LDEQ participated in 13 in-person outreach and educational events;
- LDEQ and LDAF managed approximately $2.9 million of Section 319 grant funds in order to implement projects to reduce NPS pollution and improve water quality;
- LDEQ continued watershed planning and implementation activities with one watershed coordinator (WSC) and three watershed groups that are located in various parts of the state;
- LDEQ continued revising and drafting three watershed implementation plans (WIPs) within two Basins;
- LDEQ, LDAF and United States Department of Agriculture – National Resources Conservation Service (USDA-NRCS) continued partnering in watersheds prioritized through National Water Quality Initiative (NWQI);
- LDEQ's NPS and Assessment staff worked together on the New Vision Initiative;
- LDEQ Water Surveys (WS) staff provided water quality sampling for the NPS program in 13 watersheds; several partners provided water quality sampling for the NPS program in six watersheds.
- Louisiana continues to focus on watershed planning, assessment, monitoring and implementation in 21 watersheds;

- LDEQ's Drinking Water Protection Program (DWPP) implemented activities in the town of Jackson, East Carroll and West Carroll parishes, as well as the Lake Pontchartrain, Mississippi River and Pearl River Basins;
- LDEQ published monitoring data in EQUIS and the United States Environmental Protection Agency (EPA) Storage and Retrieval (STORET) Data Warehouse for active watersheds; and
- LDEQ developed maps using the Watershed Delineator from the ArcGIS Soil and Water Assessment Tool (ArcSWAT) for active watersheds to assist in watershed planning, implementation, and monitoring.

LDEQ's DWPP staff engaged in source water protection (SWP) activities in various parishes, which included educating local businesses identified as potential sources of contamination to drinking water sources, conducting public community meetings and school presentations, developing contingency plans with water systems, as well as updating source water assessment data.

LDEQ, LDAF and the USDA-NRCS continue to work together to improve the process of restoring and protecting watersheds. The success of LDEQ's NPS program is attributed to proficient collaboration of federal, state, and local governments, collaborating with universities, non-profit organizations, and the public. These alliances will continue to be the basis for watershed and statewide efforts during 2021.

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2.0 Section 319 Funding

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2.0 Section 319 Funding

2.1 Louisiana Department of Environmental Quality Nonpoint Source

Louisiana's NPS program receives funding through CWA Section 319, prioritized to fund projects in coordination with USDA's Farm Bill, to implement its water quality goals and objectives. LDEQ continued collaborating with partners to conduct water quality monitoring, inspect OSDS systems, and assist in developing WIPs to be implemented by LDAF and USDA-NRCS, in NPS priority watersheds.

LDEQ utilized approximately $1.9 million in CWA Section 319 funds to support the NPS and Source Water Protection Program (SWPP), watershed coordination, NPS monitoring, implementation, and demonstration projects to protect and/or restore recreational waters and drinking water supplies. Table 1 illustrates LDEQ Section 319 grant expenditures.

Grant Year	LDEQ (Federal)
FFY15	$365,890.00
FFY16	$378,200.00
FFY17	$391,200.00
FFY18	$386,500.00
FFY19	$382,700.00
TOTAL	**$1,904,490.00**

Table 1. LDEQ Section 319 Grant Expenditures

2.2 Louisiana Department of Agriculture and Forestry

To provide technical assistance and best management practices (BMPs) through cost-share and incentive payments LDAF expended approximately $1.0 million on watershed implementation within multiple watersheds around the state. Implementation, planning and/or technical assistance was conducted on approximately 20,514 acres of private farmland in an effort to restore or partially restore surface water quality in nine priority watersheds within the Ouachita River, Mermentau River, and Vermilion-Teche Basins. Table 2 illustrates LDAF Section 319 grant expenditures.

Grant Year	LDEQ (Federal)
2015	$455,921.34
2016	$222,482.22
2017	$86,930.46
2018	$234,344.39
2019	$69.99
TOTAL	**$999,748.40**

Table 2. LDAF Section 319 Grant Expenditures

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3.0 Water Quality Monitoring and Implementation

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3.0 Water Quality Monitoring and Implementation

3.1 Louisiana Department of Environmental Quality Nonpoint Source

In FFY 2020, water quality monitoring continued in 19 watersheds (Table 3). The data collected assists LDEQ and its partners in making decisions. Pre-BMP monitoring assists in identifying critical areas contributing to NPS pollutant loads. This aids in the selection of the appropriate types of BMPs needed in the key locations. Post-BMP monitoring assists LDEQ and partners in determining if water quality is improving.

Watershed	Subsegment	Basin
Comite River	040103	Lake Pontchartrain
Upper Amite River	040301	
Middle Amite River	040302	
Yellow Water River	040504	
Bayou des Cannes	050101	Mermentau River
Bayou Mallet	050103	
Bayou Queue de Tortue	050501	
Bayou Chene	050603	
Bayou du Portage	060703	Vermilion-Teche River
Vermilion River	060801	
Thompson Creek	070502	Mississippi River
Bayou Louis/Lake Louis	080202/080203	Ouachita River
Big Creek (North)	080903	
Upper Bayou Lafourche	080904	
Lake Providence	081101	
Hemphill Creek	081609	
Bayou Grosse Tete	120104	Terrebonne
Bayou Maringouin	120111	
Bayou Folse	120305	

Table 3. Watersheds where water quality monitoring was conducted in FFY2020

LDEQ's NPS staff developed one accepted WIP (Table 4). WIPs developed for other priority watersheds are updated annually as water quality data becomes available and projects identified in the plan are implemented.

Watershed	Subsegment	Basin
Bayou Chene (WIP Accepted)	050603	Mermentau River

Table 4. Draft WIP accepted by EPA in FFY2020

In FFY 2021, LDEQ-NPS will be drafting/revising WIPs to be submitted to EPA R6 for review. Prospective watersheds are indicated in Table 5.

Watershed	Subsegment	River Basin
Vermilion River	060801/060802	Vermillion-Teche
Bayou Gross Tete	120104	Terrebonne
Bayou Maringouin	120111	Terrebonne

Table 5. Draft WIPs to be submitted to EPA in FFY 2021

3.2 Louisiana Department of Agriculture and Forestry

LDAF provided technical assistance and BMP implementation on 20,514 acres in seven watersheds, see Table 6.

Watershed	Acres Implemented	Basin
Bayou Queue De Tortue	1470.5	Mermentau River
Bayou Des Cannes	2,175.5	Mermentau River
Bayou Chene	3,856.8	Mermentau River
Bayou Mallet	5,674.8	Mermentau River
Hemphill Creek	465	Ouachita River
Big Creek (North)	3,482	Ouachita River
Bayou Lafourche	3,299.62	Ouachita River
TOTAL	**20,514.22**	

Table 6. Technical Assistance and BMP implementation

These BMPs were implemented through the traditional conservation partnership cooperation between USDA-NRCS, LDAF and the participating Soil and Water Conservation District (SWCD). Participating SWCDs included Acadia, Vermilion, Jefferson Davis, Morehouse, St. Landry, LaSalle, Evangeline, and Boeuf River. Signed contracts establish the participant's BMP payment schedules and implementation requirements, defining the relationship between themselves and the Federal-State-Local conservation delivery team. To attain water quality objectives, an array of proven conservation practices such as grade stabilization, conservation, prescribed grazing, heavy use area protection, critical area planting, irrigation land leveling, tillage and residue management and others were cost-shared through this program. Participants are required to implement a total Resource Management System (RMS) plan through which additional BMPs are prescribed. These additional BMPs further ensure reduction of water quality impairments and exceed the participants required matching funds. To ensure effective delivery of these necessary BMPs, LDEQ provides water quality data, watershed modeling, targeted sampling, mapping and other critical assistance to ensure maximum effectiveness for our collective efforts in restoring water quality in agricultural settings.

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4.0 Coordination with Partners

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4.0 Coordination with Partners

4.1 LDEQ Water Surveys

LDEQ Water Surveys (WS) staff are a key part of the Department's sampling efforts. WS successfully monitored 13 NPS watersheds (Table 7), setting the standard for data collection and data quality through adherence to QAPP/SP and best practices, while working toward a common goal of restoring and preserving the health and safety of Louisiana waters. WS also trains new sampling partners on equipment use and sampling methods when required. The data collected helps establish current water quality conditions in the watersheds, identifies geographic areas for targeting BMP and OSDS inspection locations, and tracks changes in water quality over time from BMP implementation and OSDS inspections in the watersheds.

WS also collaborates with the LDEQ Water Permits Division, Standards and Assessment unit, and the Total Maximum Daily Load (TMDL) group on the long-term New Vision projects for assessment, restoration and protection, under the Clean Water Act Section 303 (d) Program.

Basin	Waterbody	Watershed Surveys Monitoring - Supports
Lake Pontchartrain Basin	Comite River (040103)	OSDS Inspections
Mermentau River Basin	Bayou des Cannes (050101)	LDAF BMPs
	Bayou Queue de Tortue (050501)	LDAF BMPs
	Bayou Chene (050603)	LDAF BMPs
Vermilion-Teche River Basin	Bayou du Portage (060703)	LDAF and USDA/NRCS BMPs
	Vermilion River (060801)	OSDS Inspections/LDAF BMPs TBD upon WIP-acceptance
Ouachita River Basin	Bayou/ Lake Louis (080202/080203)	LDAF BMPs concluded 9/30/19; 1-year post monitoring concluded 8/21/20
	Big Creek (North) (080903)	LDAF BMPs
	Upper Bayou Lafourche (080904)	LDAF BMPs
	Lake Providence (081101)	USDA/NRCS BMPs; 1-year post monitoring concludes 9/30/21
Terrebonne Basin	Bayou Grosse Tete (120104)	LDAF BMPs TBD upon WIP-acceptance
	Bayou Maringouin (120111)	LDAF BMPs TBD upon WIP-acceptance

Table 7. Activities supported by WS monitoring activities

WS brings a multifaceted qualitative approach of characterizing and observing the size, functioning, and appearance of these watersheds and their surroundings, to gain an understanding of issues in the watershed. This, along with the quantitative research through sampling data analysis, can assist in confirming the causes and sources of watershed impairment.

