



Nonpoint Source PROGRAM

Louisiana Nonpoint Source Annual Report

Federal Fiscal Year (FFY) 2019



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1.0 Executive Summary

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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) 2019, NPS Annual Report has been prepared in compliance with Section 319 of the Clean Water Act (CWA). This report outlines an overview of 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).

On April 15, 2019, the LDEQ submitted an Addendum to the (2011-2016) NPS Management Plan to fulfill Section 319 Program Guidelines (2014) and satisfactory progress in accordance with section 319(h) (8). With the approval of this addendum, the States NPS Management Plan was also updated. This Addendum provides an update of milestones, schedule of implementation, and short-and long-term goals to address water quality.

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 2019, the NPS Program and its partners were greatly involved 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. 2019 NPS Program highlights are as follows:

- LDEQ participated in 19 outreach and educational events;
- LDEQ and LDAF managed approximately \$3.1 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) continue 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 14 watersheds; several partners provided water quality sampling for the NPS program in seven watersheds.
- Louisiana continues to focus on watershed planning, assessment, monitoring and implementation in 22 watersheds;
- LDEQ's Drinking Water Protection Program (DWPP) implemented activities in Bienville, Cameron, Claiborne, Jackson, and Grant parishes; LDEQ published monitoring data in EQUIS and the United States Environmental Protection Agency (EPA) Storage and Retrieval (STORET) Data Warehouse for active watersheds;
- 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 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. Quarterly interagency committee meetings with LDEQ, LDAF, and USDA-NRCS, continue to take place to keep everyone informed of activities occurring in priority watersheds, as well as forthcoming plans or needs, in new or existing 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 2020.



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2.0 Section 319 Funding

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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 WSCs to conduct water quality monitoring, inspect OSDS systems, and to assist in developing WIPs to be implemented by LDAF and USDA-NRCS, in NPS priority watersheds.

LDEQ utilized approximately \$1.98 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)
FFY14	\$369,700.00
FFY14 Special Grant	\$87,544.00
FFY15	\$365,890.00
FFY16	\$378,200.00
FFY17	\$391,200.00
FFY18	\$386,500.00
TOTAL	1,979,034.00

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 \$1.1 million on watershed implementation within multiple watersheds around the state. Implementation was conducted on approximately 33,666.75 acres of private farm land 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)
2012	\$115,985.00
2014	\$470,505.10
2015	\$62,989.74
2016	\$169,050.07
2017	\$155,742.64
2018	\$140,990.80
TOTAL	\$ 1,115,263.35

Table 2. LDAF Section 319 Grant Expenditures



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3.0 Water Quality Monitoring and Implementation

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Water Quality Monitoring and Implementation

3.1 LDEQ Nonpoint Source

In FFY 2019, water quality monitoring continued in 21 watersheds (Table 3). The data collected assists LDEQ and its partners in making valuable 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 most suitable locations. Post-BMP monitoring assists LDEQ and partners in determining if water quality is improving.

Watershed	Subsegment	River 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	
Boston Canal	060910	
Thompson Creek	070502	Mississippi River
Tunica Bayou	070505	
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 in which water quality monitoring was conducted in FFY2019

LDEQ's NPS staff developed the WIPs indicated in 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 du Portage (Accepted)	060703	Vermillion-Teche
Big Creek (North) (Accepted)	090903	Ouachita
Bayou Chene (Awaiting DO Revision)	050603	Mermentau River

Table 4. Draft WIPs submitted to EPA in FFY2019

In FFY 2020, 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
Bayou Chene (Addressed EPA comments)	050603	Mermentau River
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 FFY2020

3.2 Louisiana Department of Agriculture and Forestry

LDAF provided technical assistance and BMP implementation on 33,666.75 acres in nine watersheds, see Table 6.

Watershed	Acres Implemented	Basin
Bayou Queue De Tortue	8206.30	Mermentau River
Bayou Des Cannes	6749.80	Mermentau River
Bayou Chene	5596.23	Mermentau River
Bayou Mallet	5767.80	Mermentau River
Hemphill Creek	465.00	Ouachita River
Big Creek (North)	3482.00	Ouachita River
Bayou Lafourche	3399.62	Ouachita River
Bayou Louis	0.00	Ouachita River
Big Creek (South)	0.00	Lake Pontchartrain
Total	33,666.75	

Table 6. Technical Assistance and BMP implementation

These BMPs were carried out through the traditional conservation partnership cooperation between the USDA-NRCS, the LDAF and participating Soil and Water Conservation District (SWCD). These local SWCDs included Acadia, Vermilion, Jefferson Davis, Morehouse, St. Landry, LaSalle, Evangeline, and Bouef 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 Section 319 water quality crop rotation 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 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 logistical 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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Coordination with Partners

4.1 LDEQ Water Surveys

The LDEQ and WS staff fundamentally serves the Department as an intrinsic element of sampling efforts by collecting water quality data across the state on impaired waterbodies. WS collaborates with NPS, the LDEQ Water Permits Division, Standards and Assessment, and the Total Maximum Daily Loads (TMDL) group, under the long-term vision projects for assessment, restoration and protection under the Clean Water Action Section 303 (d) Program. WS successfully monitored sites in 14 NPS watersheds for a number of field and analytical parameters [Table 7]. The data collected helps establish current water quality conditions in the watersheds, identifying geographic areas for targeting BMPs and OSDS inspection locations; and tracks changes in water quality over time from BMP implementation and OSDS inspections in the watersheds.

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
	Boston Canal (060910)	LDAF BMPs concluded 9/30/18 1-year post monitoring concluded 9/30/19
Ouachita River Basin	Bayou/Lake Louis (080202/080203)	LDAF BMPs concluded 9/30/19 1-year post monitoring concludes 9/30/20
	Big Creek (North) (080903)	LDAF BMPs
	Upper Bayou Lafourche (080904)	LDAF BMPs
	Lake Providence (081101)	USDA/NRCS BMPs
	Hemphill Creek (081609)	LDAF BMPs
Terrebonne Basin	Bayou Grosse Tete (120104)	LDAF BMPs TBD
	Bayou Maringouin (120111)	LDAF BMPs TBD

Table 7.