On March 22, 2020, Governor Edwards issued a Louisiana Statewide Stay at Home Order due to COVID-19. As a result, all NPS monitoring was suspended on March 23, 2020, and resumed May 2020, taking the necessary precautions and following the Louisiana Department of Health and U.S. Centers for Disease Control guidelines.

Further, severe weather conditions hit Louisiana in August 2020. Hurricane Marco made landfall near the mouth of the Mississippi River the weekend of August 22-23, with maximum sustained winds of 40 mph - dumping a lot of rain - but was quickly downgraded to a tropical storm. Hurricane Laura hit the southern coast as a Category 4 storm on August 27, pummeling portions of Louisiana with maximum sustained winds of 150 mph and bringing catastrophic storm surges at levels not seen since Hurricane Audrey in 1957. Hurricane Laura tied the Last Island Hurricane (1856) for the strongest land falling hurricane in Louisiana on record.

The extreme weather conditions resulted in NPS watersheds being impacted in the southwestern portion of Louisiana, including Bayou Queue de Tortue, Bayou des Cannes, and Vermilion River. Issues included bad odor and color and almost no recordable oxygen levels. Water Surveys continued sampling, updating site characterizations for each watershed as needed. Bayou Chene was impacted with excessive flooding, resulting in no access to several of the monitoring sites. Sampling resumed in September once access was restored to those geographic locations.

4.2 Water Standards and Assessment

The Water Quality Standards and Assessment Section conducts work to support appropriate water quality standards and to routinely assess their degree of support in state waters. The Section also curates water quality data collected by regional field staff. Activities performed by the section during the fiscal year include:

- Collection of water quality and biological data to establish appropriate dissolved oxygen (DO) criteria in the Southern Plains Terrace and Flatwoods (SPTF) ecoregion;
- Coordination with USGS on a toxicity study to inform future minerals water quality criteria revision efforts;
- Continued maintenance and updates of the LEAU Web Portal to facilitate public access to water quality data (https://waterdata.deq.louisiana.gov/);
- Continued maintenance of a Fishing Consumption and Swimming Advisories web map and application for smartphones (***https://www.deq.louisiana.gov/page/fishing-consumption-and-swimming-advisories***)
- Development of an online interactive map of assessments for the 2018 Water Quality Integrated Report (***https://ldeq.maps.arcgis.com/apps/MapSeries/index.html?appid=50677b8480f244ac954dce957f084d48%20***);
- Collection of nutrients, water quality, and biological data to detect nutrient thresholds in lakes in the inland ecoregions of South Central Plains Flatwoods (SCPF), South Central Plains Tertiary Uplands (SCPTU), South Central Plains Southern Tertiary Uplands (SCPSTU), and the Upper Mississippi River Alluvial Plains (UMRAP) ecoregions;

- Analysis and synthesis of existing data to inform development of numeric translators for narrative nutrient criteria in inland rivers and streams (SCPF, SCPTU, SCPSTU, UMRAP, and the Terrace Uplands (TU) ecoregions);
- Review of coastal DO criteria and consideration of secondary data components for development of revised DO criteria in three coastal subsegments;
- Expansion of Coastal Dissolved Oxygen Study to include profile data in routine Ambient Water Quality Monitoring for 3 coastal subsegments;
- Participation in Louisiana Watershed Initiative (LWI);
- Participation in Gulf of Mexico Alliance (GOMA) through the Water Resources Team, Monitoring Community of Practice, and All-Hands Meeting;
- Participation in EPA Hypoxia Task Force;
- Participation with the Coastal Protection and Restoration Authority (CPRA), Louisiana Department of Agriculture (LDAF), Louisiana Department of Natural Resources (LDNR), Louisiana State University Agricultural Center, and Governor's Office of Coastal Activities (GOCA) for coordination and support of EPA Hypoxia Task Force and the Louisiana Nutrient Reduction and Management Strategy;
- Completion of five-year review of the Louisiana Nutrient Reduction and Management Strategy;
- Development of Louisiana Nutrient Reduction and Management Strategy 2019 Annual Report;
- Participation in the American Fisheries Society Annual Meeting virtually;
- Participation in the Association of Clean Water Administrators (ACWA) on the Executive Committee; Monitoring, Standards, and Assessment Committee; Watersheds Committee; Nutrients Policy Committee; Regional Nutrients Working Group; and the Nutrient Permitting Workshop;
- Continuation of Coastal Transect Study with CPRA through an EPA grant to Hypoxia Task Force states in support of nutrient management strategies;
- Management of LDEQ contract for Pontchartrain Conservancy water quality monitoring around Lake Pontchartrain (2020-2021);
- Statistical methods training;
- Harmful Algal Bloom (cyanobacteria) investigation, pilot study development, and inclusion of algal pigment data collection for select studies;
- Promulgation of rule WQ099 for a Water Quality Trading Program;
- Promulgation of rule WQ101 for Bayou Chene DO criteria;
- Promulgation of rule WQ103 for Wilson and Bradley Slough turbidity criteria revisions;
- Promulgation of rule WQ106 for Cross Bayou and Cross Lake stream descriptions;
- Public notice of WQ097 Triennial Review for State Surface Water Quality Standards for review and comment;
- Participation in Lower Mississippi River Conservation Committee;
- Final submittal and approval of 2018 Water Quality IR to EPA Region 6;
- Development and submittal to EPA Region 6 of the 2020 Water Quality IR;

- Submitted updates for Ambient Water Quality Monitoring QAPP to EPA Region 6 (EPA approval granted in October 2019);
- Attended EPA Region 6 Program Managers Meeting virtually;
- Review of 171 Solicitation of View documents for water quality concerns;
- Participation in BTNEP Water Quality Action Team Meeting; and
- Review of 316(b) (cooling water intake structure studies and reports) for Water Permits Division.

4.3 Total Maximum Daily Load Section: A State Plan for Prioritizing Watersheds for Restoration and Protection in Louisiana

The CWA Section 303(d) Program provides effective integration for implementation of activities to restore and protect the nation's aquatic resources where the nations waters have been assessed. The primary goals of the long-term vision include prioritization, assessment, protection, alternatives, engagement, and integration. Restoration and protection objectives have been systematically prioritized, and TMDLs and alternative approaches are being adaptively implemented to achieve water quality targets with the collaboration of states, federal agencies, tribes, stakeholders, and the public, from 2016-2022.

The EPA worked together with states to develop the new vision and six goal statements to help coordinate and focus efforts in advancing the effectiveness of the program. The vision and goals are neither regulation nor policy guidance but provide a mechanism for EPA and states to better manage the program to achieve water quality goals. EPA encouraged each state to embrace the vision concept and develop a strategy that outlines a comprehensive, integrated and iterative approach to addressing the challenge of achieving and communicating water quality improvements.

Initially, LDEQ identified seven priority watersheds under this new vision in the 2016 IR. They were Tunica Bayou (070505), Bayou Sara (070501), Turkey Creek (080905), Yellow Water River (040504), Natalbany River (040503, 040507), Blind River (040401, 040403), and New River (040404). In an effort to optimize limited resources, LDEQ removed subsegment 080905 Turkey Creek from the list of priority watersheds in 2017 due to the limited access to the waterbody and uncertainties regarding loading sources. Subsegment 080905 Turkey Creek will remain under consideration and may be added to the list of priority watersheds in the future.

The final restoration plan for the first priority watershed, Tunica Bayou, was accepted by EPA on October 5th, 2020. LDEQ completed 19 months of monitoring in Yellow Water River in September, 2019. Monitoring for the Natalbany River was initiated in the summer of 2019. Watershed investigations of point and nonpoint sources as well as outreach and engagement have begun for both watersheds and are ongoing. A draft plan for Yellow Water River is currently under development. Watershed investigations for Bayou Sara were conducted in 2017 and 2018 and a draft plan is currently under development. LDEQ plans to initiate monitoring, outreach and engagement, and watershed investigations for Blind River and New River in 2021 along with some possible follow-up monitoring for Bayou Sara.

There has been a long-term connection between the Section 319 NPS program and the CWA 303(d) programs. LDEQ remains committed to integrating across federal and state water programs, engaging the public and stakeholders, and adaptively developing, evaluating, and implementing TMDLs and TMDL alternatives and strategies to ensure strategic use of available resources to achieve water quality goals.

4.4 USDA-NRCS Initiatives

During FFY 2020, LDEQ, LDAF and USDA-NRCS continued to coordinate efforts in watersheds prioritized through USDA's Mississippi River Basin Initiative (MRBI), National Water Quality Initiative (NWQI) and Gulf Spill Restoration Nutrient Reduction Projects (see Tables 8-10). Through the funding acquired from the USDA Farm Bill and Section 319, USDA and LDAF work with land owners and producers to implement agricultural BMPs through cost share agreements. LDEQ utilizes Section 319 grant funds for several contracts to aid in monitoring and assistance from LDEQ WS. WS and partners perform watershed assessment and characterization, pre-BMP sampling to collect baseline data used to determine critical areas for BMP implementation, and post-BMP sampling to determine the changes in water quality.

4.4.1 Mississippi River Basin Initiative

The overall goals of the MRBI include reducing fall tillage and keeping the soil covered by increasing the use of cover crops and/or increasing residue to reduce soil loss. NRCS assists producers in improving nutrient management techniques above their current level to increase nutrient utilization. NRCS, SWCDs, and other partners develop targeted outreach plans to reach every producer within the watershed. Conservation planning and technical assistance are offered at no charge to help producers address the watershed goals and to improve water quality.

In FY 2020, five MRBI watersheds (Table 8) obligated their first year of targeted funding. There were $445,238 dollars obligated on 2,858 acres. These watersheds will have a 5-year project life.

Watershed	12-Digit HUC	FY20 Funds Obligated	FY19 Acres Obligated
Wildhorse Bayou-Tensas River	8050030402	$34,944	242
Tiger Bayou	80402070301	$202,995	741
Hill Bayou-Bayou Macon	80500020403	$107,786	521
Bieler Bayou-Tensas River	80500030407	$25,748	724
Baxter Bayou	80500020501	$83,765	600

Table 8. USDA – FFY2020 Mississippi River Basin Initiative Watersheds

4.4.2 National Water Quality Initiative

The NWQI provides a way to accelerate voluntary, on-farm conservation investments and focused water quality monitoring and assessment resources where they can deliver the greatest benefits for clean water. NWQI has been extended through Fiscal Year (FY) 2023, with some updates to strengthen program delivery. Updates include a focus on watershed assessment and planning and including multi-year budgets to demonstrate long-term commitment in assisting water quality efforts. Louisiana implemented the NWQI project in 3 HUCs (Table 9).

Watershed	12-Digit HUC	FY20 Funds ObligatedY1	FY19 Acres Obligated
Bayou du Portage	08081020801	$122,995	413
Plaquemine Brule	80802010206 80802010208	$259,141	605

Table 9. USDA – New Watersheds Approved for FY2020 Implementation

Louisiana was approved to begin the planning phase for the following watersheds in Morehouse Parish.

Watershed Name	Parish	HUC 12
Walkers Slough-Bayou Bartholomew	Morehouse	080402050802
Lower Overflow Creek	Morehouse	080402050805
White Oak Creek	Morehouse	080402050903
Outlet Chemin-a-Haut Creek	Morehouse	080402050905
Caney Bayou-Bayou Bartholomew	Morehouse	080402051001
Cypress Bayou-Bayou Bartholomew	Morehouse	080402051002
Horse Bayou-Bayou Bartholomew	Morehouse	080402051003

Table 10. FFY 2020 USDA – National Water Quality Initiative Watersheds Approved for Planning Phase

4.4.3 Natural Resource Damage Assessment Trustees – Nutrient Reduction (Nonpoint Source) Projects

Louisiana NRCS was awarded four Nutrient Reduction Projects from the Gulf Spill Restoration funding. The primary goal of these project themes is to improve water quality through nutrient reduction on agricultural lands. This includes targeting efforts for measurable impact by clustering projects at the HUC 12 watershed scale that directly impact coastal wetlands.

Landowners will participate on a voluntary basis in developing and implementing conservation plans to reduce nutrient and sediment runoff to improve water quality. Participants will receive technical and financial assistance to implement conservation practices according to NRCS standards and specifications. A monitoring and adaptive management plan will be implemented to document the relationship between implementation and load reduction.

- Project 1 - Nutrient Reduction on Dairy Farms in St. Helena and Tangipahoa Parishes for $1,500,000
- Project 2 - Nutrient Reduction on Dairy Farms in Washington Parish for $1,500,000
- Project 3 - Nutrient Reduction on Cropland and Grazing Lands in Bayou Folse for $3,000,000
- Project 4 - Winter Water Holding on Cropland in Vermilion and Cameron Parishes Plus Ag BMPS for $3,500,000

4.5 Watershed Coordinators and Watershed Groups

LDEQ WSCs continue to serve as valuable partners in implementing Louisiana's NPS program. In FFY 2020, LDEQ continued to collaborate with Capital RC&D, BTNEP, LRWA, and BVD. This partnership accomplishes several goals listed in Louisiana's NPS Management Plan including:

- Involving appropriate stakeholders in watershed implementation;
- Statewide educational programs;
- Identifying priority areas in the watershed for BMPs implementation;
- Implementing BMPs in watershed priority areas;
- Water quality monitoring and data analyses to evaluate water quality changes; and
- Preparing success stories or identifying future actions needed to achieve success.

These WSC and Watershed Groups are dedicated to restoring and preserving the water quality in the areas where they live and serve.

4.5.1 Capital RC&D

Capital RC&D completed its "Nonpoint Source (NPS) Pollution Reduction through Enhancement of the On-Site Wastewater Disposal Systems (OSDS) Inspection, Educational Outreach, and Sampling" project in September 2020.

The project targeted eight watersheds: Yellow Water River, Comite River, Tunica Bayou, Bayou Sara, Thompson Creek, Upper Amite River, Middle Amite River, and Natalbany River. These watersheds were listed on Louisiana's IRs as not supporting one or more designated uses of primary contact recreation (PCR), secondary contact recreation (SCR), fish and wildlife propagation (FWP), or Outstanding Natural Resource (ONR).

The goal of this project was to reduce NPS pollution with the objectives of improving surface water quality and restoring support for CWA designated uses, and maintaining healthy waters. This goal was accomplished by monitoring water quality to determine critical areas with high fecal coliform (FC) concentrations in the watersheds. These areas then became the focus of OSDS inspections to ensure properly functioning systems. Both Capital RC&D and partners worked together to accomplish the goals of the project.

At the conclusion of the project, 2,599 OSDS had been inspected. Of the 2,599 OSDS inspected, 557 were found to be not working and 732 OSDS were repaired/replaced. Capital RC&D estimated that a total load reduction of 13,908,000 colony-forming units of FC was achieved in the watersheds at the conclusion of the project.

Capital RC&D continues its efforts of water quality improvements through partnerships with the parishes of East Baton Rouge, West Feliciana, East Feliciana, Tangipahoa, and the Louisiana Department of Health (LDH).

Figure 1. Stream behind home impacted by malfunctioning home waste system

Figure 2. Home waste tank requiring pump out due to aerator not working for several years

4.5.2 Barataria-Terrebonne National Estuary Program

During the past fiscal year, under the project "Water Quality Sampling, On-Site Waste Disposal Systems (OSDS) Inspections and Educational Outreach in the Barataria-Terrebonne Basins," BTNEP continued water quality restoration efforts in the Bayou Folse watershed, working with LDEQ, NRCS, and other federal, state, and local partners. COVID-19 safety measures impacted activity in the watershed by interrupting field sampling, and shifting education and outreach events to online/virtual platforms. BTNEP adapted to COVID requirements, and has picked up sampling again after the state moved into the Phase 2 response to the pandemic.

Impaired uses in Bayou Folse are PCR and FWP propagation, due to bacteria, low DO, nutrients, and sediment. The watershed implementation plan addresses loading from malfunctioning home sewage treatment systems, and from runoff from agricultural land uses. Past sampling has helped identify critical areas to target for NPS reduction measures, and current monitoring data tracks changes in water quality over time.

Sampling continues at 10 locations along a transect in the subsegment. In FFY 2020, BTNEP conducted 17 sampling events that included field measurements, grab samples for lab analysis, and velocity measurements used to estimate flow. Parameters sampled include DO, temperature, Secchi disk, tape-down, nitrate-nitrite, total phosphorous (TP), FC bacteria, among others.

BTNEP's water quality and NPS education and outreach in the watershed is ongoing. This year BTNEP participated in or conducted 33 education and outreach events, many virtual, to stakeholders on the Management Conference, the general public, and to K-12 students; and used other media to disseminate water quality information. In addition to general NPS and water quality education, BTNEP outreach informs homeowners in the region about the importance of repairing malfunctioning home sewage treatment systems. Through local partners, BTNEP has begun inspecting home treatment systems to determine operational status, need for repairs, and conduct homeowner education. Additionally, BTNEP received and has been implementing a Gulf of Mexico Program grant to cost-share necessary repairs with homeowners. Data shows bacteria levels are starting to improve. While a few sites indicate continued bacteria issues, concentrations are decreasing at other sites, including the ambient monitoring location.

Bayou Folse OSDS Inspections Aug-Sept 2020					
Month	**Total Initially Inspected**	**Passed**	**Failed**	**Re-inspected, passed**	**Re-inspected, failed**
August	38	22	16	0	1
September	20	5	15	2	7

Table 11. OSDS Inspections in Bayou Folse

Finally, BTNEP continues working with agricultural partners — USDA NRCS and LDAF, both of which serve on the BTNEP Management Conference — to address runoff from pasture and cropland. Agricultural BMPs target sources of runoff such as cattle with direct stream access and sediment and nutrient runoff from sugarcane fields. NRCS will be implementing pollutant runoff reduction projects in the Bayou Folse watershed in the next year by directing funds from the BP oil spill Natural Resources Damage Assessment (NRDA) through the Louisiana Trustee Implementation Group to landowners. A wetland for use in nutrient and sediment reduction of Bayou Folse water is planned for construction on the Nicholls State University Farm as part of these NRDA funds.

4.5.3 Bayou Vermilion District

BVD continued their OSDS inspections/re-inspections in the Lafayette area for the second year of their contract. Through their continued efforts, they have educated many residents on the dangers of malfunctioning systems through inspections, re-inspections, however, due to mandates put in place by the Governor of Louisiana to slow the spread of coronavirus, inspections and outreach events were at a halt for several months.

This year, BVD conducted 234 total inspections, 157 were new inspections. Of the new inspections, 41 passed and 116 failed. This is equivalent to 26 percent of systems passing and 74 percent failing the initial inspection. 75 systems were re-inspected. Of those reinspected systems, 35 passed and 40 failed. This is equivalent to 45 percent passing and 55% percent failing. One of the positive effects of continued inspections is that the Vermilion River ambient site (0045) has shown overall decreases in FC concentrations since 2016.

During this contract period, BVD also spent time editing and making additions to LDEQ's WIP for Vermilion River subsegment 060801. BVD continues to work with other agencies and environmental groups to raise awareness for increasing water quality in the Vermilion River watershed. BVD plans to work with LDH and the Office of Community Development to begin a pumpout cost share program.