4.1.1 Featured Priority Watersheds

4.1.1.1 Water Surveys Reconnaissance

WS in coordination with NPS staff and LDAF was tasked with conducting a reconnaissance of three watersheds: Vermilion River (060801), Bayou Grosse Tete (120104), and Bayou Maringouin (120111). Reconnaissance was conducted to confirm the location and number of sampling sites to capture data from suspected NPS sources. Reconnaissance is necessary for the development of sampling plans, initiation of baseline data collection, and long-term data collection supporting BMPs.

Reconnaissance includes stream walks to provide visual verification of existing stream conditions and adjacent land uses, as well as identifying any additional factors that may impact the water quality and biological integrity of the stream.

Observations may include:

- predominant surrounding land uses;
- nature of stream channel and bottom substrate (e.g. sinuous, braided, channelized, gravel, sand, silt or mud, etc.);
- appearance of water (e.g., clear, turbid, algal blooms, color, oils, etc.);
- nature of flow (e.g. riffle/run or glide/pool characteristics) and impediments to flow (e.g., beaver dams, sediment retention ponds, culverts, etc.);
- presence of macrophytes, riparian vegetation;
- amount of canopy cover;
- evidence of bank erosion;
- presence of agricultural livestock including evidence of livestock stream crossings;
- evidence of vehicular stream crossings;
- presence of outfalls; and
- evidence of illicit discharges.

WS brings a multifaceted qualitative approach to observing and characterizing these waterbodies and watersheds. This, along with the quantitative research through sampling data analysis, can assist in determining the causes and effects of impairment in a watershed, along with determining water quality changes through education-outreach, BMP implementation, and OSDS inspections.

4.1.1.2 Safety

Safety is key to being in the field and is a main focus when selecting NPS sampling sites. Although safety management is considered with each location, a degree of caution is still exercised as a result of traffic uncertainty, road conditions and environmental elements.

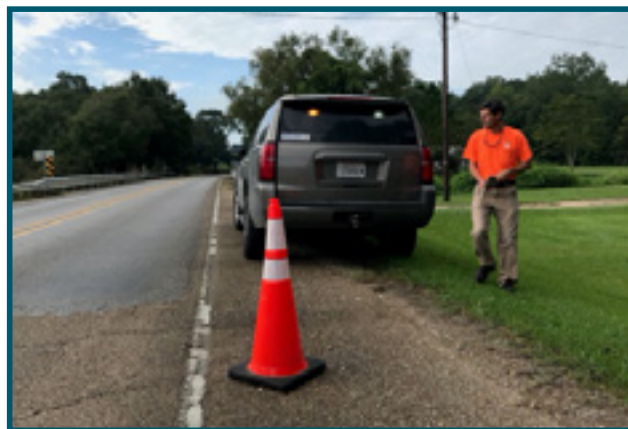


Figure 1. WS Environmental Scientist (ES) Supervisor, is wearing a safety orange t-shirt for high visibility and safety cones and vehicle flashing lights are used to alert traffic when conducting state business along roads and highways.

Due to driving distances to reach NPS statewide watersheds and the distance between sites, availability of supplies and proper working equipment is vital. WS ensures all field monitors are calibrated and the appropriate sampling bottles are provided. Contingency plans are in place to address unforeseen incidents and situations that may occur and to safeguard each team member in the field to eliminate injuries and unexpected safety hazards.

4.1.2 Featured Priority Watersheds

4.1.3.1 Vermilion River (060801)

Since the 2012 Integrated Report (IR), the Vermilion River has not met its primary contact recreation (PCR) designated use due to high concentrations of Fecal Coliform (FC), with suspected sources of on-site treatment systems (septic systems and similar decentralized systems), and package plant or other permitted small flows discharges. Vermilion River is also impaired for fish and wildlife propagation (FWP) with suspected causes of nitrate-nitrite and dissolved oxygen (DO). The suspected sources of impairment of DO are agriculture and natural resources and the suspected causes for nitrate-nitrite are unknown.

In 2016, WS conducted a reconnaissance of the watershed, resulting in the selection of twenty-four water quality sampling sites. Baseline water quality sampling for FC began in June 2016, under an EPA-approved sampling plan. Long-term sampling began in July 2017 in correlation with Bayou Vermilion District's (BVD) OSDS inspection program. In October 2018, a sampling plan revision was necessary to add 13 new sampling sites and nutrient sampling parameters (Total Kjeldahl Nitrogen (TKN), Total Phosphorus (TP), and Nitrate Nitrite) to establish nutrient baseline before LDAF BMP implementation. The sites were strategically selected within three HUCs: Bayou Bourbeaux (080801030101), Bayou Carencro (080801030102), and Bayou Bourbeaux- Grand Couteau (080801030103). The new sites will target potential BMP implementation locations, to detect water quality changes in these areas.

Nutrient baseline sampling began December 18, 2018. The analysis covers in-situ parameters (pH, temperature, DO, DO percent saturation, specific conductance, tape-downs, flow severity and salinity), nutrients and FC at 36 sites, bi-monthly. This project requires two 2-man Water Surveys crews to accomplish the monitoring of 22 sites-twice monthly as well as one 2-man crew for flow collection at the ambient site on an as needed basis.



Figure 2 Vermilion River - Site 4882
(Bayou Bourbeaux at Jack Fox Road
West-Northwest of Sunset, LA).
One of the 13 new sampling sites
[most northern site] located in
Lafayette Parish.

4.1.3.2 Bayou Grosse Tete (120104)

Bayou Grosse Tete is listed in the 2016 IR as not meeting its designated uses for PCR and FWP with suspected causes of impairment identified as DO, nitrate-nitrite, and TP, due to agriculture. The 2016 IR also identifies PCR not meeting its designated use with suspected cause of impairment being FC and the suspected source identified as OSDS. According to the 2018 IR the waterbody is no longer impaired for FC but is now impaired for TDS.

Two reconnaissance events were conducted in the Bayou Grosse Tete watershed in June/July 2018 for the selection of the original 21 water quality sampling sites. Baseline sampling began January 9, 2019. Water quality analysis includes nutrients (TKN, Nitrate Nitrite, TP), FC, and in situ parameters (pH, temperature, DO, DO percent saturation, specific conductance, tapedowns, and salinity), to be collected and monitored bi-monthly. Discharge measurements will be collected at the ambient water quality monitoring site, or other representative site if required, with each sampling event when possible. As of August 15, 2019, two new sites were added and one removed totaling 22 sites. This project requires two 2-man WS crews to accomplish the monitoring of 22 sites bi-monthly. LDAF will initiate BMPs upon an EPA-accepted WIP.