Bayou Vermilion District Educational Inspection Program Progress Year 2020								
Month	**Total for Month**	**Total Initial**	**Passed**	**Failed**	**Total Follow-Up**	**Follow-Up & Passed**	**Follow-Up & Failed**	**Remarks**
Jan 20	5	3	1	2	2	2	0	
Feb 20	51	39	8	31	12	7	5	
Mar 20	25	15	4	11	10	7	3	
Apr 20	0	0	0	0	0	0	0	Pandemic (Work from home)
May 20	0	0	0	0	0	0	0	Pandemic (Work from home)
Jun 20	60	26	5	21	34	8	26	
Jul 20	81	66	17	49	15	11	4	
Aug 20	0	0	0	0	0	0	0	Employee turnover (working on hiring new inspector)
Sep 20	12	8	6	2	4	0	2	
Oct 20	0							
Nov 20	0							
Dec 20	0							
Totals	**234**	**157**	**41**	**116**	**77**	**35**	**40**	

Table 12. Summarizes BVD's inspections from October 1, 2019 to September 30, 2020

4.5.4 Louisiana Rural Water Association

The LRWA is a non-profit organization whose mission is to promote public health, assist operators of small water and wastewater systems through training, on-site technical assistance, and state operator certification necessary for promoting public health and environmental protection for the state of Louisiana. LRWA collaborated with LDEQ to conduct OSDS inspections and utilize focused/ project-targeted workshops on an as-needed basis to improve water quality and restore designated uses to impaired watersheds. LRWA completed OSDS inspections in Acadia Parish and revisited Iberia, Jefferson Davis, Vermilion and St. Landry Parishes to capture area homeowners previously unavailable.

LRWA was able to raise awareness concerning the importance of maintaining home sewage systems and provide residents information regarding the importance of the proper operation and maintenance of their home sewer system through this door-to-door campaign. During each visit, the inspector discussed operation and maintenance practices, addressed homeowner's questions and provided a visual inspection of the system. When the homeowner was not present, the field inspector would leave an educational/informational brochure explaining the purpose of their visit and offered homeowner a sewer system inspection at no cost.

Public awareness of OSDS inspections and education was accomplished by distributing informational brochures at the city/town halls; notifying parish presidents by letter and/or phone calls and through public advertisements to draw interest to the local area activities and encourage participation. A summary of activities was given to the parish city/town hall once inspections were completed indicating progress made. This process could also be a vehicle to encourage the residents who were not originally on the LDH OSDS list and those who initially refused inspections to become actively involved with their community by being proactive.

Results of this project include educating more than 8,646 residents on maintaining their sewer systems as well as raising awareness of the dangers and negative effects malfunctioning systems can have on local waterways.

St. Landry and Iberia Parish Inspection Results	
8,646	**Total Homeowners to Visit**
2,037	**Contacted/Spoke with Homeowners**
2,034	sewer inspections conducted
0	homeowners connected to city sewer
3	homeowners refused in inspection
2,034	**Inspections conducted**
1,750	systems in good condition
284	systems not operating or in decent/poor condition
6,752	**No contact made with Homeowners**
6,609	no one home/distributed flyers
0	homes vacant or abandoned
0	homes with private roads or gated
143	businesses/churches - not required to visit
0	unable to locate
8,646	**Total Flyers Distributed**
6,609	no one home
2,034	sewer inspections conducted
3	homeowners refused in inspection

Table 13. LRWA inspections

Nonpoint Source
PROGRAM

5.0 Meeting NPS Milestones

2020 Louisiana Nonpoint Source Annual Report

5.0 Meeting NPS Milestones

Louisiana's NPS Management Plan includes annual milestones. In FFY 2020, Louisiana's NPS program continued its focus on watershed planning, assessment, monitoring and implementation, in 21 waterbodies.

BASIN	WATERBODY	P	A	M	I	SUBSEGMENT	WIP	Success Story
Lake Pontchartrain	Comite River			✓	✓	040103		
	Upper Amite River			✓	✓	040301		
	Middle Amite River			✓	✓	040302		
	Yellow Water River			✓	✓	040504		Approved 2015
Mermentau River	Bayou Des Cannes			✓	✓	050101	Approved 2017	
	Bayou Mallet			✓	✓	050103	Approved 2017	Approved 2016
	Bayou Queue de Tortue			✓	✓	050501	Approved 2013	
	Bayou Chene			✓	✓	050603	Approved 2020	
Vermilion – Teche	Bayou du Portage			✓	✓	060703	Approved 2019	
	Vermilion River	✓	✓	✓		060801/060802	Under Review Internally at DEQ	
	Bayou Sara				✓	070501		
	Thompson Creek			✓	✓	070502		
	Tunica Bayou			✓	✓	070505		
Ouachita River	Bayou Louis/Lake Louis			✓	✓	080202/080203		
	Big Creek (North)			✓	✓	080903	Approved 2019	
	Upper Bayou Lafourche			✓	✓	080904		
	Lake Providence			✓	✓	081101		Approved 2020
	Hemphill Creek			✓	✓	081609	Approved 2017	
Terrebonne	Bayou Folse			✓	✓	120305	Approved 2018	
	Bayou Grosse Tete	✓	✓	✓		120104	In progress	
	Bayou Maringouin	✓	✓	✓		120111	In progress	

Table 14. Activity in watersheds: planning (P), assessment (A), monitoring (M) and implementation (I) in FFY2020

5.1 Water Quality Improvements

Louisiana's NPS Program continues to strive to make significant progress in partially or fully restoring NPS impaired watersheds. Louisiana's NPS Management Plan's milestones include EPA water quality measures WQ-10 for water quality improvements. Measure WQ-10 requests states to report on the number of watersheds identified in 2000 or subsequent years, primarily impaired by NPS pollutants that have been partially or fully restored. Louisiana reviews related activities for each watershed impaired with NPS pollutants that have been delisted. All watersheds restored utilizing Section 319 funds or other funding sources are counted for this measure.

Statewide Milestones for Water Quality Improvement	2020
Number of waterbodies identified since LA's 1998/2000 IR or subsequent years as being primarily NPS impaired that are partially or fully-restored (WQ-10): Identify fully restored water bodies in Appendix C of state's IR primarily impaired by NPS pollutants in 1999 court ordered 303(d) list or 1998/2000 IR; review NPS related activities in watershed where water body was restored; write NPS success story; and identify activities to maintain water quality.	7
Estimated annual reductions in pounds of nitrogen from NPS to water bodies (from Section 319 funded projects) (WQ-9a): Annually review information from LDAF, USDA, watershed coordinators, NPS staff and stakeholders for NPS load reductions of nitrogen; and include information in NPS annual report.	20,084.76
Estimated annual reductions in pounds of phosphorus from NPS to waterbodies (from Section 319 funded projects) (WQ-9b): Annually review information from LDAF, USDA, watershed coordinators, NPS staff and stakeholders for NPS load reductions of phosphorus: and include information in NPS annual report.	5926.79
Estimated annual reductions in tons of sediment from NPS to waterbodies (from Section 319 funded projects) (WQ-9c): Annually review information from LDAF, USDA, watershed coordinators, NPS staff and stakeholders for NPS load reductions of sediment: include information in NPS annual report.	996.98
Number of NPS impairments removed from LA's IR: Annually review state IR for NPS impairments (DO, FC, TSS, etc.) removed as a result of NPS activities and include information in NPS annual report. Compare the previous IR to the current IR. Number is based on the 2016 IR.	1
Progress in reducing unliquidated obligations (ULO): Percentage of ULO funds anticipated yearly for LDEQ (total remaining funds/total awarded = percentage ULO).	28.16 %

Table 15. Statewide milestones for water quality improvement, based on LDEQ's 2018 IR

5.2 Success Stories

A success story for Lake Providence was written and submitted to USEPA Headquarters in Washington D.C. for approval. It can be found on USEPA's NPS Success Story Website at ***https://www.epa.gov/nps/nonpoint-source-success-stories-louisiana***.

Runoff pollution from nearby agricultural land led to an impairment of fish and wildlife propagation (FWP) in Lake Providence, an oxbow lake in northeast Louisiana. During 2013–2014, Louisiana Department of Environmental Quality (LDEQ) ambient monitoring data showed high total dissolved solids (TDS) and an impairment of FWP in the lake. Working with producers in the watershed, the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) and partners garnered 100 percent participation in conservation practice implementation, which restored water quality.

Lake Providence, a 14,000-acre recreational lake in East Carroll Parish, lies in the Ouachita River Basin. An abandoned meander of the Mississippi River, the lake is surrounded by flat cropland and borders the town of Lake Providence (Figure 3). Data collected in 2013–2014 at the LDEQ ambient monitoring site at the Tensas Bayou bridge indicated that TDS concentrations exceeded the state's water quality standard for FWP at Lake Providence. As a result, in 2016 LDEQ added the Lake Providence TDS impairment to its Integrated Report. The assessment identified agriculture as the primary suspected source.

NRCS, along with SWCDs and other partners, developed targeted outreach plans to reach producers. After conservation practice implementation in the Lake Providence watershed, monitoring results show water quality improvement. Project data and ambient data show restoration, and LDEQ removed the Lake Providence TDS water quality impairment from its 2020 draft water quality assessment.