Figure 3. Bayou Grosse Tete - Site 0970 (active ambient water quality monitoring station) at Rosedale Rd (LA-76) bridge

4.1.3.3 Bayou Maringouin (120111)

Bayou Maringouin was listed in the 2016 and 2018 IRs as not meeting its designated uses for FWP and PCR with suspected causes of impairment identified as high total dissolved solids (TDS) and high FC. The suspected sources are agriculture and on-site treatment systems (septic systems and similar decentralized systems).



Figure 4. Bayou Maringouin - Site 0977 (active ambient water quality monitoring station), southwest of Rosedale, Louisiana, located in Iberville Parish

A reconnaissance was originally conducted on Bayou Maringouin in summer 2018. Spatial elevation data, location of pasture and cropland, OSDS sites, drainage patterns, and field reconnaissance aided in preliminary site selection. Selected monitoring sites are located on the main stem of the bayou, on a tributary, and on several distributaries throughout the watershed. Sites were chosen to capture runoff from distinct drainage sub-areas for targeting BMPs and monitoring impacts. Additional field reconnaissance was conducted on the initial 26 sites. Sites were rejected due to inaccessibility, safety, no flow, or lack of representation of any significant runoff. Ultimately 15 sites were chosen for regular sampling. Some sites are on intermittent tributaries and are sampled when water is present.

Baseline sampling began December 6, 2018. Analytical parameters are TKN, TP, nitrate-nitrite, TDS, turbidity, and FC. The in-situ parameters to be measured include pH, temperature, DO, DO percent saturation, specific conductance, and salinity. Discharge measurements will be collected at one water quality site with each sampling event when possible. This project requires two 2-man WS crews and one 2-man WS crew to accomplish the monitoring of 15 sites bi-monthly and flow information at all sites monthly. LDAF will initiate BMPs upon an EPA-accepted WIP.

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 DO criteria in the Southern Plains Terrace and Flatwoods ecoregion;
- Development of a toxicity study to inform on future minerals water quality criteria revision efforts;
- Development and implementation of the LEAU Web Portal to facilitate public access to water quality data (<https://waterdata.deq.louisiana.gov/>);
- Development of a Fishing Consumption and Swimming Advisories web map and application for smartphones;
- Collection of nutrient, 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;
- Development of a Use Attainability Analysis Addendum to the Mermentau River Basin for DO for Bayou Chene;
- Participation in Louisiana Watershed Initiative (LWI);
- Participation in Gulf of Mexico Alliance (GOMA) through the Water Resources Team, Data and Monitoring Team, Monitoring Community of Practice, and All-Hands Meeting;
- Participation in EPA Hypoxia Task Force;
- Participation in the Louisiana Chapter of the American Fisheries Society Annual Meeting;
- Participation in the Annual Louisiana Remote Sensing and GIS Workshop;
- Participation in the Association of Clean Water Administrators (ACWA) Monitoring and Assessment Committee, Watersheds Committee, and the Nutrient Permitting Workshop;
- Participation in Coastal Transect Study with Coastal Restoration and Protection Authority (CPRA) through GOMA grant;

- Performance of Louisiana Nutrient Management Strategy 5-year review;
- Participation in Citizen Water Watch Program in Spring 2019 with the Lake Pontchartrain Basin Foundation and Hess Cooperation (via GOMA Water Resources Team)
- Participation in LSU AgCenter's BMPs Inter-Agency Field Days;
- Promulgation of rule WQ099 for a Water Quality Trading Program;
- Promulgation of rules WQ101 for Bayou Chene DO criteria and WQ103 for Wilson and Bradley Slough turbidity criteria revisions;
- Participation in Lower Mississippi River Conservation Committee and attended Annual Meeting in Memphis, TN;
- Final submittal and approval of 2018 Water Quality IR to EPA Region 6;
- 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 in Dallas, TX;
- Review of 271 Solicitation of View documents for water quality concerns;
- Participation in BTNEP Water Quality Action Team Meeting;
- Participation in development of Pontchartrain Blue water quality monitoring site with EPA, USGS, et al.; 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 nation's 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), 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.

In 2016, a draft plan was developed for the first priority watershed, subsegment 070505, Tunica Bayou. LDEQ received comments from EPA on the draft plan in 2017. LDEQ plans to update and resubmit the plan to EPA in the fall of 2019. In the spring of 2018, LDEQ initiated monitoring in Subsegment 040504 Yellow Water River and watershed investigations of point and nonpoint loading sources. Outreach and engagement was initiated in the summer of 2019 and initial monitoring completed in the fall of 2019. Watershed investigations for Bayou Sara (070501) were conducted in 2017 and 2018. Monitoring for the Natalbany River (040503) was initiated in the summer of 2019 along with outreach and engagement and watershed investigations of point and nonpoint loading sources. LDEQ plans to initiate monitoring, outreach and engagement, and watershed investigations for Blind River (040401 & 040403) and New River (040404) in 2020 along with some 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 2019, LDEQ, LDAF and USDA-NRCS continued to coordinate efforts in watersheds prioritized through USDA's MRBI, NWQI and Gulf Spill Restoration Nutrient Reduction Projects (see tables X-X). Through the funding acquired from the USDA Farm Bill and Section 319, the 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 Water Surveys. Water Surveys performs watershed assessment and characterization, pre-BMP sampling to collect baseline data and 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 FFY 2019, five MRBI watersheds (Table 8) reached their final year of targeted funding. There were \$1,986,125 dollars obligated on 12,654 acres.

Watershed	Subsegment	12-Digit HUC Name	12-Digit HUC	FY19 Funds Obligated	FY19 Acres Obligated
Lake Providence	081101	Lake Providence -Tensas Bayou	080500030101	\$482,155	3,434
Tensas River	081201				
Tensas River	081201	Lake Bruin	080500030503	\$1,205,023	7,441
Lake Bruin	081203	Van Buren Bayou	080500030501		
Tensas River	081201	Little Tensas Bayou – Bull Bayou	080500030105	\$249,027	1,639
Deer Creek	081003	Upper Deer Creek	080500011601	\$49,920	140

Table 8. USDA – FFY2019 Mississippi River Basin Initiative

Louisiana submitted three new MRBI watershed projects for FYY 2020 that will have a 5-year project life.

Watershed Name	Parish	HUC 12
Tiger Bayou	Tensas	080402070301
Hill Bayou – Bayou Macon Baxter Bayou	Richland	080500020403 080500020501
Bieler Bayou Tensas River Wildhorse Bayou Tensas River	East Carroll Tensas	080500030407 080500030402

Table 9. USDA – FFY2020 Mississippi River Basin Initiative watersheds

4.4.2 National Water Quality Initiative

The National Water Quality Initiative 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.

The Bayou Louis Watershed has reached the final year of program funding. In FYY 2019, there were \$1,001,037 dollars on 6,380 acres.

Watershed	Subsegment	12-Digit HUC Name	FY19 Funds Obligated	FY19 Acres Obligated
Lake Louis	080203	Bayou Louis	\$1,001,037	6,380

Table 10. USDA – New Watersheds Approved for FY2020 Implementation

Louisiana NRCS submitted two new NWQI watersheds for continued funding through FFY 2023 (Table 11).

Watershed Name	Parish	HUC 12
Bayou Du Portage	Iberia St. Martin	Bayou Du Portage 8081020801
Plaquemine Brule	Acadia	Bayou Blanc / Bayou Plaquemine Brule 080802010206 Bayou Plaquemine Brule / Estherwood 080802010208

Table 11. FFY 2020 USDA – National Water Quality Initiative Watersheds

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 @ \$1,500,000
- Project 2 - Nutrient Reduction on Dairy Farms in Washington Parish @ \$1,500,000
- Project 3 - Nutrient Reduction on Cropland and Grazing Lands in Bayou Folse @ \$3,000,000
- Project 4 - Winter Water Holding on Cropland in Vermilion and Cameron Parishes Plus Ag BMPS @ \$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 2019, 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 finished its “Nonpoint Source (NPS) Pollution Reduction through Enhancement of the On-Site Wastewater Disposal Systems Inspection, Educational Outreach and Sampling” project in September 2019.

The project targeted seven watersheds. Yellow Water River, Comite River, Tunica Bayou, Bayou Sara, Thompson Creek, Upper Amite River, and Middle Amite River. These watersheds were listed on Louisiana’s IRs as not supporting one or more designated uses of PCR, SCR, FWP, or Outstanding Natural Resource.

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 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 this.

At the conclusion of the project, 3,349 OSDS had been inspected. Of the 3,349 OSDS inspected, 1,002 were found to be not working and 544 OSDS were repaired/replaced. Capital RC&D estimated that a total load reduction of 10,336,000 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 5. Sewage overflowing from an improperly managed home waste system



Figure 6. Cleaning/replacing air filter on the aerator is part of the outreach education program

4.5.2 Barataria-Terrebonne National Estuary Program



LDEQ and BTNEP continue to work toward restoring water quality in the Bayou Fosse subsegment (120302). Impaired uses are PCR and FWP, due to bacteria, low DO, nutrients, and sediment. BTNEP's bimonthly water quality monitoring and stakeholder engagement were key to developing the EPA-approved watershed plan, which will go into implementation in the coming year. The WIP calls for addressing loading from malfunctioning home sewage treatment systems, and from runoff from agricultural land uses.

BTNEP continues to sample at 10 locations along a transect in the subsegment. In FFY 2019, BTNEP conducted 19 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, tapedowns, nitrate-nitrite, TP, and FC, among others. This data is used to target areas for pollution reduction activities, to inform stakeholders of water quality issues, and to track water quality changes during and after implementation.

In FFY 2019, obstacles arose that delayed initiating home system inspections primarily due to partner commitments. However, BTNEP was able to overcome these by forming new partnerships with the local freshwater district and the area planning commission, which are committed to implementing home system inspections. Inspections will be augmented with cost-sharing for home system repairs stemming from additional grant funding BTNEP obtained through the Gulf of Mexico Program.

BTNEP continues attending education events in the region to provide information on NPS pollution, the Bayou Fosse restoration project, and water quality in general. During BTNEP Management Conference meetings, local, state, federal, and other public and private stakeholders receive regular updates on work in Bayou Fosse. In addition to attending 39 in-person events this year, BTNEP maintained a Bayou Fosse project web page and fact sheet, and uses radio spots and print media, to disseminate water quality information about the watershed.

Finally, BTNEP continues working with agricultural partners — USDA NRCS and LDAF — to address runoff from pasture and cropland. NRCS previously named Bayou Fosse an NWQI watershed, but this year the project was approved for implementation under Deepwater Horizon restoration funding. That funding source will be used to implement BMPs that address agriculture-related sources of runoff such as cattle with direct stream access and sediment runoff from sugarcane fields. Implementation under NRDA is expected to begin in FFY 2020.

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, and participating in local outreach events. Outreach events include the Festival Acadiens et Creoles, Lafayette Farmers and Artisans Market, Black Pot Festival, Celtic Bayou Festival, University of Louisiana Lafayette Earth Day Festival, Southern Garden Fest, and the Vermilionville Earth Day Event.

BVD has not only conducted inspections and implemented a successful education and outreach campaign; they have also helped improve the LDH database by submitting more accurate GPS locations of OSDSs. As a part of the inspections program, they created follow up surveys to collect feedback about the program and gauge knowledge about their place in the Vermilion River watershed. They received valuable feedback but the data shows that one of the biggest challenges encountered in regards to maintaining OSDS is the cost of repairs, which supports the need for cost share assistance.

This year, BVD conducted 264 new inspections. Of those, 76 passed and 188 failed. Continuing with failed systems from last year, 330 systems were re-inspected. Of those, 160 passed and 170 failed. In addition, the Vermilion River ambient site (0045) has shown steady decreases in FC concentrations since 2016. 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 local government officials to implement ordinances and policies that create OSDS compliance standards and eventually add an enforcement element to the project and expand to other watersheds within Lafayette Parish.

Table 12 summarizes BVD's inspections from October 1, 2018 to September 30, 2019.

Month	Total Initially Inspected	Passed	Failed	Total Systems Re-Inspected	Re-Inspected & Passed	Re-Inspected & Failed
18-Oct	74	17	57	39	22	17
18-Nov	34	8	26	41	19	22
18-Dec	12	3	9	16	11	5
19-Jan	36	12	24	40	19	21
19-Feb	51	14	37	33	13	20
19-Mar	33	12	21	58	30	28
19-Apr	2	2	0	24	9	15
19-May	2	1	1	17	3	14
19-Jun	1	1	0	49	25	24
19-Jul	1	1	0	9	7	2
19-Aug	12	3	9	2	2	0
19-Sep	6	2	4	2	0	2
Totals	264	76	188	330	160	170

Table 12. Summary of Inspections.