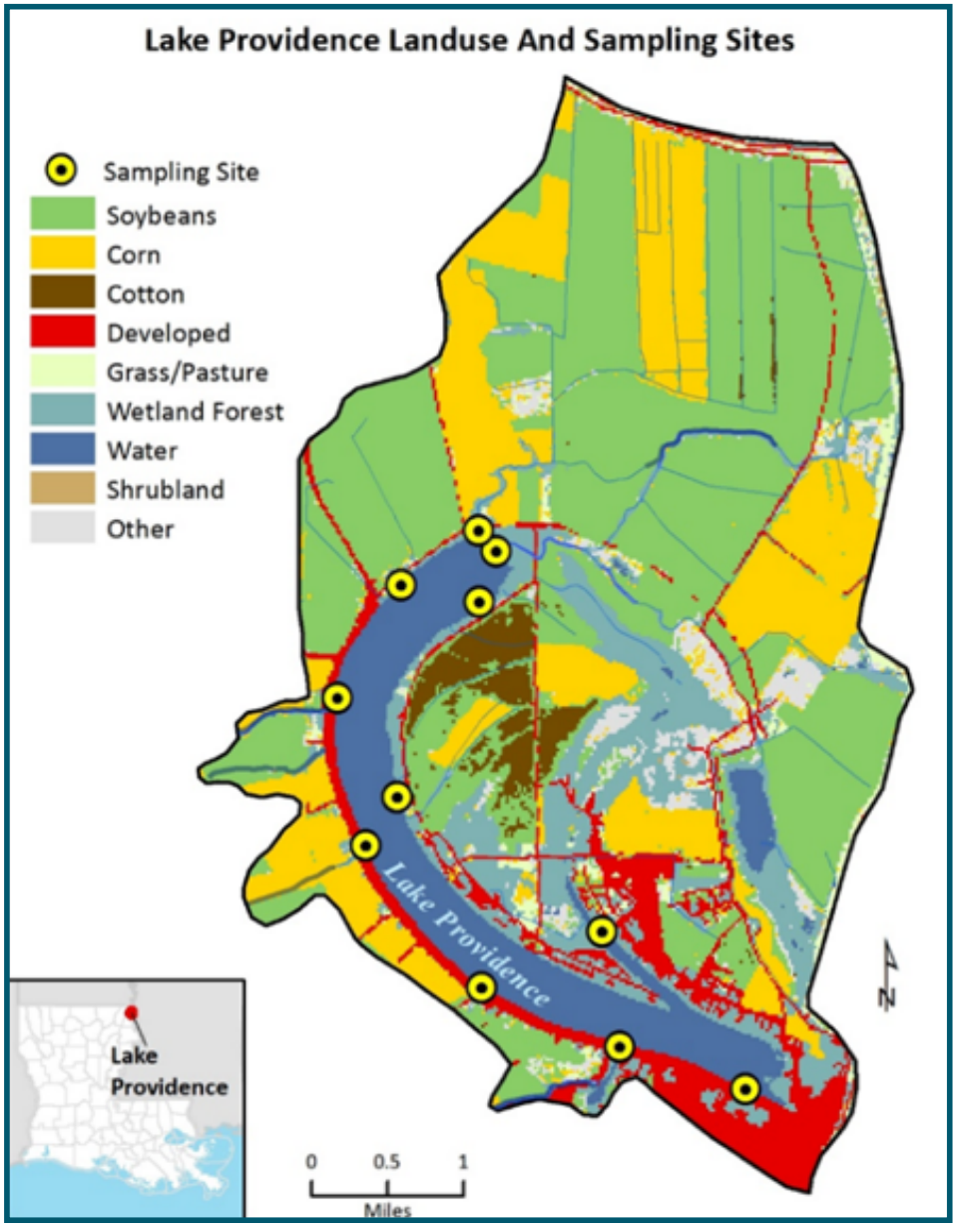


Figure 3. Lake Providence drains an agricultural watershed in northeast Louisiana

Nonpoint Source
PROGRAM

6.0 Statewide Programs

2020 Louisiana Nonpoint Source Annual Report

6.0 Statewide Programs

6.1 Coastal Nonpoint Pollution Control Program

Hydrologic Modification Impact Analysis Success Story

As part of the review process of proposed projects located within the Coastal Zone of Louisiana, the Office of Coastal Management (OCM) evaluates potential impacts to the local hydrology. OCM utilizes the Hydrologic Modification Impact Assessment (HMIA) as a tool to evaluate if a proposed use would negatively modify the existing conditions, including the runoff flow volume and distribution, and the quality of water in the immediate and downstream areas of a project's location. During this review cycle component, a certified on-staff hydrologist determines, on a per-project basis, the amount of hydrological information required in order to substantiate the project's purpose, and the change in local hydrology, if any. One instance for highlighting the need for this tool and review component occurred during processing/evaluation of Coastal Use Permit P20200026. This project was for the construction of the proposed Peebles Coulee Water Control Structure, which is located in southern Iberia Parish. Through the use of the HMIA, OCM was able to assist the applicant in revising their design. The applicant had proposed the structure to be comprised of three box culverts for the project. OCM requested the rationale for the number and sizing of the culverts. During the process of obtaining the requested HMIA information, the applicant determined that the proposed culverts were not sufficient to meet their project's overall goals and objectives. The structure was subsequently redesigned to incorporate an additional culvert, thereby allowing for sufficient flow through four culverts. As this was a proposed water structure designed to reduce potential flooding in southern Iberia Parish, OCM's HMIA component enabled the Parish and engineering firm to accomplish their project goals and objectives.

Louisiana Master Farmer Program 2020

Six farmers who completed a Louisiana State University AgCenter environmental stewardship training program were recognized as master farmers during a ceremony on January 9, 2020. Participants must attend classes on environmental stewardship and develop plans for implementing conservation practices on their farms. Sessions are taught by experts from the AgCenter, the Louisiana Farm Bureau, the Louisiana Department of Agriculture and Forestry, the Louisiana Cattlemen's Association and the U.S. Department of Agriculture Natural Resources Conservation Service.

Franklin Parish farmer Gregory Kincaid received the Outstanding Master Farmer Award. A 2012 graduate of the program who was recertified in 2018, Kincaid produces corn, soybeans, hay and cattle on land that has been in his family for more than 100 years.

"This land is the anchor that has kept my family in Louisiana all these years," Kincaid said in a nomination application for the award. "We make a living and stay in business. A lot of families haven't been able to do that, and I feel like I'm carrying the torch. The land is still productive after all these years and hopefully it will continue". Kincaid has worked with the AgCenter, the NRCS and the Northeast Soil and Water Conservation District to try new strategies to reduce soil compaction and erosion, irrigate more efficiently and improve water quality.

OCM Outreach and Education

Jefferson Parish 20th Annual Storm Water Pollution and Solutions Poster and Essay Contest. The goal of this contest was to demonstrate nonpoint sources of urban storm water pollution, and involve students in identifying solutions. Students in grades 3 to 6 participated in a poster contest, while students in grades 7 to 8 participated in an essay contest. Entries depicted or described at least one source of nonpoint source pollution, such as oil leaks from cars, along with an appropriate solution, in this case, routine vehicle maintenance. The winners were announced at the ceremony on November 4, 2020 at the Parish Council Meeting in Gretna, LA.

BTNEP

The OCM sits on the management conference for the BTNEP. The BTNEP became recognized in 1990 as one of 28 National Estuary Programs through the United States, and it works to protect and preserve the culture and land located between the Mississippi and Atchafalaya Rivers in Southeast Louisiana. The management conference originally convened in 1990 to develop the Comprehensive Conservation and Management Plan (CCMP), and it evolved to become an arena for producing open and frank discussions about some of the most critical coastal management issues. During this review cycle, BTNEP has developed a number of programs, and outreach efforts, such as the 9th Annual Bayou Lafourche Cleanup Event. This event brings many individuals together that represent schools, churches, businesses, agencies, organizations, first responders, and anyone else to protect the bayou. These volunteers all have a common mission of beautifying, decontaminating, and protecting Bayou Lafourche.

OCM representatives regularly participate in the many educational outreach events throughout the year, such as: Seafood Industry Convention on Coastal Restoration, the Ascension Parish Career Fair in Gonzales LA., the St. James Parish Agriculture Day in Gramercy, LA., Wetland Watchers in Norco LA., Big Bass Rodeo at City Park in New Orleans LA., Jefferson Parish Fish Fest at Lafreniere Park in Jefferson Parish LA., Ocean Fest - Audubon Aquarium in New Orleans LA., Hunting and Fishing Day at the Waddill Outdoor Education Center, Baton Rouge LA., and Clean Gulf Conference in New Orleans LA. As a result of the COVID-19 pandemic, these events were either canceled, or transitioned to a virtual presence. The OCM continues to support, and commit resources and personnel for educational outreach in Louisiana, and looks forward to participating in future outreach activities.

Keep Louisiana Beautiful

OCM participated in the 2020 Keep Louisiana Beautiful Virtual State Conference during November of 2020. Due to COVID-19 this conference transitioned from an in-person format to a six-part webinar learning series. The webinar focused on education, enforcement, awareness, litter removal and beautification. The webinar included such topics as how COVID-19 has changed the face of litter and how to engage with volunteers, discussing strategic initiatives, and improving litter and recycling efforts throughout the state. Presentations were provided by Louisiana State University (LSU), University of Louisiana Lafayette (UL), LDEQ, Louisiana State Police, as well local parish affiliates.

6.2 Drinking Water Protection Program

Background

Congress mandated each state implement a Wellhead Protection Program (WHPP) that protects public water wells and a Source Water Assessment Program (SWAP) to assess potential susceptibility to contamination of all water sources utilized for drinking water supplies. The Drinking Water Protection Program (DWPP), which is what LDEQ calls its source water protection program, combines the efforts of the WHPP and SWAP to prioritize protection activities. In accordance with Federal Register; Volume 68:205, LDEQ has included source water protection as part of its NPS program. The source water protection staff assists Louisiana's communities in protecting aquifers and surface waters (rivers, lakes, etc.) that are sources of drinking water.

The DWPP uses the State fiscal year (July 1 through June 30) for its calendar of assessment and protection activities and in all previous state fiscal years the DWPP targeted protection activities by the state's parish jurisdictional boundaries. However, beginning July 1, 2020, the DWPP began prioritizing its target areas by watershed drainage basins. Therefore, FFY 2020 was a transition period including protection activities in both the targeted parishes from the previous state fiscal year as well as activities from the current targeted watershed drainage basins (Figure 4). Protection activities implemented in targeted watersheds are comparable to work done previously on a parish-wide basis and are outlined under Program Element 2 in the FFY 2021 Louisiana's 319 CWA Nonpoint Source Work Plan.

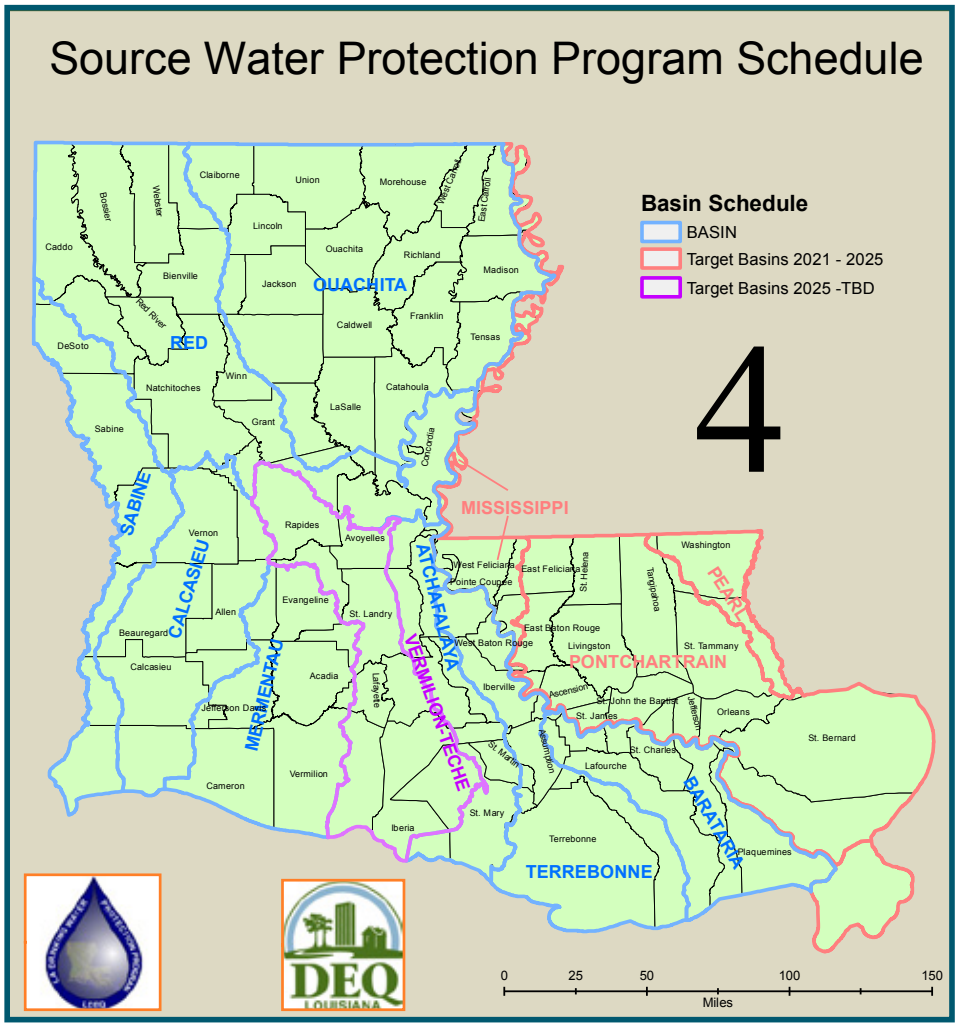


Figure 4. Source Water Protection Program Schedule

Drinking Water Protection Activities

Target areas for this reporting period were Jackson Parish, East Carroll Parish, West Carroll Parish, the Lake Pontchartrain Basin, the Mississippi River Basin and the Pearl River Basin. Protection activities include, but aren't limited to, updating source water assessment information, contingency planning, introduction of a model ordinance, public education and addressing specific issues. These activities may also occur outside of targeted areas if an opportunity to do so presents itself or if the need arises.

Jackson Parish

There are 24 active community public water systems in Jackson Parish. The DWPP team met and worked with the water systems to develop contingency plans and update source water assessment information. Community meetings were held on November 7, 2019 in Jonesboro, LA and on February 13, 2020 in Chatham. Attendees learned where their water comes from, why it is important to protect it, and how they can protect it and many volunteered to educate facilities/businesses considered significant potential sources of contamination (SPSOCs) near public water wells. LDEQ provided volunteers with packets containing the location of the SPSOCs, material to distribute to personnel at each SPSOC and instructions to conduct these educational visits. The DWPP team introduced a model groundwater ordinance to protect public water wells to all the municipalities within the parish as well as the parish governing body and the Town of Hodge adopted the ordinance. No further meetings or pursuit of ordinance adoption occurred due to the Covid-19 pandemic.

East and West Carroll Parishes

There are four active public community water systems in East Carroll Parish and seven active community public water systems in West Carroll Parish. The drinking water protection team met and worked with the water systems to develop contingency plans and update source water assessment information in January and February 2020. The DWPP team also introduced the model groundwater ordinance to all the municipalities within both parishes. No further meetings were held and no SPSOC visits were conducted in these parishes due to the Covid-19 pandemic.

Target Watersheds

DWPP staff began work in the target watersheds in May 2020, which was two months earlier than planned due to the Covid-19 pandemic. All source water protection information for public water supplies in the targeted watersheds will be updated according to the schedule in Table 16. The table also shows the number of wells and intakes scheduled for source water assessments. Source water assessment information is confirmed with the public water systems and updated contingency plans are prepared for each water system. The actual numbers for the source water assessment work accomplished within the watersheds for this reporting period are included under the Source Water Assessments section below. No contingency plans were worked on in the target watersheds during this reporting period due to the Covid-19 pandemic. As this work continues, if a specific issue involving public water sources needs to be addressed or if any public education opportunities arise, the DWPP staff will respond as needed.

Louisiana Community Water System Protection Area Watershed Basin Plan				
Fiscal Years	**Basin**	**Number Of CWS**		**Drinking Water Bodies**
		Wells	**Intakes**	
2021 - 2025	Pontchartrain	562	0	N/A
	Pearl	67	0	N/A
	Mississippi	49	0	N/A
Total	**3**	**678**	**0**	**N/A**
2025 - TBA	Vermilion-Teche	438	3	Bayou Teche & Grand Lake
Total	**4**	**1,116**	**3**	

Table 16. Louisiana Community Water System Protection Area Watershed Basin Plan

Source Water Assessments

During implementation of the DWPP source water assessment data are updated. The staff obtains GPS coordinates for new water wells and intakes as well as photographs. A protection area is delineated for the well or intake and GPS coordinates are obtained for all SPSOCs identified within the area. Additionally, a new picture is taken for previously identified wells and intakes and their protection areas are resurveyed to update the SPSOC information within them. Wells/intakes that no longer exist are also removed along with their corresponding protection areas and SPSOCs. Applications were developed to capture the data via mobile devices, updating the database in real time. During the reporting period source water assessment data were collected for 97 public water sources and 430 SPSOCs. Some of these numbers reflect hurricane response work described below. Updating this data is important because LDEQ and other agencies use it for pollution prevention, emergency response and environmental investigations. The data are also used to generate source water assessment reports for public water supply systems. The Safe Drinking Water Act Consumer Confidence Report rule requires that all public water supply systems have a copy of their source water assessment report available for review by the public.

SWAP Calculator automates the generation of new source water assessment reports based on existing data and new data collected with the SWAP mobile data collection applications. The reports contain basic well/intake information such as age, depth, aquifer/water body, delineated protection areas, SPSOCs identified, and a risk ranking for water system. Recent database and software upgrades have impacted the functionality of SWAP Calculator and during the last year the program was completely redeveloped. The new SWAP Calculator not only generates SWAP reports but also significantly improves the functionality of the program. The data collection and report generation processes are fully automated. During this reporting period 20 source water assessment reports were generated.

Public Education

Public education is one of the main elements of the DWPP and various opportunities are utilized to inform citizens about drinking water source protection in both targeted and non-targeted areas. In person educational opportunities were not as feasible in this reporting period due to the Covid-19 pandemic, however DWPP staff took part in the following events: the Sparta Aquifer Commission's annual multi-week Sparta Water Festival, the Ascension Parish annual career fair, and the Oak Grove Elementary School (Prairieville) STEM night. DWPP staff also gave presentations for a Nicholls State University biology class, the Louisiana Rural Water Association's annual source water protection workshop, and two LDEQ Enviroschool classes. Combined with OSDS education in Assumption Parish, community meetings in Jackson Parish, and meetings with water system personnel, the approximate total number of people reached was over 1,300 for this reporting period.

Figure 5. LDEQ Geologist Jesse Means explains where drinking water comes from at the annual Sparta Aquifer Fest at Caney Lakes in Webster Parish

Bayou Lafourche

In an ongoing effort to protect Bayou Lafourche from receiving improperly treated wastewater from individual sewage treatment systems, maintenance classes were offered at no cost to homeowners in Assumption Parish in December 2019. Funding for the classes was provided by the EPA Training and Technical Assistance for On-Site/Decentralized Wastewater Systems to Improve Water Quality Training Program, through the Louisiana Rural Water Association (LRWA). The classes were coordinated by LDEQ, LWRA, the Louisiana Department of Health, the Assumption Parish Government, the Barataria-

Terrebonne National Estuary Program, the Bayou Lafourche Fresh Water District, and Nicholls State University to educate local citizens on how to maintain their home wastewater treatment systems. Two classes were held in Belle Rose and Napoleonville, explaining the health and environmental impacts of improperly treated sewage, the various types of wastewater treatment systems, regulations, and proper maintenance. A field demonstration enabled attendees to see the parts of an actual wastewater treatment system for a better understanding of operation and maintenance.

Hurricane Assessments

DWPP staff routinely participates in LDEQ's environmental damage assessment response to catastrophic storms. DWPP staff conducted damage assessments in source water protection areas impacted by the three major hurricanes that struck Louisiana in 2020 to ensure any releases were promptly addressed. The team assessed each significant potential source of contamination (SPSOC) previously identified under the SWAP that, if damaged, could cause an environmental impact or negatively affect a public water source. Anything else that was observed that could have an environmental impact was assessed as well. Assessments were provided to DEQ's Incident Command so that the proper personnel could conduct any required follow up work. This was a major undertaking, the beginning of which occurred during the current reporting period. DWPP staff assessed 204 SPSOCs (96 during this period) and 61 SPSOCs were assessed twice because two storms impacted the same areas. Nine of these SPSOCs had an environmental impact that needed to be addressed (eight during this period). Sixteen orphan above ground storage tanks were identified (eleven during this period), seven of which had to be reported for follow up work due to spills (three during this period). An oil and gas tank battery that showed evidence of spills was also identified during this reporting period. Two orphan 55-gallon drums were identified near two public water wells, and seven public wells and one domestic well were assessed (six during this period).