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 about 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 8,685 residents on maintaining their sewer systems as well as raising awareness of the dangers and negative effects malfunctioning systems can have on local waterways.

Acadia, Iberia, Jefferson Davis, Vermilion and St. Landry Parish Inspection Results	
8,894	Total Homeowners to Visit
2,516	Contacted/Spoke with Homeowners
2,503	sewer inspections conducted
8	homeowners connected to city sewer
5	homeowners refused in inspection
2,503	Inspections conducted
2,171	systems in good condition
332	systems not operating or in poor condition
6,378	No contact made with Homeowners
6,177	no one home/distributed flyers
11	homes vacant or abandoned
14	homes with private roads or gated
150	businesses/churches - not required to visit
26	unable to locate
8,685	Total Flyers Distributed
6,177	no one home
2,503	sewer inspections conducted
5	homeowners refused in inspection

Table 13. LRWA inspections



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5.0 Meeting NPS Milestones

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Meeting NPS Milestones

Louisiana's NPS Management Plan includes annual milestones. In FFY 2019, Louisiana's NPS program continued its focus on watershed planning, assessment, monitoring and implementation, in 22 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	Under review at EPA	
Vermilion – Teche	Bayou du Portage			✓	✓	060703	Approved 2019	
	Vermilion River	✓	✓	✓		060801/060802	Under Review Internally at DEQ	
	Boston Canal			✓		060910		
Mississippi River	Tunica Bayou			✓		070505		
	Bayou Sara		✓			070501		
	Thompson Creek			✓		070502		
Ouachita River	Bayou Louis/Lake Louis			✓	✓	080202/080203		
	Big Creek (North)			✓	✓	080903	Approved 2019	
	Upper Bayou Lafourche			✓	✓	080904		
	Lake Providence			✓		081101		
	Hemphill Creek			✓	✓	081609	Approved 2017	
Terrebonne	Bayou Folse			✓		120305	Approved 2018	
	Bayou Grosse Tete	✓	✓	✓		120104	In progress	
	Bayou Maringouin	✓	✓	✓		120111	In progress	

Table 14. Waterbodies included planning (P), assessment (A), monitoring (M) and implementation (I) in FFY2019.

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	2019
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.	23,809*
Estimated annual reductions in pounds of phosphorus from NPS to water bodies (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.	4,646*
Estimated annual reductions in pounds of sediment from NPS to Water bodies (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.	1,480,429*
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.	2
Progress in reducing unliquidated obligations (ULO): Percentage of ULO funds anticipated yearly for LDEQ (total remaining funds/total awarded = percentage ULO).	30.72 %
*These reductions are watershed-scale estimates based on STEP-L. Inputs include: • USDA SSURGO soils data k-factor and hydric soil information • Cropland Data Layer 2016 and 2018 land use information • LDAF BMP implementation information for 2019	

Table 15. Statewide milestones for water quality improvement, based on LDEQ's 2019 IR

5.2 Success Stories

An Addendum to the (2011-2016) Management Plan was submitted March 15, 2019, and approved in May 2019. The LDEQ will average two success stories every other year in conjunction with the Integrated Report to document water quality restoration.



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6.0 Statewide Programs

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6.1 Coastal Nonpoint Pollution Control Program (CNPCP)

Hydrologic Modification Impact Analysis Success Story

The Office of Coastal Management (OCM) continues the review of potential projects located within the Coastal Zone of Louisiana in regards to improving local hydrology. OCM utilizes the hydrologic modification impact assessment (HMIA) to assess if a proposed use would modify existing hydrologic conditions (i.e., quantity, movement, distribution, and quality of water). During this review cycle, Coastal Use Permit P20181134 went through such a review and analysis. The project is for drainage improvements near the town of Creole, in Cameron Parish. Through the use of the HMIA, OCM was able to ensure that the increased gravity drainage features will be beneficial to the local residents within the drainage area, and once completed the greater volume will restore natural hydrology much quicker between significant rain events.

Louisiana Clean and Resilient Marinas

The Louisiana Clean Marina Program promotes and celebrates voluntary adoption of good environmental practices to assist marinas and recreational boaters in protecting Louisiana's waters and water quality. Marinas that earn the designation "Louisiana Clean Marinas" are recognized as environmentally responsible businesses that follow responsible BMPs; practices that help achieve cleaner water and other benefits by such positive environmental practices as reducing polluted runoff, solid and liquid waste recycling, good fuel handling and dispensing practices and many others. During this review cycle, Louisiana has certified a record 11 Clean Marinas, and 5 Clean and Resilient Marinas.

Master Farmer Class of 2019

Thirteen farmers who completed a Louisiana State University AgCenter environmental stewardship training program were recognized as master farmers during a ceremony on January 10, 2019. Robbie Howard, one of the class of 13 master farmers, was presented the Outstanding Master Farmer Award in recognition of conservation efforts on his soybean and corn farm in Lake Providence, LA.

"It's very important that everyone understands that these producers are doing everything they can to conserve our natural resources, not only to improve their profitability but also to improve the environment and to leave their farms in good condition for future generations," said Ronnie Levy, coordinator of the Louisiana Master Farmer Program. "They understand that we will need good farmers, conservation practices and information to produce our food and fiber for the future." Since the program began in 2001, 251 people have earned the Master Farmer designation.

Outreach and Education

Jefferson Parish 19th 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 April 5, 2019 at the Lafreniere Park Foundation Center in Metairie, LA.

The Louisiana Sea Grant College Program hosted the 22nd Annual Ocean Commotion at the Louisiana State University (LSU) Pete Maravich Assembly Center on October 24, 2019. Each year Ocean Commotion brings approximately 2,500 area students, teachers and chaperones to LSU to learn about our coast and sea from about 70 exhibitors. The primary purpose of Ocean Commotion is to give students, grades kindergarten through 8th grade, the chance to learn about and touch the products of the sea and coast — the aquatic animals, plants and minerals — upon which Louisiana’s citizens are so dependent. Exhibits are provided by LSU researchers and public and private organizations, as well as local, state, and federal entities.

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 program, and outreach efforts, such as: the Home Sewage Assistance Program in the Bayou Folse Watershed, Marine Debris Prevention and Education Middle School Lessons, and the 8th Annual Bayou Lafourche Cleanup Event.