Figure 6. Geologist Jesse Means inspects an orphaned above ground storage tank washed up on a roadside in Cameron, LA

Hurricanes Making Landfall in Louisiana by the Numbers*			
	Laura	**Delta**	**Zeta**
Category at Landfall	4	2	2
Landfall Date/Time	August 27, 2020 @ 1:00 am	October 9, 2020 @ 6:00 PM	October 28, 2020 @ 4:00 PM
Landfall Location	Cameron, LA	Creole, LA	Cocodrie, LA
Max Sustained Winds	150 mph	100 mph	110 mph
Minimum Central Pressure	938 mb	970 mb	970 mb
Peak Surge	17.2 feet	9.3 feet	10 feet
Peak Rainfall	17.02 inches	17.57 inches	6 inches
Movement and Speed	N at 15 mph	NNE at 14 mph	NNE at 25 mph
Intensifying at Landfall	Yes	No	Yes
Hurricane Force Wind Field	60 miles	40 miles	35 miles
Tropical Storm Force Wind Field	205 miles	160 miles	150 miles
*Preliminary data - published prior to official National Hurricane Center report			

Table 17. Hurricanes Making Landfall in Louisiana by the Numbers

6.3 Statewide Onsite Disposal System Program

Many of Louisiana's watershed impairments are caused by high concentrations of FC. The state's numerical criteria for FC for designated uses can be found in Table 18.

Designated Use	Louisiana numerical criteria
Primary Contact Recreation	FC: 400 cells/100 mL (May – Oct)
Secondary Contact Recreation	FC: 2000 cells/100 mL
Public Water Supply	FC: 2000 cells/100 mL
Oyster Propagation	FC: 14 cells/100 mL

Table 18. The State's numerical criteria for FC for designated uses

LDEQ, WSCs, and WSC support groups continued to partner with LDH and the parish and/or local governments in developing education and outreach programs and assist in inspecting OSDSs located in priority watersheds. Table (19) depicts the watersheds and partners involved in OSDS inspection projects.

Watershed	Project Summary
Tunica Bayou (070505)	In FFY2020, Capital RC&D Capital RC&D conducted monitoring and individual home sewage inspections. Monitoring ended October 2019 and inspections ended December 2019.
Comite River (040103)	In FFY2020, Capital RC&D conducted individual home sewage inspections. Monitoring was conducted by LDEQ Water Surveys personnel. Monitoring and inspections will continue into 2021.
Yellow Water River (040504)	In FFY2020, Capital RC&D conducted monitoring and individual home sewage inspections. Monitoring and inspections will continue into 2021.
Middle Amite River (040302)	In FFY2020 Capital RC&D conducted monitoring and individual home sewage inspections. Monitoring and inspections will continue into 2021.
Upper Amite River (040301)	In FFY2020 Capital RC&D conducted monitoring and individual home sewage inspections. Monitoring ended in December 2019.
Thompson Creek (070502)	In FFY2020 Capital RC&D conducted monitoring and individual home sewage inspections. Monitoring and inspections will continue into 2021.
Bayou Sara (070501)	In FFY2020 Capital RC&D conducted individual home sewage inspections. Inspections ended December 2020.
Vermilion River (060801)	In FFY 2020, BVD continued to conduct home sewage inspections. LDEQ Water Survey's continues conducting monitoring.
Bayou Folse (120302)	In 2020, BTNEP continued water quality monitoring and education-outreach. Through local partnership, in August 2020 BTNEP began inspecting home sewage treatment systems to assure proper functioning.
6217 Coastal Management Area in Coastal Louisiana	In FFY2020, LDEQ-NPS continued its partnership with LRWA and conducted OSDS inspections; and utilized focused/project-targeted workshops on an as-needed basis.

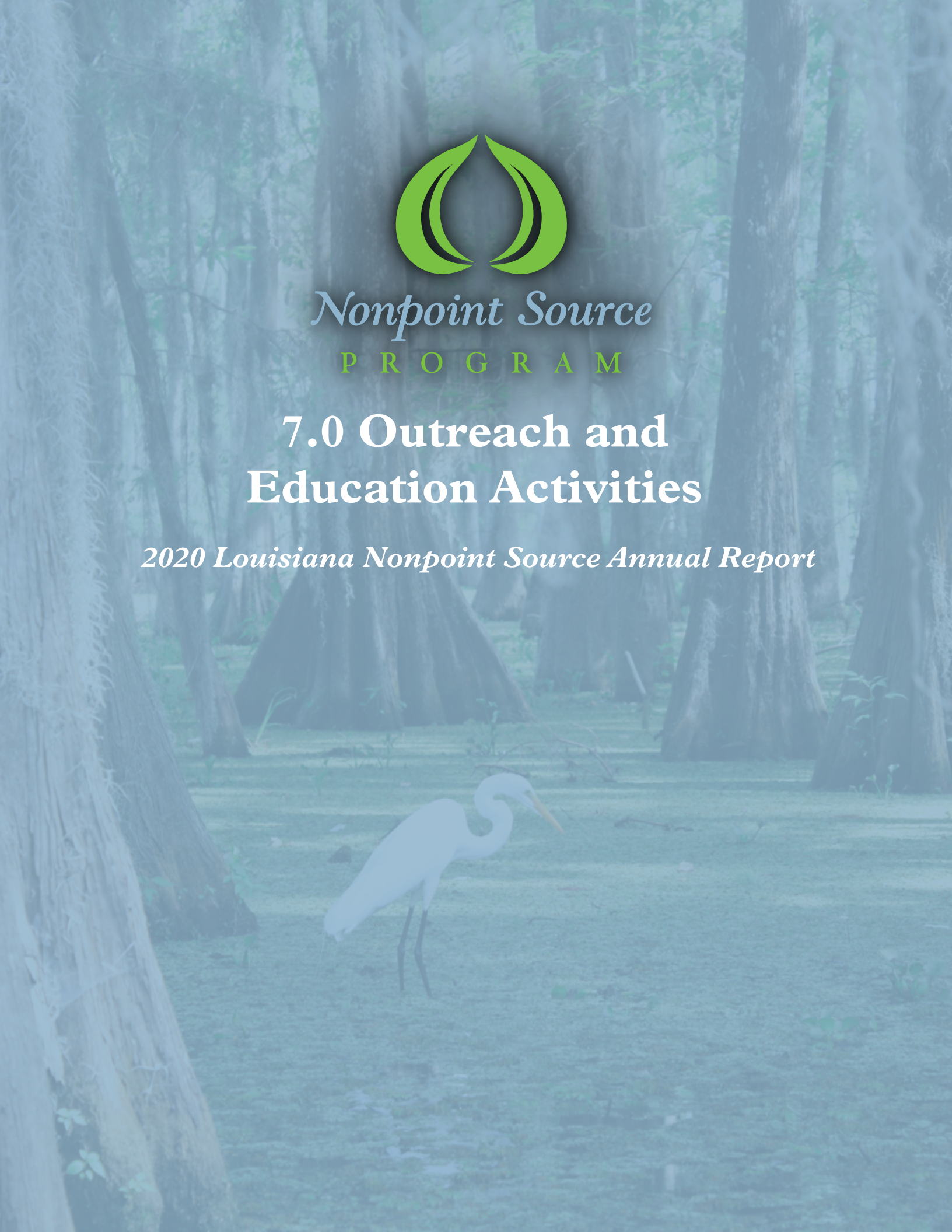
Table 19. OSDS inspection projects

Evaluation of continuing inspections in the watersheds will be made based on water quality data obtained from the ambient water quality network sites in each subsegment. Criteria for the designated uses will be used to determine whether NPS bacteria are being reduced and progress is being made towards meeting water quality standards in each subsegment.

Nonpoint Source
PROGRAM

7.0 Outreach and Education Activities

2020 Louisiana Nonpoint Source Annual Report



7.0 Outreach and Education Activities

LDEQ, partners, and WSCs, all worked together to conduct education and outreach across the state. Each department realizes the importance of sharing our findings and continued education of the public to promote watershed restoration. LDEQ participated in nine outreach and educational events across the state this fiscal year. These events targeted people of all ages, and activities included hands-on demonstrations (often using our Enviroscape and Walnut Bayou models) as well as lectures. The Enviroscape model allows students to see how water moves through an array of landscapes, from urban to agricultural, illustrating the interconnectedness of our waterways and the transportation of NPS pollution. Walnut Bayou is a model developed by an LDEQ Senior Scientist, and is used to show the corresponding geomorphological alterations that result from the movement of water. When demonstrating these models, students are asked to think about and predict how the water will move through various environs and substrates, and how that will affect the transportation of NPS pollution. In FFY 2020, LDEQ reached over 11,697 adults and students through the following events:

September 28, 2019

Girl Scouts Believe In Girl (B.I.G.) – event was held on the campus of LSU in Baton Rouge, LA. Approximately 500 Girl Scouts and over 100 presenters attended the annual gathering. Girls Scouts Louisiana East treated Girl Scouts to activities at various stations on campus, unleashing Girl Power! The young ladies had the opportunity to chat with Go Getters, Risk Takers, women exemplifying leadership and experienced hands-on activities from many disciplines.

October 12, 2019

Wild Things – event was held at the Southeast Louisiana National Wildlife Refuges complex headquarters in Lacombe, Louisiana. Visitors came to see all that the local community had to offer in environmental activities, exotic animal stations, and recycling activities. LDEQ brought the Enviroscape model to explain the importance of reducing nonpoint source pollution. 6,100 attendees participated.

Figure 7. Wild Things

Figure 8. New Orleans Pelicans and Saints STEM Fest

October 19, 2019
3rd Annual New Orleans Saints & Pelicans STEM FEST – was held at the Mercedes Benz Superdome in New Orleans, LA. Approximately 4000 students, parents, chaperones and exhibitors engaged in STEM activities inside the Superdome and Arena.

November 4, 2019
LATM & LSTA Joint Conference – was held at the Baton Rouge Raising Cane Center. Approximately 250 educators and exhibitors participated in the annual sharing of ideas during presentations and demonstrations.

November 14, 2019
LDEQ Envirothon Blitz – DEQ Employees recruiting for the Envirothon competition staffed a table in the Galvez Building lobby to collect email addresses and contact information for teachers who might be willing to participate or to get more sponsors to help fund the event. 20 people attended the event.