OCM representatives also participated in the following educational outreach events throughout the year:

- Seafood Industry Convention on Coastal Restoration, New Orleans LA. January 19.
- Ascension Parish Career Fair, Gonzales LA. January 29.
- St. James Parish Agriculture Day, Gramercy, LA. April 12 and October 4.
- Wetland Watchers, Norco LA. May 15.
- Big Bass Rodeo, City Park in New Orleans LA. March 30.
- Jefferson Parish Fish Fest, Lafreniere Park in Jefferson Parish LA. June 8.
- Ocean Fest - Audubon Aquarium, New Orleans LA. June 8.
- Hunting and Fishing Day Waddill Outdoor Education Center, Baton Rouge LA. September 28.
- Clean Gulf 2019, New Orleans LA. October 28 – 30.



Figure 7. 19th Annual Storm Water Poster and Essay Awards Ceremony



Figure 8. 22nd Annual Ocean Commotion



Figure 9. BTNEP Bayou Folse

6.2 Drinking Water Protection Program

Public education is one of the main elements of the DWPP; therefore, various opportunities are utilized to inform citizens about drinking water source protection. DWPP staff manned booths at the LRWA Annual Conference, the Louisiana Municipal Association Conference, and several career fairs. Additionally, staff presented at the annual Wetland Watchers and Ocean Commotion events, and at the Sparta Aquifer Commission's annual, multi-week Sparta Water Festival. Combined with OSDS education in Lafourche parish, the approximate total number of people reached was over 5,200 for this reporting period.

As part of LDEQ's continuing efforts to address NPS pollution from malfunctioning OSDS, LDEQ and the LRWA held OSDS classes in Matthews, Raceland, and Lockport in Lafourche parish for owners/operators of these systems. The LRWA set up the class and advertised within the target area. At the class, DWPP staff explained how OSDS maintenance relates to public health and the environment and the LRWA educated attendees on the different types of systems and how to maintain them.

LDEQ's DWPP staff implemented the following SWPP activities during this reporting period. The bulleted items below list the activities that occur in each targeted parish, as well as other parish specific SWPP activities. Routine activities that occur in each targeted parish include:

- explaining the DWPP to water systems and local officials;
- developing contingency plans with water systems;
- updating source water assessment data;
- introducing a model ordinance;
- educating local businesses identified as potential sources of contamination to drinking water sources, and,
- conducting public education (including community meetings, and school presentations).

Routine activities not reported below were either conducted during a previous reporting period or have yet to be implemented. Also note that while only ordinances that have been passed are reported, the DWPP staff introduces a model ordinance to every governing body in each targeted parish that has public water supply wells within its jurisdiction. Contingency plans were prepared for each water system.

6.2.1 Target Parish Activities

Bienville Parish	
DWPP Initiation	The program was initiated in July 2018
Public Supply Water System(s)	There are 23 systems in Bienville parish.
Source Water Assessment Data	GPS data was obtained for five new potential sources of contamination.
Educational Visits	One hundred twenty seven businesses identified as potential sources of contamination were verified and 36 educational visits were made to owners and operators of these businesses/facilities.
Community and Committee Meeting(s)	One community meeting and three committee meetings were held in Bienville parish.

Cameron Parish	
DWPP Initiation	The program was initiated in September 2018.
Public Supply Water System(s)	There are six systems in Cameron parish.
Source Water Assessment Data	GPS data was obtained for three new public supply wells and nine new potential sources of contamination.
Educational Visits	One hundred thirty two businesses identified as potential sources of contamination were verified and 31 educational visits were made to owners and operators of these businesses/facilities.
Community and Committee Meeting(s)	No meetings were conducted and no committee was formed due to the rural nature of the parish.

Claiborne Parish	
DWPP Initiation	The program was initiated in October 2018
Public Supply Water System(s)	There are 13 systems in Claiborne parish.
Source Water Assessment Data	GPS data was obtained for 11 new public supply wells and 14 new potential sources of contamination.
Educational Visits	One hundred twenty nine businesses identified as potential sources of contamination were verified and 34 educational visits were made to owners and operators of these businesses/facilities.
Community and Committee Meeting(s)	One community meeting and four committee meetings were held in Claiborne parish.
Ordinances	The Town of Haynesville adopted a ground water protection ordinance.

Jackson Parish	
DWPP Initiation	The program was initiated in August 2019
Public Supply Water System(s)	There are 23 systems in Jackson parish.
Source Water Assessment Data	GPS data was obtained for eight new public supply wells.

Table 16. Target parish activities

6.2.2 Non-Target Parish Activities

Grant Parish	
DWP Program Initiation	The program was initiated in 2007
Public Water Supply System(s)	There are 15 systems in Grant parish.
Source Water Assessment Data	GPS data was obtained for one new public supply well..

Table 17. Non-target parish activities

6.3 Source Water Assessment Program

Source water risk assessments were completed for all public water supply systems between 2000 and 2003. By utilizing data collection, assessment, and automated data processing tools, which were developed and implemented in 2013, LDEQ is able to collect and process new assessment data. Specifically, the Source Water Assessment Program (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 tool. These tools ensure data integrity, improve data management efficiency, and facilitate reporting to EPA through the Grant Reporting and Tracking System (GRTS).

In 2019, new source water assessment data was collected in four DWPP target parishes and one non-target parish. In addition, utilizing the functionality of the SWAP Calculator allowed over 35 source water assessment reports to be generated. These new reports and the data used to generate them are used by DWPP staff and citizen volunteers when performing visits to businesses that are potential sources of contamination to inform and educate them of the potential impact on their drinking water source.

6.4 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 are as follows:

Designated Use	Louisiana numerical criteria
Primary Contact Recreation	fecal coliform bacteria: 400 cells/100 mL
Secondary Contact Recreation	fecal coliform bacteria: 2000 cells/100 mL
Public Water Supply	fecal coliform bacteria: 2000 cells/100 mL
Oyster Propagation	fecal coliform bacteria: 14 cells/100 mL

Table 18. The State's numerical criteria for fecal coliform bacteria 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 OSDS located in priority watersheds.

Table (19) depicts the watersheds and partners involved in OSDS inspection projects.