November 20, 2019
Bolton High School Envirothon Blitz – Bolton High School was visited by members of LDEQ staff to do a mock Envirothon competition to try to recruit teams from the school. 50 students were educated/informed about the program.

November 20, 2019
Delta Gems Envirothon Blitz – 15 students attended the Delta Gems meeting in Prairieville, LA and were visited by members of LDEQ staff. A mock Envirothon competition was performed by the staff to try to recruit teams from the school.

Figure 9. LATM and LSTA Joint Conference

Figure 10. LDEQ Envirothon Blitz

Figure 11. Bolton High School Envirothon Blitz

December 3, 2019

Port Allen High School Science Fair Mentoring and Judging – Science fair mentoring took place from November 1, 2019 through November 29, 2019. Mentoring involved helping students articulate their projects through speech and their visual aids and to give tips on what science fair judges look for in good projects. Approximately 7 students were graded on their lab report, their project board, and how well they used the information from the mentoring sessions.

January 16, 2020

SMAMS Science Fair Judging – 10 students' science fair projects were judged by LDEQ NPS staff member.

January 30, 2020

Port Allen High School – Members of LDEQ staff were requested to judge the students at PAHS's vision boards for the year. The jobs for America class did vision boards to outline their future goals and how they would reach those goals. Approximately 20 students were given feedback about their boards and were educated/informed on how to reach those goals.

Figure 12. Port Allen High School JAG Class

January 30, 2020

Westdale Science Night – Westdale Academic Heights Magnet School held their science night at the school. LDEQ representatives brought the Enviroscape model and taught over 200 elementary students and 25 adults about nonpoint source pollution.

Figure 13. Westdale Science Night

Figure 14. Glen Oaks Park Elementary Science Fair

February 12, 2020

Glen Oaks Park Elementary Science Fair – was held on the school's campus in Baton Rouge. Approximately 200 students and exhibitors attended the event. Students displayed/demonstrated science projects developed during the year. Presenters were eager to share their ideas with fellow students.

February 14, 2020

Region 8 Science Fair Annual Event – was held on the campus of Southeastern University in Hammond. Approximately 200 middle school and high school students and exhibitors participated in the event.

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8.0 Training

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8.0 Training

The following describes selected training events attended by NPS staff. Due to COVID-19 and the governor's stay-at-home order, staff attended far more recorded webinars than usual. As a result, this training list is partial, representing the most relevant educational events attended this fiscal year.

Nonpoint Source Pollution Training

Dec 17, 2019
Integrating Water Quality and Natural Hazard Mitigation Planning – This webinar reviewed tools to help integrate water quality protection planning into hazard mitigation planning to maximize benefits, and included discussion of green infrastructure solutions.

Jan 9, 2020
Louisiana Association of Conservation Districts meeting – Presentations by producers and conservationists covered topics such as sugar cane best practices, current issues in Louisiana forestry, policy changes in the Farm Bill, among other Louisiana-specific conservation issues.

Mar 23, 2020
ACWA Nutrients Policy Committee Webinar – This presentation by the American Farmland Trust featured soil health case studies related to reducing nutrient runoff.

Mar 24, 2020
Resilient Design Assistance in the Mid-Atlantic – This EPA webinar presented two pilot initiatives that incorporated green infrastructure in flood mitigation projects to address both water quality and water quantity. The Resilient Design Assistance Tool was discussed.

Apr 1, 2020
EPA Webinar: Numeric Nutrient Criteria Webinar – The St. James River Chlorophyll Study was completed with the recent adoption of updated nutrient criteria in Virginia. This presentation described the study, its findings, and the process used to develop new criteria. Lessons learned were also discussed.

Apr 16, 2020
ACWA Nutrients Policy Committee Webinar – During this presentation, NRCS provided an overview of the new 2018 Farm Bill rule impacting RCPP administration, and state involvement.

May 6, 20, Jun 3, 10, 2020
Soil Health Nexus Webinar Series – Topics covered in this series included soil health tests and monitoring, data collection, measurement techniques, resources, sampling and analysis, farmer perceptions, and cover crop research.

Jun 25, 2020
Tillage Management and Conservation Practices – This NRCS webinar provided a summary of updated information from the CEAP-2 report on data collected in 2015-16 on conservation practices adoption and effects.

Jul 30-31, 2020
Soil Health: The Foundation for Regenerative Agriculture – This 2-day online seminar by the Soil Health Institute covered methods of measuring soil health, a developing science, carbon storage, effects of soil health on soil and water conservation and water quality, NRCS programs, project examples, producer perspectives, and policies.

Sep 9, 2020
Grazing, Livestock, and Water Resource Management – This webinar hosted by The Current presented research on how perennial forage can help improve water quality, reduce runoff, and increase water infiltration.

Technical and GIS Training

Oct-Nov, 2019
Applied Environmental Statistics (AES) Course 1 – online training from Dennis Helsel, practicalstats.com. This portion included a free webinar: "7 Perilous Errors in Environmental Statistics", followed by AES Sections 1-3: "Describing Data," "How Hypothesis Tests Work," and "Statistical Intervals." Q&A webinar held with Dr. Helsel online Dec 5, 2019.

Oct 29-30, 2019
EarthSoft EQuIS workshop – This two-day summit brought LDEQ and EarthSoft staff together to go over the LDEQ EQuIS database implementation, EQuIS dashboards, customized tools, and workflow issues.

Nov 4, 2019
This URISA GIS & Public Health webinar – discussed ESRI tools and applications.

Nov 14-15, 2019
LDEQ ASSET Management staff hosted an **EQuIS Data Quality Management module overview training**, followed up by a virtual meeting with EarthSoft to further discuss how to incorporate data quality management into EQuIS.

Dec-Jan, 2020
Applied Environmental Statistics (AES) Course 1 – online training from Dennis Helsel, practicalstats.com. AES Sections 4-6: "Comparing Data to Standards," "Comparing Groups of Data," "Contingency Tables," and "Testing Differences in Variability/Precision." Q&A webinar held with Dr. Helsel online Apr 2, 2020.

Feb-Mar, 2020
Applied Environmental Statistics (AES) Course 2 – online training from Dennis Helsel, practicalstats.com. AES Sections 7-9 included: "Correlation," "Linear Regression," and "Multiple Regression." Q&A webinar held with Dr. Helsel online Feb 6, 2020.

Mar 25, 2020
The Louisiana Coastal Protection and Restoration Authority presented adaptation planning as applied to a Gulf Coast Adaptation and Resilience Plan, particularly data needs for modeling wildlife, habitats, and communities.

Apr 28, 2020
EPA EnviroAtlas webinar gave an overview of EnviroAtlas data and tool navigation.

May 19, 2020
Setup New EQuIS Projects: EQuIS Academy – this online interactive training showed how to set up a new EQuIS project, presented by EarthSoft.

May 27, 2020
EQuIS Professional 7 – Design and Format Crosstabs: EQuIS Academy – this online interactive training covered creating EQuIS templates in Excel and connecting fields to cross tab reports in the database.

Apr-May, 2020
Applied Environmental Statistics (AES) Course 2 – online training from Dennis Helsel, practicalstats.com. AES Sections 10-12 included: "Analysis of Covariance," "Trend Analysis," and "Logistic Regression." Q&A webinar held with Dr. Helsel online Jun 4, 2020. Final exam followed.

Jun 4, 9, 10, and 11, 2020
Louisiana Data Mining Workshop – This virtual workshop featured presentations by Louisiana GIS and remote sensing professionals and researchers, providing information on data set development, data availability, and spatial data applications throughout the state.

Jun 10, 2020
Configure QAPPs for EQuIS DQM – During this online interactive course, participants learned to format, review, and translate quality control criteria from a project QAPP to an EQuIS DQM QAPP.

Jul 7, 2020
EPA Data Systems Webinar Series: The Internet of Water – EPA's Office of Water provided an update on new Water Data Integration Branch work on standardizing a national water model, including developments, challenges, and future work. WQX and the Water Quality Portal, DWMAPS, national hydrographic infrastructure, and NHDPlus HR Hydrographic Framework were discussed. EPA encouraged states to consider using NHD geography in their water quality assessments as EPA further institutionalizes that geography.

Jul 13-17
ESRI User Conference – This year the ESRI user conference was 100% online. GIS training sessions, technical workshops, demonstrations, presentations, and expert Q&A were provided virtually. Selected technical workshops included: Spatial Data Science; ArcGIS Insights: Data Visualization, Analysis and Science; and Applying Spatial Data Science: A Complete Workflow. Selected user presentations included: Analytics and Groundwater; Conservation Planning for Informed Resiliency; and NHDPlus and Its Real-World Application.

Jul, 2020
Nondetects & Data Analysis (NADA) Course – online training from Dennis Helsel, practicalstats.com. NADA Sections 1-4 included: "Types of Reporting Limits," "Storing Nondetects in a Database," and "Plotting Data With Nondetects." Q&A webinar held with Dr. Helsel online Aug 6, 2020.

Aug, 2020
Nondetects & Data Analysis (NADA) Course – online training from Dennis Helsel, practicalstats.com. NADA Sections 5-7 included: "Overview: The Three Approaches," "Estimating Descriptive Statistics," "Computing interval Estimates," and "Comparing Data to Standards." Q&A webinar held with Dr. Helsel online Sep 3, 2020.

Sep-Oct, 2020
Nondetects & Data Analysis (NADA) Course – online training from Dennis Helsel, practicalstats.com. NADA Sections 8-11 included: "Comparing Two Groups," "Comparing Three or More Groups," "Correlation Methods," and "Regression and Logistic Regression." Course continues into Dec 2020.

Other Training

Nov 11, 2019
LDEQ hosted an **internal records management training** instructing staff on record retention, management, legal issues, and best practices.

Jan 28, 2020
Overview of Environmental Testing Laboratories' Quality and Ethics Program by Test America Labs discussed lab procedures to assure data quality and integrity, and best practices in the lab.

Apr 3, 2020
Quality Control Parameters on Laboratory Reports – This video by alsglobal.com was presented by the director of the Rochester Laboratory and covered matrix spikes, lab blanks, and other lab QC procedures.


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