Watershed	Project Summary
Tunica Bayou (070505)	In FFY2019, Capital RC&D Capital RC&D conducted monitoring and individual home sewage inspections. Monitoring ended October 2019 and inspections will continue.
Comite River (040103)	In FFY2019, Capital RC&D conducted individual home sewage inspections. Monitoring was conducted by LDEQ Water Surveys personnel. Monitoring and inspections will continue.
Yellow Water River (040504)	In FFY2019, Capital RC&D conducted monitoring and individual home sewage inspections. Monitoring and inspections will continue.
Middle Amite River (040302)	In FFY2019 Capital RC&D conducted monitoring and individual home sewage inspections. Monitoring and inspections will continue.
Upper Amite River (040301)	In FFY2019 Capital RC&D conducted monitoring and individual home sewage inspections. Monitoring has discontinued as of October 2019.
Thompson Creek (070502)	In FFY2019 Capital RC&D conducted monitoring and individual home sewage inspections. Monitoring and inspections will continue.
Bayou Sara (070501)	In FFY2019 Capital RC&D conducted individual home sewage inspections and inspections will continue.
Vermilion River (060801)	In FFY 2019, BVD continued to conduct home sewage inspections. LDEQ Water Survey's continues conducting monitoring.
Bayou Folse (120302)	In FFY 2019 BTNEP continued monitoring. In 2018, BTNEP obtained support from Bayou Lafourche Fresh Water District (BLFWD) to inspect home sewage treatment systems for proper functioning, inspections set to begin in 2020.
6217 Coastal Management Area in Coastal Louisiana	In FFY2019, 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.



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7.0 Outreach and Education Activities

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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 attended 19 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 a LDEQ Senior Scientist; 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 2019, LDEQ reached over 17,500 adults and students through the following events:



Figure 10. New Orleans Pelicans and Saints STEM Fest



Figure 11. Copper Mill Elementary

October 13, 2018

21st Annual **Wild Things** celebrated its 21st Anniversary at the Bayou Lacombe Center in Lacombe where over 6,000 attendees participated.

October 20, 2018

New Orleans Pelicans and Saints STEM Fest, presented by Chevron at the Mercedes-Benz Superdome, featured live performances, interactive demonstrations and Saints & Pelicans activities. The event hosted over 7,000 students, teachers, chaperones, and exhibitors.

October 22-23, 2018

LSAT/LATM Conference in Shreveport

October 25, 2018

Ocean Commotion – LDEQ NPS participated in the 2019 Louisiana Sea Grant's 22nd Annual Ocean Commotion at LSU. Each year approximately 2,500 area students, teachers and chaperones attend the event. The primary purpose of Ocean Commotion is give students an interactive way to learn about the plants, animals, and ecosystems of Louisiana's coastal and marine environment.

January 26, 2019

STEM Cafe in Livingston LDEQ representatives took the Enviroscape model to Southeastern Livingston Parish Literacy & Technology Center where 25 people were educated on nonpoint source pollution.

February 1, 2019

WHAM Science class presentation – Dr. Legoria at Westdale Heights Academic Magnet requested an Enviroscape presentation for each of her three science classes totaling 60 students.

February 8, 2019

Region 8 Science Fair – LDEQ personnel attended the Region 8 Science Fair in Hammond and educated approximately 300 students about water quality. The region consists of the following parishes: Livingston, St. Helena, St. Tammany, Tangipahoa, and Washington Parishes.

March 13, 2019

WHAM STEAM Night was held at Westdale Heights Academic Magnet where approximately 100 teachers, students and parents were presented the Enviroscape demonstration.

March 23, 2019

STEAM Day was held at Park Forest Middle School. LDEQ demonstrated the NPS pollution model and provided information on water quality to approximately 150 students.

April 11, 2019

Napoleonville Primary Earth Day took place at Napoleonville Primary school to educate students about what LDEQ does and how we help the environment. Approximately 300 students participated in the demonstration.

April 22, 2019

Bayou Vermilion District Earth Day is an annual event held at the Vermilionville Living History Museum in Lafayette. LDEQ participated in the Bayou Vermilion Earth Day Celebration to highlight environmental responsibility and promote sustainability of our natural resources to the community about what they can do to help foster a healthy and thriving environment in their own backyards. Approximately 945 visitors passed through Vermilionville and participated in activities.

April 28, 2019

Louisiana Earth Day is an annual event held in Baton Rouge. LSU Parker Coliseum brought intercultural dancers, performances, and arts to the campus of LSU. Attendees experienced local honey farming, feeding horses, sharing native history of Louisiana culture and painting recycle flowers among many activities. LDEQ demonstrated NPS pollution model and provided information on water quality.

June 10, 2019

Children's Environmental Health Symposium – Louisiana Department of Health along with the Southwest Center for Pediatric Environmental Health, US EPA, and other partners hosted the first symposium in New Orleans. Attendees learned about a variety of public health and environmental health issues.



Figure 12. Stem Day



Figures 13. Napoleonville Primary Earth Day



Figure 14. Bayou Vermilion District Earth Day



Figure 15. Louisiana Earth Day



Figure 16. Southeastern Louisiana University Stem Festival



Figure 17. BIG Girl Scouts Event

June 25, 2019

Shiloh Summer Camp – approximately 150 campers interacted with LDEQ personnel during NPS Enviroscope demonstration.

July 11, 2019

Tiger Challenge – The Enviroscope model was presented to a class at the LSU Tiger Challenge at University High School, approximately 10 attendees.

August 24, 2019

Southeastern Louisiana University STEM Festival – Approximately 1,027 attendees participated in the festival, demonstrating the Enviroscope model.

September 28, 2019

BIG Girl Scouts – LSU Pete Maravich Assembly Center was host to over 1500 Girl Scout troopers! It was an exciting day of hands-on activities and presentations showcasing organizations which encourage Girl Scout involvement, focusing on education in STEM, Healthy Living, Financial Literacy and the Great Outdoors. Girl Scouts visited exhibits and attended special demonstrations and other presentations taking place throughout the day.

September 27, 2019

National Hunting and Fishing Day (NHFD) is a national event celebrated by all 50 states on the fourth Saturday in September. Over 100 years ago, hunters and anglers were the earliest and most vocal supporters of conservation and scientific wildlife management. They were the first to recognize that rapid development and unregulated uses of wildlife were threatening the future of many species; therefore, in 1972 Congress passed two bills establishing a specific day to celebrate the conservation contributions of our nation's hunters and anglers. Louisiana Department of Wildlife and Fisheries (LDWF) introduced its first NHFD event in 1982 at the Monroe district office. In the following years, three more locations were developed in Baton Rouge, Minden and Woodworth.

Employees from the LDEQ-NPS section participated in LDWF's on September 27, 2019, in which local citizens were educated on the definition, causes, sources, and possible solutions to reduce NPS pollution in our state. Residents were also informed of the effects of NPS pollutants on the waterways in our state and how these contaminants have harmful effects on Louisiana's drinking water supplies,

recreation, and fisheries and wildlife. Children and adults were quizzed on various NPS topics discussed, and in return were given informational handouts and LDEQ-NPS promotional items such as pencils, pens, rulers, earbuds, sunglasses, cups, highlighters, lanyards, hand sanitizer, water bottles, and stainless steel straws. All educational materials include LDEQ's logo and the NPS website.

September 25-26, 2019

Keep Louisiana Beautiful – advocates for a cleaner, greener, more beautiful Louisiana gathered to present and share best practices that encourage environmental stewardship. LDEQ provided information on NPS pollution.



Figure18. 2018 National Hunting and Fishing Day



Nonpoint Source
P R O G R A M

8.0 Training

2019 Louisiana Nonpoint Source Annual Report





Continued training and education is essential to the success of the NPS program. Staff are encouraged to attend trainings that can add value to the program and increase knowledge of NPS practices and EPA methods.

Nonpoint Source Pollution Training

Nov 5-8, 2018 EPA National NPS Training Workshop, Colorado Springs, CO. This national workshop brought EPA and state nonpoint staff together to discuss a broad range of topics affecting state and federal programs. Topics covered include: national Nonpoint program goals, watershed planning, restoration and BMP funding, co-benefits through planning with other agencies, management plans, final reports, sourcewater programs, modeling and estimating reductions.

Jan 9-11, 2019 Louisiana Association of Conservation Districts (LACD) meeting. LACD meetings include educational sessions covering topics such as soil health, conservation, water quality and quantity, BMPs, national policies and initiatives, and the Louisiana Master Farmer program.

Mar 8, 2019 Funding Land Conservation Projects with the Clean Water State Revolving Fund (CWSRF). This webinar discussed funding conservation practices with CWSRF.

Jun 12, 2019 Federal Financing for Nutrient Reductions Grants and Lending Opportunities. Speakers highlighted financing opportunities from USDA and EPA and discussed approaches for funding point source and NPS control for nutrient reductions.

Jul 7, 2019 Innovative Financing Strategies for Reducing Nutrients: Funding Landscape-Scale Nutrient Reductions. EPA and USDA hosted this webinar on financing landscape-scale nutrient reductions, including crop insurance incentives and tax incentives, to increase cover crops and decrease nutrient runoff.

Sep 17, 2019 Inter-Agency Field Days to Introduce BMPs on Patrick F. Taylor Model Farms. This field day presented sugarcane BMPs that will be implemented on the Keith Dugas Farm Inc. property in Assumption Parish, Louisiana, with LSU AgCenter Extension.

Hydrology Training

Jan 25, 2019 LWI Webinar. In 2018, Louisiana Gov. Edwards established the Council on Watershed Management, which serves as the coordinated, interagency structure at the state level for watershed-based flood risk reduction. In August 2018, the LWI was launched as the Council's programmatic arm. During this workshop, the LWI presented themes, issues, and concerns expressed during its statewide listening events tour. Water quality is an integral component of the LWI and LDEQ participates on the LWI team.

Mar 14, 2019 Lessons Learned on Integrating Water Quality and Nature-based Approaches into Hazard Mitigation Plans. This EPA webinar presented two pilot projects that integrated watershed planning, green infrastructure practices, and source water protection into FEMA hazard mitigation plans.

Technical Training

Nov 13, 2018 EarthSoft EQuIS demonstration. This demonstration showed project managers database capabilities for automation of data dashboards, display, analysis, graphing, and mapping.

Jul 25, 2019 Introduction to Reporting Limits. This National Water Quality Monitoring Council previously recorded webinar provided an introduction to determining reporting limits, reporting limits in databases and reports, laboratories and reporting limits, and communicating reporting limits.

Jul 25, 2019 An Introduction to the Concept of Reporting Limits. This recorded webinar was sponsored by the Surface Water Ambient Monitoring Program QA at Cal State University. It covered quantitation limits in context with method detection limits and action levels for ambient water quality monitoring.

Jul 2019 Introduction to Nondetects and Data Analysis, Fitting Distributions to Data with Nondetects, and The Mystery of Nondetects. This PracticalStats.com three-webinar set by Dennis Helsel, PhD, provided an overview of current statistical methods for handling non-detects in environmental data that allows for retaining and using rather than discarding or substituting values for those data points.

Sep 24, 2019 Introduction to SWAT+. This webinar introduced SWAT+, an updated version of the USDA-Texas A&M SWAT model that includes representation of the watershed impacts of irrigation canals and drainage ditches, as well as urban drainage networks.

GIS Training

Oct 18, 2018 LaURISA ArcGIS Online Workshop. This half-day training covered creating web mapping applications, including an overview of tools, credit management, and administration of user accounts.

Mar 19-20, 2019 Louisiana Remote Sensing and GIS Workshop. This statewide workshop covered local, state, and federal spatial dataset development and availability, analytical methods, mapping methods, tools, and spatial data applications, all involving geospatial data in the state. Hands-on training using GIS software was also provided.

Mar 15, 2019 Introduction to GIS and ArcMap. Part I of this staff-led training covered an introduction to basic mapping principals and tools using ESRI's ArcMap software.

Mar 29, 2019 Introduction to GIS and ArcMap. Part II of this staff-led training presented customizable web mapping tools for field staff and project managers.

Other Training

Apr 2-4, 2019 Quality Project and Program Management Training. This EPA classroom instruction provided attendees with information on how to produce quality assurance documents according to EPA requirements.

May 21, 2019 Microplastics in the Environment. LSU Professor Mark Benfield and BTNEP educator Alma Robichaux presented information on microplastics measured in Louisiana waters, and impacts those pollutants have on water quality and fish development.

Jun 12, 2019 Big Data and Water Resource Management. This webinar covered applications using publicly available large datasets for water resource programming and research.

Aug 8, 2019 An Introduction to Effective Science Communication. This recorded webinar hosted by the National Water Quality Monitoring Council provided an overview of how to effectively communicate environmental concepts, cycles, and other subject matter.

Aug 22, 2019 Greg Waldron completed a year-long Comprehensive Professional Trainer Program professional trainer course.



Nonpoint Source
PROGRAM

